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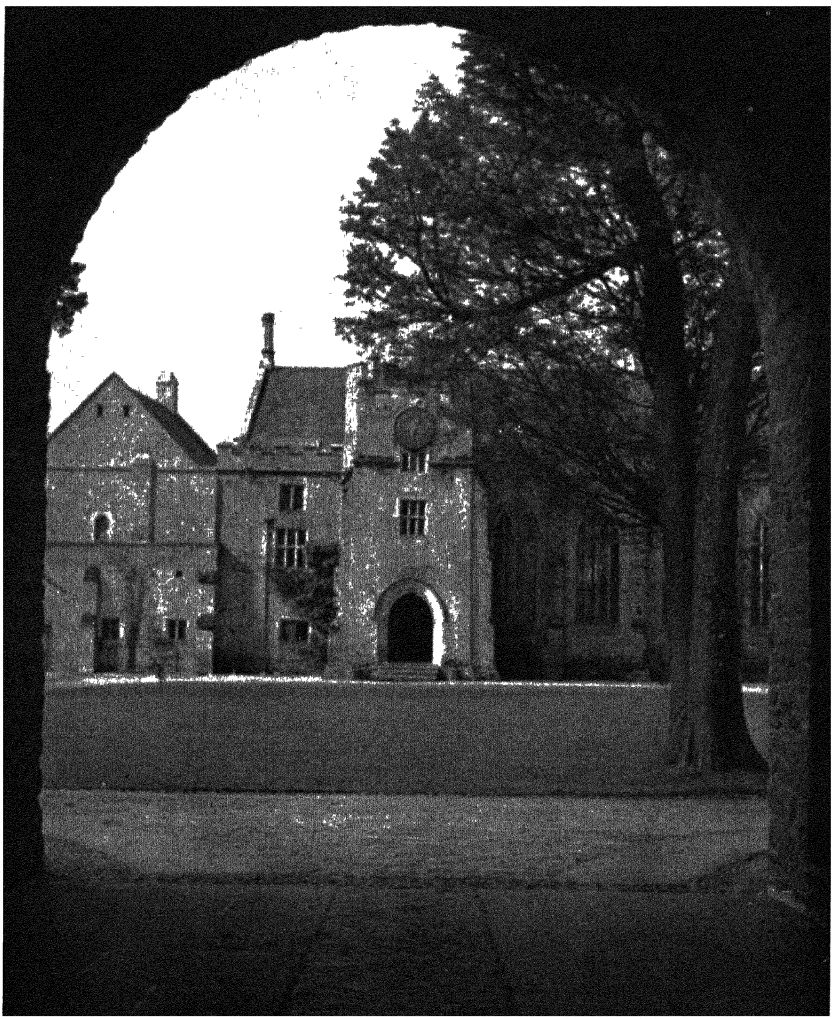

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PROCEEDINGS

OF THE

SIXTH INTERNATIONAL CONFERENCE

OF

AGRICULTURAL ECONOMISTS

HELD AT

DARTINGTON HALL

ENGLAND

28 AUGUST TO 6 SEPTEMBER 1947

GEOFFREY CUMBERLEGE

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PREFACE

THE writing of a Preface to the *Proceedings*, as I said on the occasion of the previous volume published so many historical years ago, provides a welcome opportunity of acknowledging some of the many debts owing to those who contribute in a variety of ways to the success of a conference. The Sixth Conference of Agricultural Economists held at Foxhole School, Dartington, Devon, from August 28 to September 6, 1947, incurred many such debts.

This Conference, the first to be held since hostilities ended, returned to the scene of the First Conference which met here in 1929, though to a scene which had undergone many changes. The members were accommodated in Foxhole School, which had not been built when the First Conference was held. The Conference recorded its gratitude to the Dartington Hall Trustees and to the Headmaster of the School, Mr. W. B. Curry, for placing the School and the many facilities of Dartington Hall at the disposal of the members. The sincerest thanks of the Conference are also due to Mr. Ray Lance, School Bursar, Mrs. J. Bell, School Housekeeper, and all the domestic staff of the School for the goodwill with which service was provided in every detail at all times.

The International Conference of Agricultural Economists takes pride in cherishing its freedom from official ties with Governments or localities. It is all the more anxious, therefore, to record its appreciation of the warm welcome to this country and to Devon given to the members on the opening day by Lord Huntingdon, as Parliamentary Secretary to the Minister of Agriculture, Lord Fortescue, Lord-Lieutenant of the County of Devon, Mr. Denis Phillips on behalf of the Chairman of the Devon County Council, Mr. W. E. Phillips, Mayor of the Royal Borough of Totnes, Mr. J. P. Newman, Dartington, Chairman of the Totnes Rural District Council, and Mrs. Dorothy Elmhirst, Dartington Hall Trustees. The members would also wish me to express their indebtedness to the Dartington Committee which arranged the reception on the first evening and the folk-dancing and singing on the Sunday evening, on both occasions on the lawns and in the Great Hall. The Committee consisted of Mrs. Elmhirst, Mrs. Currie, and Mrs. Starr, who were assisted by Miss Bartlett and Mr. Cecil Cope. Thanks are also due to the Dartington Press, Ltd. and to Mrs. Starr, the Editor, for the use of their facilities to publish the five issues of the *Conference*

News Sheet; to the groundsmen and the Dartington Cricket Club for the use of the sports-field and gear for the game, which initiated many, especially American visitors, into the mysteries of cricket; and to Mrs. Thomas for arranging the flowers which graced the platform daily.

During the ten days of the Conference several excursions were made in the neighbourhood of Dartington:

1. To the Old Parsonage Farm, Dartington Hall, where Mr. J. R. Currie described the progress of the economic experiment in dairy farming initiated here in 1929.

2. To Staverton Mill, a walk which combined historical, scenic, forestry, and industrial interest with its brief halts in North Wood to study the trees, at the old sixteenth-century bridge across the Dart, and at the joinery works at Staverton, where Mr. Malbon, Managing Director of Staverton Builders, Ltd. (one of the activities of the Dartington Hall Trustees), and his Works Manager, Mr. Matthews, acted as guides.

3. To the 260-acre farm of Mr. Douglas Mathews to see a typically progressive mixed farm of this district and to have its features and problems outlined by Mr. Mathews.

There were two longer excursions. The first was a trip down the River Dart to Dartmouth, followed by a brief tour of the Battle School area where 200 farms were evacuated to accommodate the training of the U.S.A. forces during the war, and a visit to the monument erected by the U.S.A. Government as an expression of gratitude to the people of the area. Mr. W. E. Gunningham of the Devon War Agricultural Executive Committee who was in charge of the agricultural evacuation outlined the problems of both evacuation and rehabilitation. The day ended with some hours spent in the showground of Dartmouth Fair, which recalled to some memories of a similar visit in 1929.

The other long excursion was eastwards as far as Cullompton, with, at its limit of distance, an inspection of the 250-acre mixed farm of Mr. Raymond Coles, who himself described his system of dairy breeding and management, and the grass-drying plant. The return journey included a brief glimpse of Exeter city and cathedral, with dinner at the Farmers' Club, kindly arranged by Mr. Porter, Secretary of the Devon branch of N.F.U. The final homeward drive was over Dartmoor with a twilight stop at Grimspound, estimated to be one of the oldest evidences of land dwellers in Britain.

Following the Conference, a tour lasting six days was organized through parts of midland and southern England. The people who

provided hospitality and in other ways helped to make the tour a success are so numerous and our indebtedness so great that it is impossible to express our thanks individually or in detail.

When, in pre-war days, Conferences were held in Canada, Germany, and the U.S.A. it was a pleasant duty to acknowledge the services of the members of those countries who had the arduous and exacting task of organizing the hospitality, tours, &c., while for the preparatory work and the overall administration we were indebted to Mr. J. R. Currie. On this occasion, both sides of the organizing fell on Mr. Currie and the staff of the Dartington Economics Department, including temporarily Mrs. Drew, who, as Mr. Currie's secretary, assisted at three of the pre-war Conferences and who returned from her domestic duties to render her experienced services again. Thanks are also due to Miss Barbara Jewell, Secretary to the Trustees, and her colleagues at the Central Offices for the valuable clerical assistance given, and to Mr. Paruig MacKinnon, who helped in many ways the smooth running of the Conference. Although the membership was smaller, the organizing of a Conference in these days was fraught with many extra difficulties due to the exceptional conditions. Those who attended will wish me to express appreciation of the services of this organizing team and admiration for the almost miraculous way in which all sorts of difficulties were overcome.

The recording and editing of the *Proceedings* has again been the work of Mr. J. P. Maxton and the staff of the Institute of Agrarian Affairs.

The undoubted success of this first post-war meeting made it certain that the work of the Conference would go on. Agricultural economics has been rapidly gaining an essential and secure place, not only in teaching, but in the growing amount of economic planning and administration. The number of professional agricultural economists is growing everywhere and an even larger body than those for whom it is a profession is following the development of the subject with great and intense interest. In all this there is a much larger awareness of the international significance of national policies, and of the national significance of international policies. The council at its meeting during the Conference at Dartington unanimously instructed its officers to proceed, not only with the organizing of future conferences, but also with means to establish and maintain regular contact amongst members between conferences.

At its Dartington meeting Council accepted the invitation from Hungary to hold its Seventh Conference there at the end of August

1949, but the invitation and acceptance were necessarily qualified by a number of uncertainties. As this Preface is being written, plans are being made for holding the Seventh Conference in Europe in 1949, although there are doubts about the possibility of holding it in Hungary.

L. K. ELMHIRST
President

CONTENTS

EDITOR'S NOTE

THIS volume[1] is printed from a verbatim record of the speeches delivered at the Sixth International Conference. They were subject to revision by the speakers and by the Editor, but apart from verbal corrections the aim has been to keep as closely as possible to the actual proceedings.

The published record differs, however, from the chronological order of the programme. There were five subjects, to each of which one whole day's discussion was allocated. These subjects were taken on the first, second, fifth, seventh, and ninth days of the Conference. On the intervening days, papers were read, and on these only a short time was allowed for questions and comments. In this published volume, it has been convenient to group all the five main subjects together first. The non-discussion papers follow irrespective of the time at which they were delivered.

By this arrangement, it may appear that a speaker is made to refer to a paper which comes later in the volume, but this is not a serious matter.

A photograph, with key, of the members and visitors attending the Conference is placed between p. 484 and the register of attendance on p. 485.

The Editor wishes to thank the transcribing staff for their work in having all speeches ready in typescript on the evening the Conference closed; to the clerical staff of the Institute of Agrarian Affairs for all the secretarial work involved; and all speakers who so promptly revised and returned the transcripts from divers parts of the world.

[1] This is the sixth volume of the *Proceedings of the International Conference of Agricultural Economists*. Volumes i and ii of the *Proceedings*, reporting the First and Second Conferences, held in 1929 and 1930, were published by George Banta Publishing Company, Menasha, Wisc., U.S.A., 1930. Volumes iii, iv, and v, reporting the Third, Fourth, and Fifth Conferences, held in 1934, 1936, and 1938, were published by the Oxford University Press, 1935, 1937, and 1939.

Copies of all five volumes are obtainable from J. R. Currie, Research Dept. (Economics), Dartington Hall, Totnes, Devon, England; and in Canada and the United States of America from F. F. Hill, Cornell University, Ithaca, N.Y.

Particulars of the International Conference of Agricultural Economists, its constitution, and a list of officers, members, and correspondents in the various countries will be found on pp. 489–504.

OPENING PROCEEDINGS

THE proceedings being opened by the ringing of the Cow-bell, the President read a letter from the Soviet Ministry of Foreign Affairs expressing regret that Russian representatives would be unable to participate in the Conference. Messages of greeting were read to the Conference from Professor Case, Illinois; Dr. Elazari Volcani, Palestine; Dr. Jack Booth, Ottawa; Professor J. D. Black, Harvard; Professor Benedict, California; Professor Perregaux, Connecticut; Dr. T. Schultz, Chicago; Dr. Brdlik, Prague; Sir John Boyd Orr, Director of F.A.O., and Dr. Tolley, Economics and Statistics Division, F.A.O.

The Earl of Huntingdon then welcomed the Conference on behalf of His Majesty's Government.

EARL OF HUNTINGDON, *Parliamentary Secretary, Ministry of Agriculture*

I am very pleased that I was able to accept the invitation to come here to-day. Most of you have come from far parts of England and some from very different countries, but you all have one thing in common—that is, a deep knowledge and profound interest in agriculture—and for that reason I particularly wish to welcome you here on behalf of both His Majesty's Government and myself and to wish you the greatest success in your discussions and deliberations. I think it is very appropriate that for the first time this Conference has met again since the war it should be at Dartington, a centre which is extremely congenial and well known, and in the county of Devon which, after all, is one of our most beautiful agricultural counties. Certainly if environment can do anything at all it should inspire this Conference to great efforts and results.

Unfortunately there is another side to the picture, for you are meeting in extremely critical days for this country. It might almost be true to say that never since medieval times, when the Black Death ravished this country from top to bottom, and, leaving us with no agricultural labourers at all, threatened our very existence, have we faced such a difficult situation as we have to face now. The Government considers that the way out of the situation is to concentrate on the two basic industries, coal and agriculture, and these have become the keys to the door which will lead us out of the dreadful situation in which we find ourselves. Therefore it is most appropriate, I think, that you are meeting here to discuss the fundamental

problems which we must solve if we are going to rebuild our life and emerge from the post-war crisis, as I am convinced we shall do.

The Conference will perhaps want me to say a few words on what we are doing for agriculture, and the Government's attitude towards the industry in this extremely difficult time. We are planning to do two things. The first is to pursue a long-term policy embodied in the Agriculture Bill—which has just been through Parliament and has become an Act. In the Act we have tried to do two things for agriculture. We mean to give the farmers security, guaranteed markets, and guaranteed prices as one side of the picture. On the other side, we aim to ensure that farmers shall follow their practice with the maximum efficiency. For the first, we have our price reviews. Every February the Government meets the industry, discusses the problem fully in the light of figures which are produced by impartial economists. After those very full discussions a decision is taken on what shall be the prices eighteen months ahead for cereals and other important crops which this country produces. In the case of livestock and livestock products the decision is taken as to what shall be the minimum prices two to four years ahead. No industry can really want more in the way of security. Against that we have taken steps in the Act whereby a farmer who cannot, or will not, increase his efficiency can be dispossessed from his holding. If no good effects result from a simple warning that his farming is below standard then he may be put under supervision for a minimum period of a year. If at the end of that time no improvement is shown, the Minister's agents can recommend that he should be dispossessed. He then has a right of appeal to an outside tribunal. Some of you may think that those are very harsh measures, but I ask you to remember that our area of land is very limited. We really have very little land for our large population, and in these days we cannot possibly afford to allow any of this land not to be used to the best possible advantage, and, therefore, we have considered that where land is being used inefficiently it must pass to another user who will make good use of it.

Those are the two main ideas of our policy in the Act. The products for which prices are guaranteed comprise 75 per cent. of the agricultural products in the United Kingdom, and all the essential products are covered. Unfortunately we have not yet been able to work out a system for horticulture. Owing to the extreme complexity of the industry and the perishability of the produce, it is not easy to guarantee a fixed market and fixed prices, but we are

examining the question and we do hope that eventually something can be done to help the horticultural industry.

The other thing that we have done is to build up an organization called the National Agricultural Advisory Service, which is designed to carry advice to farmers throughout the country. This has only just begun; it is in fact going through its first growing-pains as a rather big service, but we believe that ultimately the Service will revolutionize farming methods. When the individual farmer meets some problem, some disease, whether it be in his crops or his livestock, he can go to the local officer of the Service and ask him for advice. If the local officer cannot help he can refer the problem to the regional organization, and that in turn may refer it direct to the research laboratory at Cambridge or Reading, or wherever it may be. In this way the latest results of scientific research can be brought direct to the farmer. We believe that research is absolutely fundamental for the industry, but the important part is that it should be brought with the least delay into the practical fields so that we can increase the general productivity of the individual farms. That is, I think, going to be extremely far-reaching when it finally develops its full scope.

We are also aiming to reclaim certain land. The Minister of Agriculture has been given powers to take over large tracts of fenland or moorland in order to reclaim it, if necessary, by large-scale investment of money and development work. For that purpose there will be established a Land Commission specially to manage such land. A certain amount of that type of work was done during the war with very good success, but we have vast areas—well, they are not vast areas because this whole country is small in relation to some of the countries you come from, but relative to our own country they are big areas—which, for one reason or another, are unsuitable for any intensive agriculture, and we hope to get them back into a condition to yield the maximum production per acre of which they are capable.

Lastly on the Act I should like to say a word about the County Committees. Some of you who come from abroad may not be familiar with what we have done. The Committee system, however, worked extremely well throughout the war. Different sections of the industry, farmers, landowners, farm-workers, nominate panels of members, and from these panels the Minister chooses a Committee, with the addition of one or two persons of his own choosing. These Committees then act with the authority, and as the agents, of the Minister in each county. We try thereby to get rid of the necessity of what we call here 'farming from Whitehall'. That is to say, we decentralize.

We give a large measure of responsibility and initiative to the Committees; in fact, the effective working out of our policy depends very largely on the suitable choice and the good working of these Committees—built up as they are of practical farmers, landowners, workers, and so forth who really know the industry. It had a wonderful effect in the war, and we believe that the spirit of co-partnership will have an even more beneficial effect in peace.

That is our long-term policy. Short-term, in view of the present difficult situation, the Prime Minister has appealed to the agricultural industry to increase its production by £100 million by 1951–2. That is an enormous amount. It is, roughly speaking, 20 per cent. measured in value over the present net output, but we think that the agricultural industry, the farmers of this country, if they really put in all the initiative which they can show and have shown, can do it. It will make an enormous difference to the feeding of our people and will help in the solving of our general problem. We are, of course, placing particular emphasis on those products which will save dollars—of which, unfortunately, we are so short in this country. Briefly those products are mutton, beef, pigmeat, eggs, and cereals. We are also going to grow much more linseed. Linseed has been a crop of which we have not so far grown very much, about 150,000 acres, I think. We want to increase that by 400,000 acres to give us feeding-stuffs for our livestock and a residue for other commercial use.

We realize, of course, that a lot of money will have to be spent to carry out this task and therefore we have increased the guaranteed prices of various commodities. I will not list them all, because they have been announced in the Press. We have, however, given very generous increases in the prices of all staple commodities. To provide other incentives we are giving various grants, a ploughing-up grant for land which is ploughed up and then sown to approved crops or grass mixtures; a grant for the Calves Scheme, by which calves born between now and September 9, 1949, and reared up to twelve months can get a subsidy; the grass-land improvement scheme; and free artificial insemination for beef cattle in all the parts of the country where there are stations. Those are all measures to stimulate the farming industry. But fundamentally this very big increase is only possible if we can furnish the necessities for houses, farm-buildings, machinery, feed, fertilizers, and feeding-stuffs. In order to try and give those to the farming industry, the Government has given an absolutely top priority to agriculture in order that we can get whatever steel or other materials are necessary so that the industry can go ahead.

We have a gigantic task in front of us. I can assure you that all these plans and other schemes are only turned out after a great deal of thought and discussion, and the agricultural economists in this country have been extremely helpful in working them out. In the future their help will be even more necessary. We are coming more and more to rely on your wisdom and on your knowledge, and for those reasons particularly I wish you fruitful deliberations and success in this Conference.

THE EARL FORTESCUE, *Lord-Lieutenant for the County of Devon*

In my official capacity there are occasions when I have to make speeches on subjects about which I am sorry to say I know very little, but I think I can claim to have a great deal of personal interest in the subject of your deliberations. For the information of those of you who come from abroad, may I say that I own roughly 100 farms and about 150 cottages. I am the largest farmer in extent in the whole of Devon, as I farm over 9,000 acres myself, although admittedly a great deal of it is bare moorland upon which we run sheep and cattle. As an agriculturist, therefore, I welcome you all to this county, and especially to this lovely place, Dartington Hall. We claim that Devon is the prettiest county in the whole of the British Isles, and it is also one of the most fertile. We have a lot of different kinds of farming: dairying, stock-raising, and hill-farming, so that you can take your pick of what you would like to see.

I am going to be so bold as to raise some points on which as a practical agriculturist I would like to see guidance from agricultural economists. First of all there is the question of gluts and famines in certain countries. Before the war I understand Canada suffered from a glut of wheat, and in Argentina there was a glut of maize. On the other hand, there is India, on which I see from your programme you are to have a discussion on Saturday, where there is the very great problem of feeding a vast population that is growing at the rate of millions a year. I take it that the solution is a better system of distribution. The second point is to awaken the public to a willingness to pay a proper price for farm commodities so that the farmer and his labourer can get a fair return. In the past, as you all know, the farmers have had a very hard time, and the agricultural labourers were the worst paid of any labourers in England. Surely they deserve a proper wage? The farmers have to have knowledge, have to be organizers, and their labourers have to be men of all skills. The public needs to be awakened to these facts if remunerative prices are to be paid. Then the third point is this: when technical advisers produce new ideas of

farming and forms of machinery, we would like to see figures to prove whether the processes and improvements which they advocate are economically sound. That point requires no more elucidation. We get plenty of schemes proposed. The question is, are they sound or are they not from a business point of view? There are great opportunities for development as you may see from a few figures of what we have done in Devon during the war. The tillage increased from 211,000 acres in 1939 to 467,000 in 1943. Potato acreage increased from 6,000 to 36,000; wheat from 23,000 to 95,000; barley from 21,000 to 65,000. On the other hand, the population of sheep fell from nearly a million to three-quarters of a million, and pigs from 157,000 to about 52,000. All that was done without any increase of labour by means of mechanization. If we can get the machinery designer to provide the efficient machines, and the agricultural architect to see that our buildings are constructed for labour-saving, which means that they must work hand in glove with the economists, then we shall prosper. I wish all your deliberations every possible success.

The Conference was also welcomed by: Mr. Denis Phillips on behalf of the Devon County Council; Mr. J. P. Newman on behalf of the Rural District Council of Totnes; Mr. W. E. Phillips, the Mayor of Totnes, on behalf of the Borough of Totnes; and Mrs. Dorothy Elmhirst on behalf of the Dartington Hall Trustees. Dean E. C. Young, U.S.A., and Sir Manilal Nanavati, India, replied for the members of the Conference.

ADDRESS BY THE PRESIDENT, L. K. ELMHIRST

IT is a commonplace statement to say that we meet to-day in a world that has undergone considerable changes since our last Conference in Canada in 1938. But it is also true that at each one of our Conferences before the war the same statement could have been made with full justification. When we met here at Dartington in 1929 it was in a world freed in large measure from the difficulties which the First World War trailed behind it. There were signs of a real recovery of world trade. America, particularly, was in a state of great prosperity, and if this country and Europe were not nearly so prosperous they could at least have been in a much worse condition. This, to their cost, they were to discover later. When we met a year later at Cornell, there was already in August 1930 an undercurrent of concern with the obvious decline in prosperity. The greatest slump of all had yet to come. The writing was already on the wall for those who had eyes to see, although our discussions at Cornell, when read to-day, look somewhat academic in their slight concern with the acute reality of a depression which lay only just round the corner.

When we met again it was four years later, in Germany in 1934, eighteen months after Hitler had come to power and a few weeks only after his notorious blood purge. There the atmosphere was heavily charged, but the world was not yet conscious of the major changes which Hitler was going to bring to the lives of every one of us.

Two years later, in 1936, we met at St. Andrews in Scotland. Once again the world seemed on a more level keel. There was a feeling of optimism that things were righting themselves. We thought that the world was pulling out of the great depression as it had pulled out of other depressions in the past. War was still not considered as in the realm of possibility, and the recession of 1937 had not yet arrived.

In 1938, when we met in Canada, the world atmosphere had again changed. The economic optimism of 1936, mild though it was, had had a slight set-back in 1937, but it was the political and the psychological atmosphere that had visibly deteriorated. We met on the eve of Munich, with all that that fateful meeting implied, not only to Czechoslovakia but to Europe and Great Britain and the world.

But as we milestone these changes of atmosphere for each of our Conferences, they fade into insignificance when compared in magnitude and importance with the change that has taken place since we

last met in 1938. True, nine years is in itself a long period, as long as the period which included our first five Conferences, but what a nine years it has been for all countries and all persons! Many of us could have discussed the great depression of 1931 with some personal detachment, and, even in 1938, the threat of war was not acutely personal to more than a few of us. But since then warfare and economic upheaval have been a vivid reality to every one of us. There is probably no individual here to-day who has not been through great personal difficulty, tragedy, or hardship.

It was, I suspect, the overstrain caused by the war that deprived us by death of Carl Ladd, the late Dean of the College of Agriculture at Cornell, in whose fertile mind the idea of the Conference originated. From the time of his six months' stay in England in 1928 he was always foremost in pressing that these Conferences were vitally necessary, not only for professional understanding but also for the understanding and treatment of world economic problems. There was, I believe, no one else at that time, except Dr. Warren and Dr. Taylor, so convinced of the essential service these Conferences could render. There was certainly no one else to whom I could turn so readily for guidance and understanding at all times. I wish he had been here to-day. Other members who have died in the last nine years include our old and honoured Vice-President, Dr. Sering; and Andrew Boss of Minnesota, that grand pioneer and still grander man. Some of you will still remember his paper on the 'Evolution of the American Family Farm' in 1936; Dr. Wehrwein of Wisconsin; Dr. W. Allen, Canada; Professor Weaver, Pennsylvania; Professor Grimes, Kansas; M. Rouilly, France; and Dr. Bela Kenez, Hungary.

I must turn, however, to the present. Revivals after long intermissions are not easy, and although the post-war wreckage around us may make such a Conference as the one we open to-day all the more necessary, it certainly does not lessen the difficulties. When I consulted the Director of F.A.O., Sir John Boyd Orr, he urged upon me my duty as President, in spite of his own plans for utilizing the services of agricultural economists, to get the Conference under way as soon as possible. He emphasized the difference between his conference, which was inevitably of official representatives and of government officers, and ours which drew, in the main, upon teachers and research workers attached to universities or to unofficial institutions. To have held a full Conference this year open to all applicants would have been impossible. We might have found ample accommodation and food in the U.S.A., but members from 'sterling' countries would have had their special problems in obtaining the necessary

dollars. A few of our old members, too, seemed uncertain as to the permanent future of the Conference.

And so it seemed best to all the members of council I could contact that we should hold a limited and somewhat informal gathering here, and use this opportunity to discuss intimately how to work our plans for the future.

Each country, therefore, except the U.S.A. and Great Britain, who are entitled to their full quota of council members, was asked to send two delegates. Twenty were invited from America and Great Britain and five from Canada. Where places have not been filled I have, as your elected President, had to use discretion in offering these vacancies to others. It is no small tribute to the reputation of the Conference in the past that of the original fifty members who came to Dartington Hall in 1929, nearly twenty years ago, some seventeen are here to-day.

In accordance with the constitution adopted in 1938, the programme has been built up as a result of discussions or correspondence with council members in every country where our old contacts could be re-established, and the war travels of your President, twice to the U.S.A., once for six months around the Middle East in 1942, and for nearly a year in India in 1944–5, have also helped to keep interest alive and to develop it in a number of new countries.

The outstanding problem of the modern world, and, by implication, one that is peculiarly that of the economist, is the devising of a sufficiently wise and efficient allocation of world resources to satisfy the legitimate material needs and preferences of the greatest number of people. The social implications, therefore, of the economist's task are daily becoming more and more apparent.

In our programme for this Conference we have tried to face up to the implications of the new world around us. Our main subjects for discussion raise fundamental issues. They are not new. We were discussing many of them at our Conferences between 1929 and 1939. But as practical problems they have become more acute than ever, and demand immediate attention.

I should like to say a word here about a subject which we have had to leave out owing to the telescoping of our programme, a subject which concerns every economist. Quite a few of us will remember the days some twenty years ago when most agricultural economists carried on their research and teaching work without much interference from the world outside, and often in remote academic seclusion. Some developed quite a sense of frustration because of it; they felt they could, like good physicians, diagnose trouble and

prescribe remedies, but no one seemed to want to ring the surgery bell. The change began to come in the early 1930s, and I remember our Vice-President, the late Dr. Warren, complaining to me in 1931 that he ordinarily liked eight years in which fully to digest newly collected research material, but that the demands from the new State Legislature in New York State for schemes for the economic rehabilitation of rural areas had suddenly begun to come in to his office, and to come in so fast that his ideal period of rumination was being cut in half.

To-day the agricultural economists are brought into consultation by governments at every turn. They are employed professionally as advisers to cabinet ministers and corporations. The work of F.A.O. is occupying a large number of our own old members in Geneva to-day on the practical application of their wisdom and experience to problems of international importance.

This wealth of new opportunity and of new responsibility offers its reward in giving new status to the profession, but it also has its risks. The political and the business worlds exist too often in an atmosphere of day-to-day emergency need. *Ad hoc* remedies are snatched at. Public prejudice or the private idiosyncrasy of an individual minister may be married disastrously into a programme that demands far-sighted statesmanship and expert technical advice. How, under such conditions, can the professional economist best retain his professional integrity? How can he satisfy his preference as a scientist and as a humanist for the slow distilling of truth from a careful digestion of all the relevant facts and related experience?

In the world of economics emergency advice and long-term research are not of course exclusive. The first will be the sounder for being based solidly on the latter, but each of us is probably having to make choices of policy in a kind of world to-day that simply did not exist twenty years ago.

We cannot then shirk the risks of the political market-place, where bargaining is the order of the day, nor, more especially if we are paid to teach students or to advise farmers, dare we, at our peril, separate ourselves from the stern discipline and detachment of the search for truth, however slow and laborious. The economist may have felt he was too detached twenty years ago, but to-day when the choice of our research projects, the ends for which research is carried on, and the amount of finance available are likely to be affected by the colour or predilection of the political party in power, he, his university or institute, or the civil service to which he belongs, may each or all be put in a most embarrassing and dangerous predicament.

This means, that unless the objectivity and scientific detachment that have been associated with the work of agricultural economists and with their research and graduate teaching at universities is continually safeguarded, agricultural economics can easily become a prey to the evils of the short-term expediencies and long-term prejudices of everyday business and politics.

As I look back at our Conference *Proceedings* I note with satisfaction a high standard in the attitude and approach to problems discussed, and only on very rare occasions a suggestion of partisan expression. I have every confidence that this tradition of objective discussion will prevail at our Conference which opens to-day.

In our first main subject we deal with the allocation of people and their labour to that variety of employment most likely to be beneficial to themselves and to the community, both nationally and internationally. People and their labour are, after all, the most important of all the resources which we have at our disposal. But we cannot class them just as one among other raw materials. They and the full and proper satisfaction of their personal and group needs and demands are the whole purpose of the economics of our existence. The balance between these two 'goods' (the labour which people contribute and the satisfaction which they derive) is the complex which lies at the root of the material needs of our social existence. A study of the movement of farm population from country to country, from place to place within countries, from agricultural to industrial occupations, or from rural to urban living, is of the utmost importance. If the movement is well understood and well designed we are likely to attain a very high degree of efficiency and satisfaction in labour use. Sometimes the movement is spontaneous; at other times, however, the question arises of how quickly it is possible to move people away from circumstances in which survival is won at a level only a little higher than that of animals, and where any 'fullness of life' in the modern sense is unobtainable. A serious study of the movement of farm populations is bound to reveal the dynamic problems of how to change both the habits of individuals and the pattern of group custom and culture. To deal with such problems we must, as agricultural economists, be ready to accept and develop new instruments and techniques of social research. We shall certainly find it necessary to consult and collaborate with other social scientists, psychiatrists, and social anthropologists if the nature of the problem is to be fully understood and if unnecessary friction and blind opposition to change is to be avoided.

In our second main subject we deal with the problem of how to

achieve the most efficient use of the land. The customs and laws that have grown up around the ownership and the use of land vary from country to country. Each country, too, has woven around the land a philosophy which is the product of time, place, and history. Even the desire to change land systems, as Ashby has pointed out in an earlier Conference, is liable to reflect the aspiration towards refinements of freedom which every new generation may develop. Friction tends to arise when long-established custom, law, or philosophy associated with the land comes into conflict with new developments, technical, economic, or social, or with new human aspirations. We need to study the various means whereby the land system (and with it the mode of supplying capital monies and long-term credit which cannot easily be dissociated from the land-tenure system itself) can be made flexible enough to meet new circumstances and to satisfy new and socially desirable ends.

Fundamental to so many other issues, and to our first two main subjects as well, is the job of devising sound economic machinery whereby the needs and preferences of the public for produce from the land are best expressed and made effective at the producing end. Fully competitive enterprise in the nineteenth century depended on the automatic working of the market mechanism. It is many years now even in our modern industrial world since we ceased to allow the market mechanism entire freedom to determine the quality of our economic and social existence. Nevertheless, up to the war the boom and slump of the market mechanism did, however clumsily, work as the automatic regulator of our economic machine. But for this last six years national economies have been controlled and directed ruthlessly to meet war conditions. The market mechanism, although still playing an important role in many countries, was considered as secondary to the essential task of organizing all resources for war. The *war* purpose is now ended, but there is still as great and as difficult a *peace* purpose to be met. Many, and in fact most, countries in facing this challenge have no choice but to go on using this war-time device of a directed economy. In some the change-over may be so complete as to merit the term 'revolutionary', but in many others there is still little more than a change of emphasis. The trend, however, especially in recent weeks, seems to be moving towards an economy directed by the deliberate decision of a central authority, and the market mechanism then becomes merely one device, one method, one tool, within the control of that central authority instead of, as in former years, the ruthless automatic governor of our economic fate.

How long such use will continue, how far it is likely to come into conflict with the essential freedoms which make up the democratic way of life, how far the directed economy can be limited to a few essential aspects of deliberate national control, are things which we are going to discuss. The results of such discussion I certainly am not going to anticipate.

In attacking the problem of the future of international trade we have in our title restricted the discussion to one particular aspect, namely, buying and selling by the State. But State buying and selling within free world trading can have both a wide and a narrow interpretation. It can be narrowly interpreted as the State entering into trade and doing its own buying and selling for itself, or it can be interpreted as the State making agreements with other States over the terms on which its nationals can carry on trade with one another. We hope that both aspects will be discussed, although the opening paper will deal with some of the background conditions in general of trade between nations. Protracted negotiations for a charter of international trading are under way in Geneva. Not all of us here are implicated in these talks, but some are. We should like those who are to feel that here they are free to discuss the problem as they wish without committing their governments and, if they prefer it, without being reported in the Press or in the *Proceedings* of this Conference.

Finally, we face what is the most awkward question that can be asked of any man, be he economist, sociologist, or just plain farmer, farm-labourer, or ordinary citizen, namely, what is it that we want from life, and how far do our economic activities and our social ways of living fulfil that desire? For all time mankind will go on asking and giving tentative answers to this question. We shall not expect to find even one of the tentative answers as a result of the deliberations of this Conference, but we do hope that by the time the Conference is ended, not merely from the discussion on this particular subject, but from all the discussions, and from our meeting together here for these ten days, we may achieve a better understanding than we had before of what factors are involved. It was through the mixing with people of other countries, with other social ideas and other social customs, that the meeting here in Dartington in 1929 contributed not a little to the appreciation of the wider implications of agricultural economics. I should like to think that it is still possible in the atmosphere of this place to broaden our horizons as much through new friendships made as through the formal papers and discussions.

In addition to these main subjects we shall have as usual a series of sessions devoted to non-discussion papers. These cover a wide

field, and provide an opportunity for raising, in a less extensive way than on the main subjects, particular matters which are of interest to particular people and places and which the rest of us want to hear about and to have on record for reference purposes in the future.

We hope also to arrange group meetings to discuss questions of research method. These, however, are subject to your request for facilities. If you have a subject you want to discuss in a group, consult the Secretary.

We have in addition a programme of excursions and a number of purely social gatherings during these ten days: a reception to-night, a trip on the River Dart on Saturday afternoon, an entertainment arranged by the Dartington Hall Arts Section to which you are invited on Sunday evening, our own particular type of informal smoking concert on Monday evening, and a bus trip for the afternoon and evening of Thursday next which will take us to a farm near Cullompton north of Exeter, to Exeter and its cathedral, and back over Dartmoor in the evening.

We are to live here together for ten days, eating our meals together, loafing together in the few hours that the Secretary has allowed entirely free for rumination, for talking, and playing together. It is the capacity to enjoy doing all these things in a friendly, frank, and understanding way that will help this Conference to serve its real purpose. The discussions on the main subjects are of the greatest possible importance in the world to-day. There is, too, a special value in the papers upon research method or results and upon the experience and description of problems in this or that country. But it is this living and thinking together, well away from urban distractions, which has always made the International Conference of Agricultural Economists what it is.

This new gathering, in which there are many new faces mixed with those of tried friends of long standing, will, we trust, develop and take away from Dartington the same feelings of close understanding and friendship that others have taken away with them from our other gatherings in the past. The staff and the organizers will do their best to contribute to what we hope will remain with you for the future a rich and fruitful memory; the rest is up to you.

THE MOVEMENT OF FARM POPULATION

OPENING ADDRESS

J. P. MAXTON

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THIS subject has many varied aspects. The intention is that it should be discussed from any angle that any members care to raise as being particularly the concern of themselves or of their countries.

Some movement which is now of importance is exceptional in that it was caused by the war. But for the war it would never have taken place. Further movement of the kind stopped with the war, and some of the effect ceased. Yet most of it has long-term effects. The obvious case is that of displaced persons. Many of these were moved by the Germans from occupied countries to Germany itself for war labour. Others came from the Russian-occupied countries at various times and are unwilling or unable to go back. In other places the war created the attraction of special war industry and its rewards. That took place in some instances between countries, but was mostly a problem within the countries organized for war.

Some problems of mobility, however, have very long-established roots, although in pre-war days we would have stressed the immobility rather than the movement. The war gave rise in many ways to an unusual degree of movement, but, on the other hand, post-war conditions have made other problems of immobility more acute.

It is necessary to sort out some of the different kinds of mobility under their various heads. There is, first of all, the movement from country to country. That takes place for many reasons, especially during war-time. Cases already mentioned are those of displaced persons and of people who were attracted from one country to another because of the rewards and opportunities which war offers. In more normal times the movement from country to country is a different problem. Immigration laws, like the other restrictive tendencies of the inter-war period, became more and more strict. The main issue in the case of immigration is not simply one of movement but of absorption and settlement, with the difficulties of adjusting alien people, language, and standards of living to another country.

Next, mainly within countries but in some cases also across

national boundaries, there is the movement from agriculture to industry. That movement has been going on steadily, in highly industrialized countries particularly, and to some extent in all countries. In the majority it has not been as quick as circumstances would have required. The problem was, and still is, one of offering suitable opportunities in industry in countries where industry is limited. Where opportunities are offered mobility out of agriculture is continuous, but it is believed never to have been quite fast enough up till now to cause any serious shortage to agriculture. The position always has been felt to be that agriculture had, if anything, an excess rather than a deficiency of labour, no matter how quickly people were moving from agriculture into industry. In some countries in those war and post-war years the cry is that the movement out of agriculture has left it deficient. But it is barely established yet as a fact.

It has been argued in Britain, for instance, that agriculture is threatened with a severe famine of labour when the German prisoners and other forms of supplementary labour have drifted back to where they came from, or to their normal activities. It is contended that that must be met by attracting people to agriculture. But the situation has still to be tested, and it may mean merely that agriculture will adapt itself to the smaller amount of available labour, especially as labour has become one of its most expensive commodities. Nevertheless, a country like Britain, with its 6 per cent. engaged in agriculture, has reached the stage where a greater interchange between agriculture and industry can take place on comparatively level terms. Up till now, the attraction has been from agriculture to industry because industry has offered the better opportunities, financially and in some other respects. Now that, in Great Britain at least, the rewards of labour and management on farms have become more attractive financially, and offer opportunities of a better life than formerly, there may be a more equal choice which many people who have been absorbed in industry will exercise in favour of going back to agriculture. It might be said that it is the first time that the choice has been a comparatively equal one.

Next there is the mobility between rural life and urban life. That is in many ways the same problem in most countries as mobility between agriculture and industry. It is only in those areas where it is possible to combine rural life and industrial employment that there is a difference in meaning. These areas are increasing in number and size with modern transport, and it is thought in many parts that the movement from rural living to urban living, which was a general

trend for so many generations, may now be in process of being reversed. Questions arise as to the content of this new rural life and what relationship it has to agriculture and the production of farm products. The general tendency has been to make rural living a dormitory life with the same facilities and advantages which one expects from week-ending in the country. On the other hand, there is a tendency towards making this interchange of rural living with industrial employment something more than that, by having part-time holdings with which to supplement the urban earnings, but particularly by something of physical recuperation (some people would go so far as to call it the restoration of the spiritual fibre) by working part of the time with natural things in a country way of living.

Then there is the movement which has been going on for long enough between poor land and good land, both within countries and from one country to another. That is a constant drift, sometimes both ways, but mainly with new-comers coming in to settle the poor land. In the current circumstances it may be that the poor land is just now being subjected to a pressure for settlement which was not common in peace-time, and that, likewise, good land is not so easily obtained by the people who wish to move on. Farming on the good land is sufficiently easy and profitable to make the occupiers disinclined to retire or go elsewhere, so that there is a damming back on the poor land as well as a pressure from new-comers.

This kind of movement, however, is not one of the more important public aspects of population movement. It is very largely an individual movement, and involves no questions of public policy, except perhaps where poor land comes to be neglected and derelict, and the country is anxious that its resources even in poor land should not degenerate into that state. That feeling is very much abroad at the present time. On the other hand, in the between-war period, there was an opposite point of view which often caused great effort to be directed to the possibility of moving people away from poor land which they had settled and which could not provide them with an adequate livelihood in conditions as they were then. In both cases this kind of movement in and out of poor land becomes an issue of public policy.

So far the aspects of movement mentioned, with the exception of war displacement, have implied a permanence of settlement. But there is also the whole question of temporary shifts of labour, mainly of the casual type. It is usually associated with particular crops, the hop-pickers in Kent, the sugar-beet lifters who crossed European

borders in pre-war days to take part in the harvesting of that laborious crop. Some of it is not seasonal as in the cases quoted, but is transitional, e.g. reclamation, drainage, buildings, &c. Post-war conditions, and particularly the circumstances of a very full employment in other industries, may have raised an entirely new situation. How much of that seasonal movement was voluntary because people liked it and found it attractive for various reasons, and how far was it a reflection of low wages and uncertain employment in other forms of economic activity? In either case, different circumstances are prevailing now which may become permanent, with serious results on crops and operations dependent on this type of movement.

Switching to a somewhat different kind of mobility we have an age mobility. People in their adventurous years and later in their earning years move to countries where, in the first case, they find new interests and, in the second, they are able to earn more money by greater opportunities to work for higher wages. These are not necessarily movements towards new settlement. The folk may have no intention to settle finally in the new areas. They may intend to work there in their earning years, and in later life retire to their old country or their old country-side. In the end the majority may settle, but, to begin with, it is a temporary urge. This age mobility, with others of its kind, is rather a current which runs across the main streams. It may be from country to country, from agriculture to industry, from rural to urban, from poor land to good land, and so on. There is, in any case, greater potential mobility at the active-earning age. The shifts that take place in later life may be a return movement, and those that take place among children are conditioned by the movement of parents.

There is an undercurrent in all the discussion that movement is in the main a movement of low-standard peoples to higher-standard areas. The advantages to the people who move in these circumstances are fairly obvious, and the obstacles are those of inertia and of finding the means to make the shift. To begin with, at least, there is an implied willingness to work for wages (or a lower standard of living in other respects) which are below the level of the area to which they have moved. That may be a gain to certain areas and certain industries. Few countries, however, of advanced social existence are content with the position. Problems arise from the cheap competitive labour, and low-standard people may involve a community in the salvage of some of the social wreckage and social maladjustments which result. The tendency is, therefore, not only that they themselves learn to seek the same standard of living as

others in the neighbourhood, but also that the community to which they have moved tries to bring them up to a minimum level with the indigenous population, rather than let them remain as a low-class population living in its midst. That is the social tendency in modern organized countries, but the fact remains that, in some of these countries, forms of economic activity have been established and maintained on the assumption of low-standard peoples being available to carry them on. It may be that it can be maintained by a constant influx of new low-standard peoples who in time graduate out to a better way of living, while others come in to take their place. But in other places it is not so. The low-standard population persists; the low standard of living becomes chronic; and some forms of economic activity are dependent on the chronic state of low living.

So much for a brief indication of the types of movement. The other major aspect of the problem is how labour or population generally can be moved in the desired direction. As already said, the great difficulty in the past has been to induce sufficient movement in most parts of the world. In these more recent times there has been too much movement in certain directions and not enough in others. How are these maladjustments (both of the present time and as they may arise at any time in the future) to be remedied?

There are three main methods employable, each dependent on a different principle: (1) to direct the labour; (2) to provide incentives, with the deliberate intention of trying to get labour to move in certain directions, but without using the compulsion which is implied in the first method; and (3) to leave labour and incentives to be determined by the free operation of forces, and in the hope or expectation that a proper adjustment will be brought about automatically.

Direction involves not only examining how and where labour should be transferred from one region to another, or from one occupation to another, but also that it is made compulsory by the authority of the State. Experience of that, of course, has been plentiful during the war, and there is a natural tendency to assume that it can be and should be applicable to those circumstances which, in the post-war world, may be just as urgent for the welfare of the community as the war necessities were. At the same time, it seems probable that most countries have no desire to perpetuate that kind of compulsory allocation of labour. It would be done only under the gravest necessity. Also people would be unwilling to consent to it, either as a general principle for everyone, or still more in the

application to themselves. There would be greater resistance to it, more evasion, and, as a result, the method would be much less effective than in war-time, even if it were accompanied by greater penalties than were imposed in war-time. The penalties would have to be greater because of the greater resistance to be overcome.

On the other hand, there is considerable uneasiness with regard to the third method of simply leaving matters to be adjusted by the free play of forces. Even the most confident adherents to the general principle of free enterprise recognize that there are places and occasions when some deliberate movement of population is necessary. It is necessary at the present time if only for the purpose of transferring displaced persons to areas where they can be usefully and happily settled and employed. That cannot be left very well entirely to free enterprise. In other respects as well, however, there is a good deal of hesitation at leaving matters entirely to this method.

The second method seems likely to be the most generally favoured, and the most generally effective. It implies that the need for transferring labour from one country to another, or from one industry to another, be studied and measured as far as possible, and that some means other than direct compulsion be worked out whereby those transfers can be induced. The method of higher wages (or, in general, of rewards in the money sense) is the obvious one. But there are others. Thus at the present time in England it is thought that greater inducement would be offered to men to return from industry to agriculture if it were possible for agriculture to offer them houses —perhaps, to begin with, any kind of house, but, later, houses with the modern conveniences of a reasonably standard urban house. It is also thought that if rural living were provided with the main amenities which are provided in the towns the worker would be more willing to return to agricultural employment.

In general, however, these are merely examples of the common principle of offering special rewards, and they may take the form of special goods and perquisites. It is recognizable, of course, that many of the incentives currently effective have force now only because of the innumerable scarcities which the possession of money alone does not overcome. It may be assumed that as time goes on these incentives will have less force, and wages and money rewards in general will become paramount again. In some circumstances, as in the case of housing in this country, that may not be for many years yet. Other more permanent factors are the incentives which are associated with prestige, possibly with leisure, better conditions for old age and retirement, and so on. These do not necessarily

change in their influence with the receding of the war years. On the other hand, they vary enormously as from one person to another, and also, of course, for the age-group of the particular person concerned. Men in their very active years of work may not be very much impressed at all by the special facilities offered for old age and retirement. Men in their later middle years are more likely to be. Similarly with questions of education facilities, with honours and prestige, responsibility, and so on. These do vary in effectiveness, and one method which is effective at one time for one age-group is not necessarily effective at other times and for other age-groups.

The point really is that the incentive has to be flexible and adjustable to meet changing circumstances, and also to be defined so as to be applicable to different kinds of labour and, particularly, different age-groups. That, of course, is true even when we are considering merely the question of wages.

It seems true, however, that these circumstances involve a high degree of discrimination, whereas many of the modern standards affecting labour, and, to some extent, even the returns to farmers themselves, are founded on the idea of equal basic minima. They are deliberately framed to avoid discrimination. There is a possible incompatibility between the non-discriminating basic standards and the planning of incentives for the movement of population.

DISCUSSION

W. HARWOOD LONG, *University of Leeds, England.*

I would like to refer to two sentences early on in this paper, where Mr. Maxton writes that the situation of getting more people into agriculture and its results have still to be tested. 'It may mean merely that agriculture will adapt itself to the smaller amount of available labour, especially as labour has become one of its most expensive commodities.' And later on he says at the end of that paragraph: 'It might be said that it is the first time that the choice has been a comparatively equal one.' I want to say a word or two on the implications of that state of affairs as they occur to me in the position of British agriculture. Agriculture in most parts of the world has been a matter of family farming, except for such parts as the Junker estates in East Prussia, on some of the bigger estates in Hungary, and in certain districts in a few other countries. The only example of widespread capitalist farming in the past has been the British Isles. Even here a lot of family farming persists, particularly in the hillier and wetter parts of the country. At the same time

12 per cent. of the regular labour on farms is to be found on those employing twenty men or more and the average is about two regular hired men per holding. This means that the importance of wage labour and wages in agriculture in this country is much greater than in almost any other country in the world.

Now the point which I want to discuss is what the implications of this may be if the future of agriculture, or rather the future of the food-supply, results in the state of affairs that we knew in the earlier years of this century. The position of labour in agriculture has become such that agricultural wages approximate fairly closely to the wages in other industries. There is no doubt that the scarcity of food justifies this state of affairs at present, and it is not surprising that wages have gone up to the extent that they have done. So far as the immediate future is concerned it is difficult to imagine that the demand for food will not justify wages at their present level as related to industrial wages and for some time to come. But there are agricultural economists, better placed than I to forecast the future, who are already of the opinion that the present position will not last and that there will be in the future a much greater amount of food available for consumption than at present. (As a consumer I devoutly hope that there will be.) It seems to me that in such a case the level of agricultural wages will put the farmers of this country in a difficult position, for they will not be able to resort to the family farmer's solution of the problem of over-production—a tightening of belts and a lower standard of living. The higher percentage of total costs that is absorbed by paid labour in this country than in most others, and the difficulty of reducing labour costs, will tend towards causing food to be produced cheaper abroad than here. The choices, it seems to me, in a country like this where agricultural wages are not likely to fall significantly relative to industrial wages, will probably be either that the efficiency of farming will have to be increased to maintain the cost of production at no higher than world prices, or that the size of holdings will have to be reduced to such a size that paid labour can be cut out or minimized. The further alternative of the industrial community subsidizing farming to such an extent as to enable industrial rates of wages still to be paid seems to me to be more practical for a creditor country than for a debtor country. The point, then, that I am attempting to make is that in the event of food becoming more plentiful than it is at the present time, so that the production of food becomes relatively less well paid than the production of industrial goods, the tendency in this country will be towards a reduction in the size of farms to cut out the paid labour,

and family farming will tend to become more widespread. This state of affairs seems to have been foreseen some twenty years ago when the Agricultural Tribunal of Investigation reported in 1924, and I will; if I may, close by quoting a statement of the position as they saw it then. 'The wage labourer,' they said, 'may rightly object to hours of labour and rates of pay which place him in a position materially inferior to that enjoyed by workers in other industries. The family farmer, however, is working for himself. His wife and children, when engaged upon the holding, are working for the family advantage. In these conditions it is not regarded as a hardship by the persons concerned if they work long hours for a small reward nor do we regard such a state of things in any way as anti-social.'

I suggest, then, that the future trend in this country is likely to be towards a reduction where necessary in the size of farm businesses to the extent to which they may be operated as family holdings.

EDGAR THOMAS, *University of Reading, England.*

There are only two points that I would like to make in this discussion and they occurred to me on reading Mr. Maxton's introduction.

I can hang my first point on to this sentence of Mr. Maxton's: 'There is an undercurrent in all the discussion that movement is in the main a movement of low standard peoples to higher standard areas.' That is a very important generalization. It is easy to prove that, up to the present anyway, a high standard of living has gone hand in hand with the process of industrialization. But I believe that I am right in saying that round about 1939 something like 50 per cent. of the manufacturing industry of the world was still concentrated in the hands of the United States, Great Britain, and Germany. Other countries with very little manufacturing industry felt that they were becoming increasingly dominated by the industrialized countries. It is very natural, therefore, for these countries to think that by industrializing themselves they also will achieve a higher standard of living. But there is need for great caution in accepting this point of view as universally applicable; and for this reason: an examination of the position in the industrialized countries which in the past have enjoyed the higher standards of living will show that they also happen to be the countries which have had access to those economic resources which alone can make a higher standard of living possible. Unless such economic resources are available it does not necessarily follow that the mere process of

industrialization will achieve a higher standard of living. Indeed, it may well be that it is not possible for many countries to achieve a much higher standard of living so long as they depend on the economic resources to be found within their national boundaries. It is for this reason that the problem of raising the standard of living over large areas of the world must be regarded as an international problem and, therefore, a very fitting subject for discussion in a Conference such as this.

The second point I can hang on to the latter part of Mr. Maxton's remarks when he comes to the ways and means of arranging the mobility of peoples. Here I want to speak more specifically of conditions in this country, though I suppose that what is true of this country applies also to the other more highly industrialized countries of the world. Mr. Maxton quite rightly rules out the direction of labour in any conditions other than those of war. But there is one method of control which is not mentioned by Mr. Maxton. It is not a positive but a negative method, for it aims not at making certain things happen but at hindering certain things from happening. In economic affairs it seems to me that this negative control is often very much safer, because we can be very much more certain about the things which we do not want than we can be that we want other things. I can make my point clear by referring in turn to the two movements under discussion—the movement from rural to urban communities, and the movement from farming to non-farming occupations. We do know one thing very definitely in this country about the movement from rural to urban communities. We do know that we do not want any further conglomerations of peoples in senselessly large towns. Therefore we are moving in the direction of having legislation to hinder the enlargement of certain urban areas. That is one method and a very effective and safe method of organizing the mobility of peoples. Turning to the movement from farming occupations to other occupations, I am one of those who still holds the somewhat unpopular view that it may be that there are still too many people engaged in British agriculture. But the point I want to make is that we are beginning in this country to regard the occupation of farming land as something which demands a certain amount of technical, may I call it professional, ability. Indeed, the trend of our latest legislation is towards having certain negative safeguards here again. Thus when a person who occupies agricultural land is not making the best use of it as such, it is possible to have him removed from its occupation. These negative controls of the use of agricultural land may have the effect if not of

reducing the agricultural population at least of making it for the first time more selective and more qualified professionally.

There is just one last word which I wish to say. I must admit to a certain surprise that Mr. Maxton should have been guilty of what I am going to criticize now in his introductory remarks, for it was he who, in a previous paper which he read to the Manchester Statistical Society some years ago, called attention to the point I want to make. It is this. In talking about the mobility of peoples much harm is done by the use of the phrase 'agriculture and industry', because it suggests an antithesis which is completely false. It seems to me that it is our job as agricultural economists to insist above everything that agriculture is only one of many industries. Perhaps if we do make that insistence we shall have gone far to release agriculture of its inferiority complex, and incidentally to clarify much loose talk about this question of the mobility of peoples between farming and other industries.

C. V. DAWE, *University of Bristol, England.*

I am afraid I am unable to rise to the heights to which some of the previous speakers have risen in taking what I call a world survey of this problem, but I would like to make an attempt to measure some of the movement of farm population in this country. It may sound rather parochial in an international conference of this type to refer to conditions in a small country like England and especially to a few counties of it, but I do feel that in this discussion we ought not just to admit the existence of movement of farm population, we ought to try to get some assessment of its extent. In our National Farm Survey, which as most of you know was recently undertaken, it was shown that 15 per cent. of the farmer population in England had occupied their farms since 1914. In Wales it was as much as 21 per cent. From these figures there seemed to be a greater movement of farm population in England as compared with Wales. I am not qualified at all to speak about Wales, but there must obviously be some underlying reason for such a wide discrepancy. One's first reaction is to think that it is due to the isolated position of Wales. But if you turn to individual counties of England you get figures which are just as bad or worse than Wales, and thus this movement, or lack of movement, cannot be attributed to isolation. For example, in the figures for the London and Middlesex area, which, of course, cannot be called isolated, we find that the proportion of farmer population which had their farms before 1914 is as high as 27 per cent. If we move to Northumberland, which I suppose can be called an isolated area, the figure there is 22 per cent.

In the next county of Cumberland, which has roughly the same amount of isolation or inaccessibility, whichever you prefer, the figure is only 13 per cent. It seems very difficult to account for the movement or lack of movement of farmer population in neighbouring counties of this type.

At the other end of England, in Devon, parts of which are very remote, only 10 per cent. of the farmers had held their farms since 1914. This proportion might at first sight lead one to imagine that there is rather more stability there than elsewhere, but again it is difficult to say. Recently we had occasion to examine a block of 400 farms on marginal land, above the 800-ft. contour line, on the Somerset part of Exmoor, which, like the Devon Dartmoor, is a fairly remote area. We found that one-third of the occupiers had left their holdings during the last five years. This rapid movement may possibly be attributed to the fact that it is a bad agricultural area, but nevertheless these figures do seem rather startling.

That, very briefly, is a sketch of the movement of farmers themselves—not of the farm-workers—but before we come to the workers, let us examine the position of farmers' sons and daughters. We do not have much information on this. We can only have recourse to our population census and try to extract some data from there. If we look at the percentages of the total agricultural population by age-groups, we find that there must be a considerable movement of farmers' sons and daughters since there is a rise in the proportion of this total population between the ages of 18 and 24, and a decline in the age-group 25–9. The assumption is that they leave farming, or at least move from their parents' farms to other farms or go into other industries. The census shows that there is an appreciable movement or gradation from the status of a dependent member of a farmer's family to farming on one's own at about the age of 30, for the percentage of farmers in the total agricultural population jumps from $5\frac{1}{2}$ per cent. in age-group 25–9 to $8\frac{3}{4}$ per cent. in group 30–4, almost double.

Now in regard to the agricultural workers themselves we have, of course, a whole series of statistics of the numbers of workers in the country at different periods. From the population census we find a steadily increasing proportion of total workers employed on farms from age-group 14–15 to group 25–9. But the age-group 30–4 shows a marked decrease, seeming to indicate that a considerable proportion of workers leave farms possibly to try to farm on their own at the age of 30. Thus while in age-group 25–9 there are about 12 per cent. of all agricultural workers, in group 30–4 there are only $8\frac{1}{2}$ per cent.

Admittedly, the proportion tends to fall as age increases but the fall at this point is much greater than the steady decline which occurs in later years.

Another source of information is the annual statistics published by the Ministry of Agriculture. Confining ourselves to the regular workers we find that during the decade terminating in 1921 there was an increase in male workers of 104,000, about 20 per cent., and female workers also slightly increased by 5,000 or 7 per cent. With the break in the peak post-war prices and wages that occurred between 1921 and 1923–4 the total number of regular workers declined by 60,000 or $8\frac{3}{4}$ per cent. Of this, men over 21 declined by 30,000 or $6\frac{1}{2}$ per cent., men under 21 by 16,000 or $10\frac{1}{4}$ per cent., and women by 14,000 or 19 per cent.

With the settling down of the country after the restoration of the gold standard in 1925—although it had a somewhat depressing effect—we find that between 1923 and 1931 male workers over 21 increased by 8,000 or 1·9 per cent., but during the same period men under 21 declined by 22,000 or $15\frac{3}{4}$ per cent. Women, however, increased by 5,000 or $8\frac{1}{2}$ per cent.

From then onwards we had a general decline, to which, in the last few years, the demands of war have contributed. But in the eight years between 1931 and 1939, 58,000 adult male workers left farming, together with 21,000 males under 21 and 24,000 women and girls.

It is noteworthy that between 1941 and 1944 the total number of men (all ages) declined by 10,000, whereas women increased by 18,000. As is well known, the decline in regular male workers during the war occurred *pari passu* with an increase in arable land area of 5 million acres, nearly a 50 per cent. increase.

We cannot say exactly why we get these movements. Some reasons are fairly obvious. Men move into industry or become farmers on their own and so leave the employed class for the employer class and so on. But I do not want to weary you with the general decline of the agricultural working population over the last thirty or forty years. The figures can easily be turned up.

The opening paper refers sometimes to farm population and sometimes to rural population. The rural population I take to be a wider concept than farm population, and there is a useful source of information on the movements of rural population in the National Register for the United Kingdom which was produced in 1939. We have there a picture of certain movements between what we would call the rural areas and the urban areas. But the picture is not clear,

if you take it over a period of years, because we have had a growth of towns, boundaries of towns extended, smaller towns coming into existence, and a general blurring of the line between towns and country-side. We have, for example, a growth not only in cities or urban towns such as Bristol, but we have smaller towns, seaside resorts which have grown enormously in the last ten or twenty years and which have extended their boundaries several miles into the surrounding country-side, and I suppose convert the rural population into a town population. But if you attempt to get figures you are met with the big difficulty that you cannot say just when and how you should draw the boundary lines, and you get varying figures of density of population according to the boundaries you draw.

Thus in England and Wales, omitting London, we find that between 1931 and 1939 there was a decline of 4·2 per cent. in the population of county boroughs, which I suppose we may roughly regard as the large cities. But when we examine the rest of the country we find a considerable relative increase. The populations of municipal boroughs and urban districts taken together experienced an increase in population of 10·3 per cent. between 1931 and 1939 and rural districts increased by 14·6 per cent.

In other words, the density of population declined from $15\frac{1}{2}$ to $14\frac{3}{4}$ persons per acre for county boroughs, increased from 3 to 3·3 for municipal boroughs and urban districts, and increased from 0·22 to 0·25 per acre for rural districts.

In the county of Devon, the population of municipal boroughs and urban districts increased by 5·5 per cent. between 1911 and 1921 and by 4·6 per cent. between 1921 and 1931, but whereas the rural districts decreased in the earlier decade by 2·1 per cent. they increased by 3·9 per cent. in the latter decade. It is interesting to note that in Devon the number of persons per acre in 1931 was 0·1 for rural districts and nineteen times that (1·9) for municipal boroughs and urban districts. But the standard of housing and accommodation was approximately the same, namely, 0·68 persons per room in rural districts and 0·65 in municipal boroughs and urban districts —I will not say anything about the quality of the houses and cottages.

The University of Bristol has recently been carrying out a Social Survey of the three neighbouring counties of Gloucester, Somerset, and Wiltshire, and they have tracked population data right back to the year 1801. They show that the proportion of the population in those counties which was rural gradually decreased until 1931, and the town population was increasing, but the trend is now reversing itself.

The rural population is coming back relatively to the town population. That, I think, is no doubt due to the gradual transference of industry—light industry—from the industrial north to the south of England, for it is possible to put light industries into country districts. In time you get those factories, as it were, roped into a neighbouring town, and the rural population begins to take the appearance of an urban population. Your young people especially who would previously have been classed as agricultural workers, or sons and daughters of farmers, would now be classed as some sort of factory worker. More generally we shall influence our distribution of population as between the country and the town either by a definite wages policy or by putting a ring round our large cities and saying you can expand no farther. Satellite towns, for example, will tend to get the same age distribution or population in rural areas as in town areas. All this will cause a shift in population which will not occur of its own volition but will be, as it were, laid down from above. We cannot, however, follow this any farther, I am afraid, because we are now in the middle of it, and we do not know to what extent the Government will proceed along these lines.

Any deliberate policy by the Government to encourage the settlement of persons from other countries in England, or any attraction of our people by the Overseas Dominions must alter the general trend of population and its distribution. Further, any deliberate policy of encouraging or stabilizing or protecting the agricultural industry will likewise influence movements of agricultural population.

SIR MANILAL NANAVATI, *Indian Agricultural Economics Society.*

I have an entirely different tale to tell. Till now the discussion has been about the movement of agricultural population into industries and ways and means to bring a part of that population back into agriculture. In India, however, during the last seventy-five years the movement has been entirely in the opposite direction, that is, from industries into agriculture. In 1880, nearly 56 per cent. of the population was employed in agriculture and 12·3 per cent. in industries, and now nearly 72 per cent. is employed in agriculture and 9·7 per cent. in industries. The total increase in the population during the whole period has been about 55 per cent., from 250 millions in 1881 to 389 millions in 1941. This means that the pressure of population on land is increasing and, as a consequence, the man–land ratio has gone down, the holdings are getting smaller and fragmented more and more.

From the last census returns it appears that this continuous ruralization has come to a stop. The urban population is rapidly increasing and further increase in the proportion of rural population is not likely. But this does not mean that further absolute increase in population within agriculture will not take place. The pressure of population within agriculture may still continue to be felt with disastrous results like the famine of 1943 which took a toll of at least a million and a half lives.

The pressure on soil is thus getting more and more acute in spite of the fact that during 1880 and 1920 we lost nearly 60 million lives as a result of epidemics, famines, and pestilence. Since 1900, nearly 27 million acres of new land has been brought into cultivation and 10 million acres added to the area under irrigation. But still the pressure has been so great that the number of landless labourers has risen from 19 millions in 1891 to nearly 40 millions.

The question is how to relieve the land of this pressure. Two ways naturally suggest themselves; first, rapidly to industrialize the country and, second, to reorganize agriculture from within. We have ample resources—water, mineral, and others—that could be rapidly exploited so as to absorb more men into industries. India has built up a nucleus of modern industries and now that she is coming into her own the pace of industrialization can be greatly quickened. When new industries are started people from rural areas would readily migrate into industries, as most of our present industrial labour is recruited from rural areas. But the rapidity of recruitment will depend upon the sanitary improvements, housing conditions in the industrial areas, and the general amenities of city life. No less will it depend upon the location of industries and the training that the rural population receives in trades, and in handicrafts, to equip them for non-agricultural pursuits. Such training, however, is sadly lacking at present. There is a large class of men in agriculture who originally were engaged in small rural industries and who by tradition are more suited for industrial life. These men could be easily trained and sent out to provide labour for new industries. The industrial training which is now imparted is taken advantage of by the higher and middle classes only and does not reach the small men on uneconomic holdings or landless labourers in the village. They need a somewhat different type of training.

But if agriculture is to prosper and to provide a reasonable standard of living to the average farmer and produce ample food for the population and also raw materials for some of the industries, comprehensive measures are necessary so that the unwanted men may be

pushed out in the course of readjustment. This can be done by measures of land reforms which are well known to most of the European countries—check the fragmentation of holdings and their subdivision, consolidate the fragments, stop the land passing into the hands of the non-cultivating owners who take no interest in its exploitation, enforce rigid tenancy laws by which rents are controlled to such an extent that there is no incentive for absentee landlords to hold land, stop share-cropping, &c. By systematic efforts at land reforms prosperity can be brought to agriculture, while the surplus and unwanted population is diverted towards industry, trade, service, and other professions.

There is yet scope for the reclamation of waste lands, which are nearly 90 million acres, and for the extension of irrigation so as to stabilize agriculture and make it produce more. There is ample scope for the improvement in the technique of agriculture which in the present condition of land exploitation is giving the lowest of yields. All these measures, if taken simultaneously and carried out systematically, will give us the desired results. They will make agriculture prosperous and raise the standard of living of the farmers, who will be fewer in number than hitherto but fitter and better equipped.

We can consider nearly 25 per cent. of the men employed in agriculture as surplus. These men should be taken out of it and diverted towards industry, trade, and the professions. If mass unemployment is to be avoided as a result of comprehensive agrarian reforms, the industrial development should synchronize with land reforms. This is not an impossible ideal to achieve. It can be worked out, provided we have peace in the country and an efficient administration. The future appears promising since the post-war reconstruction plans drawn up by the provincial Governments have taken cognizance of this over-crowding in agriculture and have planned for speeding up industrialization as one of the measures for reducing the pressure on land.

R. KELLER AQUIAGA, *Chicaro School of Agriculture, Spain.*

My purpose in making these observations is to stimulate discussion, especially among those members who come from countries which have completely different conditions from those prevailing in England. There is a great difference between the situation of agriculture in England and in Spain. In England only about 6 per cent. of the population is working in agriculture. In Spain there is 60 per cent., and we should remember that in Spain there are less than

20 million hectares in cultivation, only 1 million of which are under irrigation. That is important because only the irrigated areas are valuable. The rest have very poor yields. For instance, the yield of wheat is only seven to one. The population which lives on agriculture is therefore excessive, and the standard of living is necessarily low. In this and some other respects there is a great similarity with what has been said about India. In the case of greater and larger holdings, the wages have to be very low, and in the small holdings the returns are not enough to support a family. In the case of small holdings the problem is most grave at the time when the property is transmitted by inheritance. The laws of inheritance, or more correctly the customs of inheritance, require that the property of a father who dies be divided among all the sons or all the family. The subdivision therefore of the property is extreme, because Spanish families are very numerous indeed. The holdings grow more and more incapable of supporting a family. There are now some holdings or fields belonging to a proprietor which are only 16 square metres, 19 square yards, which is nothing. This has produced a great movement of the population from the country to the town naturally, but the towns are not industrialized enough to absorb the movement and therefore there is a demand for emigration to other countries, or was. As you know, emigration nowadays is almost completely restricted and the problem arises that all the surplus population which used to emigrate to South America especially, and to Central America, is now completely unemployed. In Spain, therefore, one has to recollect that this movement of the population from the country to the town is explicable and cannot be prevented because the possibilities of irrigation are limited. However, the day of mechanization of the country-side—of the farms—is more on the way. This mechanization has already been initiated but it is only beginning. One of the chief results of all this is that in the large holdings there are social problems because of the great number of workers and the necessarily reduced wages that have to prevail, while on the small holdings the farmer has to cultivate poorer and poorer land, which is always aggravating the situation. These poor lands from the economic point of view should be devoted only to forestry or cattle-grazing.

S. C. Lee, *University of Nanking, China.*

Our conditions in China are very similar to those in India of which Sir Manilal Nanavati has spoken. I am not going to attempt any details of the drift from the rural areas to the cities. I just want

to mention the general trends of rural population movement in three distinctive periods.

The first, the pre-war period, is that from 1910 up to 1931. As you all know, China is an agricultural country and also over-populated. The population pressure is even greater than it is in India. But before 1930 and beginning from 1910 our people used to have two directions of outlet, one to the north-east free province, the so-called Manchuria or Manchukuo until the country was entered by the Japanese. From 1910 to 1919 the exodus of population from the northern parts was about from 5 million to 10 million people a year to the north-east province, and then beginning from 1915 up to 1929 the average exodus of all population to the north-eastern province was, on an average, about 10 million people a year. The second movement was that of people from the south coastal provinces which are also over-populated. They moved to the Malay States, to the Dutch Indies, Siam, Indo-China, and Burma. I do not remember the exact number of people that moved to those places, but the total number may be about 7 million. This movement of rural population solved part of our population problem before the war.

After 1931, by the Japanese invasion of Manchukuo, the Japanese stopped our population movement into the north-eastern provinces, and then, of course, things were getting worse in the northern provinces. That was up to the Japanese invasion of China, which began on July 7, 1937. Beginning from December of that year people moved from the coastal provinces inland to the west. Up to the end of 1944 the total number we have statistics of is about 50 million from the eastern coastal provinces. Of course, these are large numbers of people. They are coming back to the eastern provinces, but a small part of this 50 million people has been establishing itself in the western provinces. Some of the young people have been married and are established either in agricultural or in small-scale businesses. I should say at least three-fifths or 30 million people will come back in the next 3 or 5 years to the eastern provinces of China.

Then there is the period after the war that begins from 1946 till now. In the areas occupied by the Japanese all the young people were compelled to become either labourers or soldiers in the Japanese army. So the occupied areas were short of labour. As soon as the Japanese went out of those occupied areas, they left a vacuum for the Communists, and the Communists did a very great deal of harm to the social structure of our society. They induced all the young people, men and women, to join the Communist forces, and in about 6 provinces all people aged from 16 up to 45, at least 70 per cent. of

the people living in the villages, have been compelled to join the Communist army or to do compulsory labour for them. So that now some of these provinces, although they have been recovered by the Central Government, are very short of agricultural labour. I do not know what method there is to restore the agricultural labour in these provinces. Of course, there is this opportunity to introduce small-scale machinery into rural areas in China, but, on the other hand, we do not have the exports or American dollars or English sterling to purchase small-scale machinery which would be applicable in our rural districts.

These are the important points in connexion with population movement. There are other aspects which are closely connected with agricultural labour and with the movement of rural labour which I shall raise in the discussions to-morrow on the Flexibility of Land Tenure, Capital, and Credit Systems.

G. MEDICI, *Istituto di Economia Agraria, Rome, Italy.*

Perhaps it is useful to make some general observations about this problem in Italy. As elsewhere, Italy over the last seventy-five years has had a marked increase in population which from a total of 26·8 million inhabitants in 1871 has risen to 46 million in 1947. At the same time the percentage of male population working in agriculture decreased from 20·9 to 14·7. The percentage of agricultural population has constantly decreased, whilst from an absolute point of view there has been but a very small increase. During the same period agricultural production increased rapidly. I think that all of us can agree with the general conclusion that a transformation from a primitive agriculture into a modern one is possible only when the shift of farm population is free and when the system of land tenure and the general economic system do not hinder the shifting from one job to another. For this reason the system in Europe is less flexible than in the countries of the new world. This lack of flexibility is one of the reasons of poverty, and perhaps it is the poverty which is the cause of the rigidity.

As an earlier speaker has said, when we look at the world we find that the essentially rural countries are poor, and that they can improve their standard of living only by a transfer of population from rural activity to non-rural activity. In Northern Italy, where a highly progressive and intensive agriculture is accompanied by a good industrial activity, a fair standard of living prevails. Carlo Cattaneo, a great Italian writer of the last century, once remarked paradoxically that good agriculture is born in towns. Agriculture owes its progress

to the investment of capital which was formed in trade and industry, later in agricultural enterprises. It is essential to foster free movements of farm population, because only in this way is it possible to apply modern machinery and to achieve the same rate of production with less use of man-power. The wonderful progress in economic activity during last century was possible not only because of free trade, but because trade was accompanied by widespread emigration. The greatest decrease in rural population occurred in England with its great industrial revolution and corresponding increase in industrial workers. It was possible because emigration was free, and the economic system preserved great flexibility. To-day the situation is quite different. Even if we could hope for free trade between the civilized countries, movement of population is hindered by law and the short-sighted attitude of too many governments towards immigration. Free trade should begin with free movement of populations.

This problem is vital because everywhere there is an impending surplus of man-power in agriculture. This general conclusion is not a contradiction of what we see to-day in many countries; in Italy there is a large number of farm-workers available, but this surplus is only a small part of the real surplus that would be available if a system of economic management of farms were applied. In other countries the apparent scarcity of farm-workers is merely a reflection of the tardy progress of their agricultural development. Looking ahead, I feel strongly that the future of agriculture—particularly in Europe—depends upon a widespread shift of farm population to non-agricultural activities.

B. R. SHENOY, *Department of Research Statistics, Reserve Bank of India.*

I think I understood Professor Thomas to say that industrialization and high standard of living need not necessarily go together and that if, before the war, the two coexisted in the United Kingdom, the U.S.A., and in Germany, it was not entirely owing to the advanced state of industrial development in these countries; it was due more to the easy accessibility to resources which they commanded.

Now this would seem to go contrary to the way of thinking in which most of us have been brought up. I, at any rate, have all along been accustomed to believe that the most effective method of raising the living standard in countries situated such as India, i.e. mainly agricultural countries, is to diversify employment. This in their case must mean industrialization, applying this term in its widest sense so as to cover not merely factories and their products but also the development of transport, the credit system, and marketing.

Progress in these directions will enable the withdrawal into industries of surplus agricultural labour, while at the same time rendering possible more effective exploitation of land through mechanization of agriculture and the application of modern methods of scientific cultivation.

At the moment, in India, there are about 200 people or more per 1,000 acres of land, and I believe that by British standards of mechanization you do not need more than 50 workers for a farm of 1,000 acres. If the tractor and similar devices are to be brought on the land, the split-up and scattered holdings must first be consolidated, and this will necessitate the displacement of about 150 men from agriculture.

It is not implied, however, that the entire displaced labour should be found employment in industries. Part of it may become absorbed in the country-side itself in occupations that must come into existence from the expenditure of the larger incomes which mechanization will bring. Part will be required for servicing the machines, to supply spare parts, and so on. But there will be left a surplus which will be large or small according to circumstances. Professor Thomas himself thinks that there is an excess of population on land even in the United Kingdom. If so, the excess in countries such as India must be very considerable.

And let us for a moment inquire how the United Kingdom, the U.S.A., and Germany did gain access to the resources which we are told provides the correct explanation for their high living standards. If expropriation is not suggested, this was clearly done through exchange; that is, a higher level of production with which to effect the exchange was the real basis of the command over the resources acquired or the root cause of the higher standard. And, as already indicated, a higher level of production can be attained, in the Indian context, only through industrialization.

This renders it exceedingly difficult to appreciate the view-point of Professor Thomas and it would be helpful if he would kindly clarify the position in case I have misunderstood him.

In reply, *Professor Thomas* said: I am very grateful for this question because obviously I did not succeed in making myself clear and this gives me an opportunity of clarifying what I had in mind. Perhaps I ought to say that in talking about the industrialization of countries within national frontiers I was thinking mainly in terms of the Western World. I was thinking in particular that the sequence of industrialization and higher standards of living which had been experienced in some countries of the West would not necessarily obtain if applied to many of the smaller nations of Europe. The

point I really wanted to make was that where the process of industrialization was conceived as a means towards self-sufficiency then in many countries it would not lead to an improvement of the standard of living. When I said that the problem of the improvement of the standard of living for many countries was mainly a matter of international relations I meant, of course, that it was essentially a matter of international trade, and that is precisely what Mr. Shenoy wants to make clear.

A. W. ASHBY, *Agricultural Economics Research Institute, Oxford, England.*

Although I have been unable to apply myself to the subject of this paper until I came into the room, it does seem to me to be so fundamental to a number of the subjects which we have to discuss later that I can scarcely refrain from trying to make a contribution. I have not even now been able to order my thinking as I would like to do, and, as a preliminary, I would like to return first to the paper which Mr. Maxton read, and try to give you a shorter, if not a simpler, analysis of some of the transfers that he has mentioned.

We can, I think, define these transfers: first of all, as geographical transfers without a change of occupation, from agriculture to agriculture within the same political area; second, geographical transfers plus political transfers without change of occupation, the typical emigration of the nineteenth century from eastern and southern Europe, and in part from northern Europe to the United States and Canada; third, geographical transfer with industrial transfer from agriculture to other non-agricultural occupations; fourth, geographical plus industrial plus political transfers. We also have had, right through the history of civilization, industrial transfer in location, that is, industrial transfer without a change of residence. There were also mentioned transfers from poor land to better land. I would like to extend that and say transfers from the poorer to the better *resources*, or from the poorer to the richer resources. But not only that: because I think it is absolutely essential to this discussion to remember that resources in themselves are never absolute, and never final. The resources of any people depend on its surface soil, its rivers, its sea boundaries, on its minerals, and so forth, but those resources in reality depend on the level of technical knowledge and organizing capacity. What the Americans, I believe, call 'know-how' largely determines how much *effective* resources there are. Just remember the condition of this country from the time at which Totnes was founded until, say, 1760: we had all the coal which we have since used underlying our soils, we also had all the iron ores distant from woodlands and the

traditional smelting areas. But we never used them because we did not know how, perhaps because we had not the need. It is necessary to remember that resources are not absolute, but are relative at all times to the stage of technical development of peoples; they are relative also to capital supply. The capital supply itself is partly the result of technical advances. But increases in supply of capital have arisen in agriculture and preceded advances in other industries.

There is also a form of transfer which has been important which Mr. Maxton did not mention; those from areas of political or religious restrictions to areas of relative freedom, a type of transfer which in part laid the foundations of the United States. Unfortunately in these days that is not a type of transfer which we can expect because most of the political States have tied up their citizens so tightly that they just cannot migrate to areas of freedom, or if they could obtain release other States would not accept them. I might add that not all restrictions on transfers are imposed by the State. There are certainly many others besides those of immigration laws. Almost from time immemorial various craft and trade groups have been trying to build economic walls round themselves either to regulate or to prevent entry into them. It is one of the common features of trade-union organization the world over, whenever the union gets into a position at which it can impose restrictions. There are others besides which perhaps I need not mention. What I really want to say to you is this: that modern civilization, Western civilization in particular, has rested and does still rest on the possibilities of transfers from agriculture to industry, using the term industry in a sense in which I will endeavour to explain in a moment. Western civilization—Western material civilization—has grown up out of the intelligence of the people who created it to serve their objects. Progress was made, and is continued, in order that people may have the foodstuffs for full growth, full physical development for a normal span of life; that they may have adequate clothing, not only for protection but for aesthetic expression and for some display; that they shall have adequate housing for the same purposes, and that they may have all the other material supplies which go to make up both our material civilization and our standard of living. Without technical progress and the rise of economic efficiency in agriculture, modern material civilization as we know it and enjoy it could never have arisen. Progress, both in agriculture and organized industrial development, is necessary to help the poorer backward peoples along the road which Western civilization has travelled. I would go even so far as to say that without an initial rise in the efficiency of agriculture it

would have been impossible to start this process of raising material civilization. Let me put the position to you in this way. Those of you who have studied technical advances in industry and agriculture and the rise of economic efficiency in either of them know that if you are taking all industry or all agriculture in any country it is very rare that the rate of progress or increase has been more than 1 per cent. a year. It has touched 2 per cent. in some phases of agriculture. It has, I believe, touched 2 per cent. for very short periods over the whole of industry in the United States. But throw your mind back to civilization when the bulk of people were engaged in food production: say there were 90 per cent. engaged in food production and 10 per cent. in other occupations, mainly government or occupations of that sort. Then if you were to attain a 1 per cent. increase over the whole of your population, you would get it by 1·011 per cent. on 90 per cent. On the other hand, you would require 10 per cent. increase in efficiency on your remaining 10 per cent. in the industrial group to give 1 per cent. over the whole group. Just one illustration. In India, using the round figures of 80 per cent. in agriculture and 20 per cent. in other occupations; if they were to seek a 1 per cent. increase in their productivity, they would get it by 1·0125 on 80 per cent., but would require 5 per cent. to get it on the 20.

But the main point is this: until agriculture raises its efficiency, its technical efficiency in particular, and begins to produce a regular and reliable surplus of foodstuffs which can be transferred to the feeding of a non-agricultural population, the rise of industry as we know it is quite impossible. And, not only so, but if we were ever to contemplate a position in which we were obtaining all our increase in efficiency from the industrial sector of the population, and none of it in the agricultural sector, then by all the economic forces, by all the economic rules, the benefits of the increase in efficiency would remain with those who produced it, and would not in the main be distributed over the whole population, especially as the group of 20 per cent., or whatever the small figure may be, has a very much higher power of providing protection for itself and its standards of living than the preponderant majority of 70 or 80 may have.

But for some of us there are more practical considerations perhaps. If you are looking at this country, Mr. Maxton has told you that we have about between 5 and 6 per cent. of our occupied persons in England and Wales in agriculture. In round figures, 5 per cent. in England, 10 per cent. in Wales; I do not remember what the proportion for Scotland is, but I believe for Great Britain the general proportion is in the neighbourhood of 7 per cent. But, if you are looking

at smaller areas like administrative counties, we have only 2 per cent. in Lancashire, 2 per cent. in Glamorgan, and the highest proportion we have in England and Wales is 40 per cent. in three counties, Rutland, Montgomery, Radnor. That 40 per cent. is extremely important because those are three areas in which there is, practically speaking, no industry except for the service of agriculture. There are some through communications, like railways, telegraphs, and so forth, but in those areas there is practically no industry serving an external population. And those of you who believe in the virtues of small rural communities, mainly based on agricultural populations, should not complain of the growth of urban and industrial agglomerations but should be thankful that they have arisen. Postulating the same growth of industries and their spread over the general geographical area of industrial countries the absence of agglomeration would have meant that very large numbers of the present rural communities would have suffered radical change. Many of them would have added to the present rural population (i.e. families dependent on agriculture and families dependent on ancillary services to farms and agricultural homes) considerable elements of industrial population. There would have been much admixture of occupations and large communities where the small rural types now exist. The rural communities would have lost their close character. As regards this country, given industrial dispersal, no substantial rural area could have preserved anything like 40 per cent.—or in the twentieth century, even 20 per cent.—of its population dependent on agriculture. And remember that every step forward in the technical and economic progress of agriculture enables a smaller number or proportion of the people to feed the whole. It should bring to the agricultural population higher incomes, higher material resources; it should give them higher command over the non-food commodities and services produced and supplied by other groups.

And if you begin to examine a self-supporting rural community, which is living on a fairly high technical and economic standard of production in agriculture, you will find that 40 per cent. require the other 60 per cent. to serve them in building houses and maintaining healthy conditions, in baking bread, in supplying groceries, clothing, fuel and light, furnishings, postal, telegraphic, and telephonic communications, railway communications, and modern transport, distribution, and services in all their forms. That is the condition of the expansion of life for individuals and families in rural communities: the condition of the expansion of possibilities for the development of personal capacities in all our individuals and our families. We have,

in fact, not distributed industry in that form, but we have, of course, distributed it where it can produce most economically in relation to raw materials, or in relation to other requirements of production, and sometimes in relation to where the people prefer to live. But I would emphasize that if we are going to continue with technical and economic progress in agriculture, we do ourselves create the necessity of these transfers. The results of the labour of the transfers should come back to us in materials and in services for raising the standard of living of the agricultural community itself.

I said a moment ago that I would endeavour to say what I mean by industrialization. When we use the term simply and easily, I presume many of us visualize the factory industries and their products. That is not the only meaning of industrialization. If you are looking closely at the industrial evolution of this country I think you will find that the building of the turnpikes—the main roads of England—the improvement of the secondary roads, and the building of the canals in the eighteenth century were amongst the most important parts of the earlier industrialization of this country. At any rate, apart from the shipment by sea and a little movement by river, this building of transport facilities in roads and canals was absolutely essential to the development of the other things which we call industries. And that remains true of the less-developed countries to-day that, where they have labour in good physical condition, where they have organizing capacity, where, as I said a moment ago, they have food-supplies surplus to the requirements of the agricultural population, and where, in addition, they have relatively simple materials, in stone or cement, or anything of the kind, they can set about road-building, river improvement, canal-building, they can even set about building the great dams which will provide for irrigation and for electrification, and that is the basis of industrial development in the backward countries.

On the question which was asked just before I began to speak, in the simpler economic sense it may not matter to a people whether they produce the industrial commodities themselves or whether they get them on the basis of exchange for agricultural commodities; the real question is whether they get them or not. Some countries have got them largely on the basis of that exchange. That exchange, unfortunately, in these days is subject to all sorts of political tampering, all sorts of political muddling one might add, and because of the separation of peoples into national States and the intense sentiments which have developed in the last half-century round national States, it appears that that form of exchange is no longer quite so certain

and reliable in operation as it was up to 1914. But the positions are something like this: that the *per capita* supply, that is, production plus imports minus exports, of finished factory products, other than foodstuffs, round about the early thirties was about 250 dollars a head in the United States, about 110–12 dollars in the United Kingdom and Germany, about 28 dollars in Japan, about 22 dollars in Russia, and about 3 dollars in China. And that indicates what is the real deprivation of some of these peoples in manufactured commodities, if you think of manufactured commodities in the terms of which I was thinking of them a few minutes ago, as the means (other than foodstuffs) by which we protect ourselves in health, the means by which we secure to ourselves a normal term of life, the means which in the end we use for development of personal capacities and personality in individuals.

As I said a moment ago, the main requirements of advance in industrialization are technical knowledge, organizing capacity, and the appreciation of the values obtainable by industrialization, plus the will to save or to postpone consumption, for the purpose of increasing future production. We must, however, admit that under some circumstances the deprived agricultural peoples can improve their positions by improving the yields of their crops. They may vary their crops to obtain more varied and satisfactory dietaries. Under certain conditions they may increase or vary their livestock production and again improve their dietaries. They may not only produce more or better food, but produce more of non-food materials for local uses, more 'manufactured' materials for local consumption, and the improvement of local conditions of living. Where conditions are favourable, by improved and varied methods of production, they may produce real surpluses for exchange with other commodities and services and again improve their conditions of living and increase their satisfactions. But wherever local materials are available or producible they can go farther, they can start in a fresh direction by building and construction; building better habitations, providing better and more adequate water-supplies and sanitation, building schools and local institutions, building and maintaining better local roads, and, under appropriate governmental organization, building main and trunk roads or providing for water transport or generation of electricity as the case may be. And even, for this is the very remarkable thing, with relatively little external capital, they may build railroads. The railroads of the United States made a great contribution to the economic advance of that country and to the modes and standards of living of their people; they did not make

so much contribution to the British investors who helped to build them. There is a very nice simple story that a representative of some London bondholders went to Chicago to see what was happening to a railroad in which they were interested. They met the general manager and the local directors in a hotel there, and the Americans knowing what was coming said: 'Well, they were damned poor rails you sold us.' The British reply was: 'But nothing like as rotten as the bonds with which you paid for them.' In railroad-building a large part of the capital investment was in laying the roads and building the stations, which, with a surplus of foodstuffs and the existence of local labour and materials, technical skill, and organizing capacity, can be done within the nation itself. Metals and rolling stock will, of course, be required; and here exchange capacity or further capital, skill, and organizing capacity will be necessary.

I am not arguing that in these days the process will not take the form of capital saving and capital investment, but where the actual material conditions exist efficient and forward-looking Governments find capital anyway.

Those are just some of the thoughts on this paper. I will just repeat that all the time when we are working at the technical and the economic progress of agriculture we are ourselves creating the necessity of transfers out of agriculture into other occupations. That transfer is as necessary and is as valuable to the agricultural population as to any other part. Our main business is to see that the transfers are carried out with the least necessary pain and with the least loss to those who must move, and to the greatest advantage of the whole community. While we may say that the deprived peoples need more, or more regular, better or more nutritive foodstuffs, their deprivations in respect of non-agricultural—i.e. 'manufactured'—commodities are much greater, almost certainly more important to them, than their low levels of nutrition. In any case, no modern family or community can afford to use all its resources, whether of purchase or production, for procuring foodstuffs. With each increase in purchasing or producing power it will seek to balance the satisfactions obtainable in consumable goods and services in their many forms.

R. W. BARTLETT, *University of Illinois, U.S.A.*

Dean Young made an apology before we started this morning about the people from the United States when he said: 'Of course you recognize that several of us are from the midwestern part of the American continent, namely, the corn-belt states, and it is quite

possible that our thoughts and opinions are pretty much provincial.' With that as a preface to my own position I would like to raise two or three questions concerning this whole problem, particularly for England, and base these questions upon one or two statements made in the welcome this morning.

Lord Huntingdon in his statement said that the two basic problems of England were coal and food. I would like to go behind this and ask: 'Are these necessarily the basic problems?' Mr. Elmhirst stated that the basic purpose of agricultural economists is to aid in improving the standards of living of the people whom they are serving. And he also stated that we should assume an objective approach to this problem. I would like to raise two questions, not for answers by any particular individual, but to stimulate thinking on the broad problems which England is facing.

The first question is: Is there any objective evidence that the standard of living of the people of England will be improved by pouring more and more capital and more and more labour into improving the coal industry and into the production of food within the country?

The second question: Has objective study been made which would show whether or not the pouring of a greater proportion of capital and labour into some of the younger countries of the Dominions might not prove more productive in improving the standards of living of the people in England and in the Dominions as a whole? Let us first look at the question from a viewpoint of using more capital. There are two proposals that have been suggested in regard to the use of capital in improving the coal production in England. One is for the English people to use capital and initiate some of the labour-saving devices that are used by the American miners so that coal can be mined more efficiently. I think probably that this proposal is true. Another question which goes along with this is: Is the availability of coal in the English mines such that its production after the use of such labour-saving machinery can be made as efficient as, say, the production of coal in Canada or in other countries of the Dominions? This question seems to me pertinent from two viewpoints: one is from the viewpoint of improving the standard of living of the English people. If, after one invests more and more capital in coal-mining, the standards of living of the English people do not improve, is that capital properly spent? Is it possible that the mass-production industries now in use in England might be developed more cheaply in some of the other Dominions or in Canada than to try and improve them in England?

If a country is going to sustain its present political and economic status it has to bring about an increase in the standard of living. One may start at a very low level like that just discussed by Dr. Lee of China. People in all countries want an improved standard of living. Realistically one recognizes that in each country one must start from where they now are.

Another question: Might it not be possible for Canada, Australia, New Zealand, and South Africa to develop still more some of their food industries and to ship the finished products to other parts of the world? They have already manufactured many raw products during the past four or five years. I have been particularly interested in the development of industries in Canada. Three weeks ago when I was passing through Canada, an editorial of one of the papers said that they would like to have more people come to Canada from England if that could be fitted into the British plan.

Our friends Simpson and Morey from Australia tell us that they would like to increase their population from 7 million to 20 million people during the next three or four decades. One of my American friends who recently spent a year in South Africa said that many people in that country were anxious to develop their industries and increase their population.

In conclusion may I repeat: Is more home production of food and coal the basic problem for Britain? Would export of capital and labour to their Dominions improve living standards of the people of Britain and the Dominions as a whole?

L. J. NORTON, *University of Illinois, U.S.A.*

There is one subject in Mr. Maxton's paper which has not been completely covered: The problem of training people so that they can move effectively from one job to another. The paper seemed to indicate that a man could shift from one place or job to another with just about equal proficiency. I do not think that this is true. Newspapers in the U.S.A. have recently reported arrival of Dutch farmers in the United States. They always arrive by aeroplane—at least those who are reported in the papers—and they always have a large family of children. I do not know whether there is a policy of exporting Dutchmen with large families. May I say that we are very happy to have these Dutch families in our country. I was recently in Holland for two days, and I think that the training of Dutch dairy farmers would be very satisfactory for them to go on to a dairy farm in the United States. I was on several Dutch grain farms and saw a number of hired men who would certainly be useful on our grain farms in

Illinois, but it would take a year, I am sure, to train them to be qualified grain farmers. They would need to learn the skills and tasks of our more mechanized type of agriculture. In the transfer of people from job to job and from country to country, education and training are extremely important.

In the United States, and particularly in the part to which Dean Young referred, our farmers and rural communities have within the last generation seen to it that a high-school education is available to the children of every farmer and every farm-worker. That was not true twenty-five years ago in Illinois. Indiana started it before Illinois did, but we now have everywhere our state high schools where young men and women who want to do so can get twelve years of education in their home community. I think our farmers and rural communities pay for these schools, and they are expensive, in part because they want their sons and daughters, who may go to the cities, to have an even break with other people's children. It is a part of this training that I am talking about. Alongside of providing the education needed for admission to our colleges, practically all of these schools have good vocational courses where the boys are introduced to the elements of training in agriculture and the girls to training in home economics. I am sure that American farmers feel that training is extremely important in the transfer of people at the desired economic level.

I was very much struck with Professor Ashby's point that if you want to build roads, &c., in non-industrialized areas, it can be done largely with local materials and local labour. I am not sure what the point of the following story is, but I think it ties in with what I am saying about training: on the aeroplane in which I came over—it was the New York to Karachi flight—about half of the passengers were American workmen. They were going to the last place in the world that I would have expected American workmen to go to work, Afghanistan. Who was providing the capital to fly American workmen from New York—some of them had just flown in from California—to Afghanistan, I do not know. All of these men were specialists. One was a man who knew how to use heavy earth-moving machinery; another was a machinist; two of them were powder experts; and an engineer was in charge. Somebody in Afghanistan must want to speed up construction work. I told a couple of Englishmen about this on the train coming down from Glasgow the other night and one of them said they probably wanted to blow up the Khyber Pass, which I take it the British have been defending for many years. I told them that I thought their jobs

might be to build better roads in this pass. My point in this story is the same that I made above: in moving people effectively from one place to another they need to be trained for their new jobs, even if it is to be a hard-rock miner and how to use explosives. The problem of the proper type of education and training involved in moving people both into and out of agriculture is extremely important.

I had the pleasure during the past week of seeing a small bit of England and Scotland. I want to take this opportunity to thank the people who are here who helped to make this trip profitable; I never received so courteous treatment anywhere, never expect to get better, and saw a great many things in a very limited time. Two of the men who helped me on this trip, men who had not been born on farms, were planning to go into the business of farming. Both were getting good training before they started. So what I am saying about training I have seen practised here.

On Mr. Long's point as to what British farmers with large farms and with hired labour will do if prices go down, as many of us think they will, although there are still differences of opinion amongst us, I would suspect (and now, having spent a week in England, I am an expert on all English questions!) that your farms would go into production of things for which they have special advantages more than they do at the moment under the force of the grim necessity to produce the maximum quantities of food. This necessity I think is in part the answer to the questions which my colleague Dr. Bartlett has raised. When this emergency is over your farms will shift back to the production of things for which you have local advantage in supplying food for 47 million people, namely, the fluid milk and the fruits and the vegetables and the other perishable things which are advantageously produced at home. But also (I know that several of the English economists will disagree with me on this because they have done so privately) I think that at least in your crop production you will find ways of increasing the productivity of a day's labour. I am not saying that you will do this in your livestock production because there are not such great opportunities there. You can give good reasons, and the farmers too, why this cannot be done, but, following up Professor Ashby's point, if the will to do it exists and the necessity for doing so develops, farmers will find ways of using labour in crop production more effectively.

J. Coke, *Department of Agriculture, Ottawa, Canada.*

Most of this discussion has centred round the problems of countries in which surplus population exists. I come from a country in which

we have a relatively small population. The trend in population in Canada between rural and the urban population has been in favour of urbanization. We have about 25 per cent. of our people living on farms, and in the paper which Mr. Maxton presented I thought I detected too little emphasis upon the development of technicological improvements, e.g., mechanization of agriculture. In our country we are moving quite rapidly in the direction of mechanization, the trend in the size of farms is towards larger units, and, we think, more efficient units. Therefore the surpluses which we produce (not with the regularity that Professor Ashby would like) are the result of increased mechanization and a larger output per worker in agriculture. That should be borne in mind when we consider the movement of people from one country to another. We, too, have had movements from poorer land to better land with assistance in some cases in western Canada by both provincial Governments and the Dominion Government. And we have had movements from urban centres to pioneer districts. That has been a consciously developed programme in some provinces, particularly in the Province of Quebec, but it is not entirely confined to that province.

There is one thing that occurred to me which has not been brought up here this afternoon. Since this Conference was organized and even since we last met there has been a development in many countries towards social security. In our own country we have family allowances and other benefits paid to individuals, and I was wondering as the discussion went along whether anybody had made a study of how individuals would be affected in this respect in attempting to move from one country to another. It is not only special benefit payments but also the security, for example, of wage regulations. In Great Britain farm-labourers have a statutory minimum wage. We have nothing of that sort in Canada. It is therefore a question that needs exploration as to how much the individual might better his position in moving from, say, Great Britain to Canada.

We have had in our country a great deal of discussion about the movement of peoples across our own borders. There has been some relaxation in the regulations governing the admission of people into Canada. The people who already have families or relatives in Canada may gain entrance to the country. There have been special measures taken to bring in groups of people, including some Polish soldiers and some from Holland. Those are special arrangements. The overall policy, however, has been halted by lack of transportation and by critical housing situations in many large areas in the

country. I mention these because I think perhaps we tend to underemphasize some of the difficulties in free movement of people under present circumstances, including this one I have mentioned particularly, namely, the variations in social security available to people in different parts of the world.

O. B. JESNESS, *University of Minnesota, U.S.A.*

One answer should perhaps be made to my good friend Professor Ashby with respect to the aid which we received in the financing of the building of our railroads. A good many Americans would take delight in hearing that there was at least one occasion when we got the best of the British in a trading deal. I anticipate that more than one American would be inclined to remind Professor Ashby that, if not the investors in the bonds, then at least the British people secured some gains in the form of cheap food. Some people might be inconsiderate enough to suggest that perhaps you are getting some repayment at the present time.

But leaving facetiousness aside, it was a delight to me to have Professor Ashby outline this problem in his very effective and lucid manner. I do not propose to raise any additional question at this hour, but merely want to take a moment to express what seems to me to be some of the things which this problem we have been discussing to-day means. Professor Ashby well stated that what determines our level of living is what we produce and how efficiently we produce it and he also made the point that this is more than a national question. As I see this whole problem of population, it is one that must be viewed not merely with respect to policies within a given country, but must also be recognized as a very fundamental aspect of world problems. How well we live (contrary to popular opinion) is not determined so much by the way in which resources are utilized within a given country, but how well the resources are utilized the world over and what our relationships are in the matter of exchanging the products of that utilization. As we think over what our policy should be with respect to population and over the consequences of our agricultural policies, we ought to be more concerned with their longer-run effects. I am certain that in my own country we have programmes relating to agriculture on the way to-day which are tending to interfere rather than aid in the desirable adjustments of population, and I seem to detect both from my visit and from previous reading some evidences of the same thing in Great Britain. I doubt, in fact, if any nation here represented is free from that taint. We are motivated in our programmes entirely too much by conditions of the

moment. We yield to expediency and then we wonder why certain of these broader problems such as those in the field of population descend upon us at a later date. This imposes some grave responsibilities on all of us, whether we are classified as population economists or not, to try to think through these problems and to see them in their larger relationships.

THE FLEXIBILITY OF LAND TENURE, CAPITAL, AND CREDIT SYSTEMS TO MEET TECHNICAL, ECONOMIC, AND SOCIAL DEVELOPMENTS

OPENING ADDRESS

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LAND tenure is a broad term covering all those relationships established among men which determine their varying rights in the use of land. It deals with the division of property rights among various owners: between owner and occupier, between owner or occupier and creditor, and between private owner and the public; and it includes assessments of taxes on private rights and regulation of land use through various social control devices. Land-credit and land-taxation problems are definitely land-tenure problems which arise from aspects of human behaviour in which property rights in land are the dominating directing factor, just as are tenancy problems. Land-credit and taxation problems, however, are so large and significant and courses of study, research, and administration have been established in these fields in so many institutions that discussions of land-tenure problems ordinarily confine themselves principally to tenancy problems, or the division of rights between owner and occupier, division of title among various private owners, and division of ownership between private and public owners.

This paper will be devoted largely to these tenancy problems, but will also include discussion of certain of the more important land-credit and taxation problems which bear specifically upon land tenure and land utilization. Many of the problems discussed will be hardly more than mentioned, with the hope that later papers and discussion will bring out some of the important points on these various problems which should be developed.

Land-tenure problems have not been given the amount of study in the United States that they have been given in many other countries. In a young country such as the United States, with an abundance of land, it is quite understandable that land-tenure problems have demanded less emphasis than in other parts of the world.

Stability and efficiency are major goals in any sound agricultural

programme. Economic progress emphasizes the necessity of using agricultural resources efficiently. In general, maximum efficiency of resource use requires that each resource be used where its remuneration is at a maximum. Unstable conditions growing out of price fluctuations are intensified, particularly in certain regions, by weather and climatic vicissitudes. Price fluctuations have a marked effect in determining the kind and intensity of land-tenure problems. The uncertainty of prices leads farmers to reduce their demands for capital, to buy too small farms, and to place heavier emphasis upon labour. Credit institutions tend to give reinforcement at these very same points, and income uncertainty places the farmer using borrowed funds in an extremely vulnerable position. For the most part, free market prices constitute a poor guide for resource allocation to achieve maximum income.

It is not the purpose of this paper to discuss at any length the various proposals or means of achieving more stable agricultural prices. It is sufficient at this point to indicate the significant role which prices and markets play in determining land-tenure issues, and to state that, regardless of the price programmes developed, we must assume the continuance of a certain amount of fluctuation in prices and markets. In other words, stable prices would solve, or at least lessen, the severity of many land-tenure problems, but at this stage of civilization we must assume that in most countries, at least, price-control programmes will be at best incomplete and partially ineffective. Scientific advance has increased man's control over nature and the influence of weather to some extent, but there will continue to be need for flexibility in our land tenure, capital, and credit systems if we are to make the necessary modifications and adjustments that are likely to be required in the national interest as conditions change, both at home and abroad.

LANDLORD–TENANT RELATIONS

The arrangements effected between landlord or landowner and tenant or land-occupier have a marked effect on land utilization and the economic and social status of farm tenancy. The forms and amount of rent payment, the length and form of leases, the arrangements for compensation to tenants for improvements made, compensation for disturbance or penalties for deterioration of the property by the tenant, and similar arrangements are of major importance in efficient use of land resources and stabilization and maximization of farm income. Many would place the land-tenure problems which arise out of the arrangements between owner and

occupier as the most important group of land-tenure problems which must be solved satisfactorily in any nation.

Forms and Amount of Rent Payment. Various forms of rent payment include cash, livestock share, crop share, crop-share cash, share-cropping (where the tenant supplies labour only, the landlord supplying land and equipment), standing rent (where a stated amount of the principal crop is paid as rent), or stated-price rent (where there is an agreement to raise crops or stock and deliver them to the landlord at a stated price per unit). Under the livestock and crop-share forms of rent payment, the share which goes to the landlord varies in different nations and in different areas within many nations. In numerous cases a half-and-half share basis is common, although there is a tendency for the share rent paid to be smaller on intensive crops like cotton and tobacco than on less intensive crops like small grains and corn. An important weakness of crop-share renting is that it provides little opportunity for production of livestock and tends to emphasize the sale off the farm of most of the crops produced. The result is depletion of soil fertility. Moreover, studies I have made indicate that there is no necessary relation between the landlord's share and the yield or productivity of the soil. In many areas, apparently, the division between landlord and tenant seems to be established and continued more by custom than by yield- or productivity-rating of the lands.

It would seem logical to assume that on the more fertile and productive lands the share which goes to the landlord would be greater than the share on the very poor or unproductive lands, because on the latter the proportion of the total rent required for producing the crop (the tenant's labour, cash expenses, &c.) is greater, and the tenant would have to have a larger share of the total product to meet his expenses. In marginal areas, or areas of high vulnerability, such as semi-arid sections where natural hazards are particularly great, it would seem especially imperative that the division of product between landlord and tenant should be correlated with the productivity-rating of the soil. In addition, where crop-share renting is practised, provisions should be made in the lease for a satisfactory and stable livestock enterprise by the tenant if soil fertility is to be maintained. Application of commercial fertilizers will not maintain soil productivity over a long period of years because of resulting unsatisfactory soil texture and lack of organic materials.

In cash renting, the tenant ordinarily has the greatest degree of freedom in utilizing land of any form of renting. Cash renting tends

to lead to less soil exploitation than crop-share renting, because livestock enterprises are more intensively developed as a rule. Moreover, security of occupancy is greater and the cash tenant is usually in a much stronger financial position than the share tenant. In some share-renting areas, however, only the smallest and poorest farms are rented for exorbitant rates to financially insecure tenants. If the amount of the cash rent is correlated closely with the productivity rating of the soil (or carrying capacity rating in the case of grazing lands) some of the more glaring weaknesses and rigidities of cash renting will be eliminated.

Length and Form of Leases. A great variation exists in the length of lease periods and in the form of leases. Many leases are for only one year. Others are for periods of from five to ten years, or even longer. In the United States the year-to-year leases are prevalent, and the most common plan is for the lease to run indefinitely and to close only by termination notice given several months before a specified date. A less common arrangement is for landlords to grant relatively long-term leases, usually from three to five years, but reserve the right to terminate the lease by notice sometime in advance of a set date annually. This does not give the tenant much more security of tenure than the year-to-year lease, and makes it impossible for him to plan his farming operations over a period of years. On the other hand, fixed leases of three to five years or longer have many disadvantages from the landlord's point of view. Such fixed period leases, however, can be written to give the landlord an option of terminating the lease at the end of any crop year, provided the tenant is definitely unsatisfactory, as indicated by the execution of certain things specifically prohibited in the lease.

We should always keep in mind that relations between tenant and landlord cannot be improved merely by the signing of a fixed contract by the landlord and tenant. Harmonious relationships between the two must be built on a sound basis approximating the character of a business partnership. This requires an intelligent and sane attitude on the part of both. It is true that tenancy conditions can be made quite satisfactory and socially constructive without the co-operation of the landlord, through legislation placing more managerial freedom and responsibility in the hands of the operator, as has been done in some countries. A strong educational programme to develop intelligent and sane attitudes on the part of tenant and landlord will probably produce more effective results over a long period of time.

The use of provisions in leases that either party must give the other notice a specified period in advance of the date of termination,

providing that this period is sufficiently long to assure the tenant time to arrange for another place, is probably the most effective way of dealing with the farm-lease problem so far as the length of leases is concerned.

Farm leases are often merely verbal agreements or understandings between landlord and tenant. In the United States most farm leases are of this nature, and in some areas written contracts are practically non-existent. While the oral lease is convenient for making changes, it is likely to give rise to misunderstandings which would be less likely with a specific written contract. These misunderstandings are likely to cause difficulties or failures to renew leases at the end of the year. Oral leases should be unanimously ruled out, and insistence made upon a written lease with specific provisions as one important step in improving farm-tenancy conditions.

Compensation for Improvements and Penalties for Deterioration. Statutes in many states in the United States, as well as the common law, cause an improvement affixed to the soil by an agricultural tenant to become the property of the landlord at the termination of the lease. Some states have already changed their statutes to allow tenants to take away removable fixtures and improvements, while other states have changed the common-law ruling by requiring landlords to make all repairs and improvements. Neither of these adjustments, however, covers improvements that cannot be removed. Farm tenants in many areas make many such improvements in the form of applications of lime and fertilizer, construction of fences, ditches, and roads and terracing.[1] If productivity is to be maintained or increased tenants must make improvements. It is imperative that plans be worked out which will encourage them to do so. This involves incorporating into the written lease plans for compensation to the outgoing tenant for the unexhausted value of such improvements. Although in some nations at the present time the number of written farm lease contracts is comparatively small, there is a tendency towards the increasing use of written leases.

Compensation for improvements made by the tenant may be of two principal types: (1) improvements which the tenant cannot make without prior consent of the landlord, and (2) improvements which

[1] In the United States the census of agriculture reports that during the crop year 1929, for example, some type of fertilizer or limestone was used on almost a million tenant-operated farms at a total cost of over 100 million dollars. There was also an expenditure of over 200 million dollars for seed during the same year. Both these items added to the fertility of the soil, and the average of the two per tenant-operated farm amounted to 397 dollars, enough to be of considerable importance in landlord–tenant relations.

he is free to make without consulting the landlord. More permanent types of improvements (buildings, permanent fences, commercial fruit and vegetable enterprises, and the like) are usually included in the former, and items like application of fertilizer and manure; limestone, and related improvements in the latter.

The amount which the landlord should pay the outgoing tenant for unexhausted improvements should ordinarily be agreed upon in advance, although this is not always necessary. The tenant should agree to keep a complete cost record of improvements he makes, so that the amount of his compensation at termination of the lease can be equitably determined. In case the landlord and tenant disagree on the amount of compensation an appeal should be made to an arbitrative board selected by the parties concerned. This procedure will work out satisfactorily in most cases, but there will be instances where the temperaments, personalities, and characters of the two contracting parties may make satisfactory settlement impossible.

Although some nations have passed legislation requiring that provision be included in the lease contract for compensation, the practice is still not very general. In the Agricultural Act passed in 1947 by the British Parliament there is a comprehensive compensation code. The items for which a tenant has a statutory right to claim compensation are divided broadly into three classes: (1) long-term improvements, (2) medium-term improvements, and (3) tenant-right matters. Long-term improvements include erection of buildings, provision of water or electricity supply systems, &c. Where a tenant has made such long-term improvements, he has, on quitting the holding, a claim to compensation on the basis of the increased value of the holding attributable to the improvement. He must, however, have obtained the prior consent of his landlord to the improvement before making it. Where a landlord unreasonably refuses his consent the tenant is given the right to appeal to the Minister of Agriculture, who can give his approval on such conditions as he thinks reasonable. The Minister's approval will then rank as equivalent to the consent of the landlord, and entitle the tenant to compensation on quitting the holding. The right of appeal to the Minister does not apply in case of long-term improvements set down in Part I of the Third Schedule of the Agricultural Act. The measure of compensation payable to the tenant for long-term improvements is the increase attributable to the improvement in the value of the holdings. This is a change from the 1923 Act, which provided that the basis of compensation should be the value to an incoming tenant. The reason for the change is that in the case of long-term improvements

the proper values should be the increase in the value of the holding. That is, whether the improvement enables the landlord to rent the holding at the increased rent.[1]

Medium-term improvements under the British Agricultural Act include such things as the liming of land or mole drainage. Where a tenant has made such medium-term improvements he is entitled to claim compensation on quitting on the basis of the value of the improvement to an incoming tenant. In this case prior consent of the landlord to carrying out the improvement is not required—a provision similar to that under the 1923 Act.

In the third class of items for which a tenant has a statutory right to claim compensation in the British Agricultural Act are included such things as growing and severed crops left on the farm, or seeds sown, or acts of cultivation performed on which the outgoing tenant will not benefit but which will be of value to an incoming tenant. The items for which an outgoing tenant can claim compensation under the tenant right and the basis of compensation for such items vary considerably at the present time in different areas of the country. These customary variations, we understand, bear little relation to modern farming practice. For example, in some sections, compensation is paid regarding cropping on what is called 'consuming value', while in other areas it is paid on 'market value'. Again, in most parts of the country where a tenant goes out in the spring, compensation is paid regarding acts of cultivation and seed sown on a 'seeds and labour' basis, while in the north areas compensation is paid on the basis of 'away-going crops'—that is, on the estimated probable value of the crop when harvested.[2]

At the present time a great deal of uncertainty as to the exact customary rights exists, and the customary basis of values in certain parts of the country is very high, so that an incoming tenant is compelled to tie up an undue amount of capital in the holding. This may result in his being left with insufficient working capital for efficient operation of his holding. For these reasons, and in order to provide for a variation in farming conditions, provision is made in the Agricultural Act that a landlord-tenant may, by written contract of tenancy, substitute a different measure of compensation from that laid down in the Act, and may also agree that compensation should be payable regarding additional items not included in the Act, such,

[1] See pp. 10 and 11 of the *Explanatory Memorandum on the Agriculture Bill*, presented by the Minister of Agriculture and Fisheries to Parliament, Dec. 1946, His Majesty's Stationery Office, London.

[2] Ibid., p. 11.

for example, as acclimatization value for hill sheep. The basis of compensation payable under the Act will be the value to an incoming tenant, and the Minister of Agriculture may make regulations prescribing the method of calculating that value. The problem apparently is to achieve a standardized method of calculation, and for this problem the Agricultural Act provides for appointment of an expert committee to advise the Minister on provisions to be included in the regulations. A clause is included which provides that a tenant may elect to leave the holding either on the basis of the compensation laid down under the Act or on the basis of custom or contracts of tenancy under which he entered the holding. Reasons for such provisions include the hope to secure uniformity regarding tenant-right compensation and remove present uncertainty and the high basis of in-going valuations in certain parts of the country.[1]

In the United States, only the more far-sighted landlords appear to have adopted the practice of incorporating compensation provisions in leasing-contracts. Failure to use such compensation provisions more generally is an important factor accounting for some of the more significant shortcomings of farm tenancy in the United States, partly accounting for the low economic and social status of farm tenants in many sections. Studies made in various parts of the United States substantiate census data, indicating that homes of tenant-farmers have fewer fixed conveniences of all kinds than homes of owner-farmers. Tenants' homes are, however, much more like those of owners with reference to movable equipment.

Many written leases specify that the tenant must treat the property in a good and proper manner, or return the farm in as good condition as when he first rented it, ordinary wear and depreciation being excepted. As a matter of fact, considerably more written leases in the United States contain this provision than provisions for compensation for unexhausted value of improvements made by the tenant. In cases where the farm deteriorates by wasteful and negligent practices, however, the only recourse available to the landlord in the United States is to terminate the contract. In the more glaring cases, of course, the tenant can be sued in the courts. Ordinary practices are so difficult to measure in a given year that the landlord ordinarily finds it difficult to make a strong case against the tenant. Moreover, unless reciprocal provisions are incorporated in the lease contract to allow the tenant compensation for improvements, more liberal courts, at least, would not be inclined to consider the landlord's case in deterioration instances too favourably. If many of the

[1] *Explanatory Memorandum on the Agriculture Bill*, p. 12.

more glaring evils of farm tenancy in the United States are to be removed, lease contracts must contain provisions for compensation to tenants for improvements, as well as provisions for penalties for deterioration. In the interests of maintaining and improving productivity value of agricultural lands, landlord–tenant relationships must be adjusted in the direction of more security of occupancy for the tenant, accompanied by reasonable assurance of realizing the benefits of utilizing soil-conserving practices and receiving compensation for improvements made.

The British Agricultural Act gives a landlord corresponding rights to compensation against an outgoing tenant for damage to the holding caused by the tenant's neglecting his responsibilities under the rules of good husbandry. The measure of compensation is the cost of making good the damage, but a landlord may, if he so wishes, claim compensation under a written contract of tenancy in lieu of the provisions of the Act. Where a landlord can show that the value of the holding has been reduced to such an extent that he will not be fully compensated by the cost of making good the damage, for example where it will take some time to remedy the damage and the lease value of the holding will be reduced accordingly for a number of years, the landlord is entitled to additional compensation.

Security of Tenure and Compensation for Disturbance. One of the most important means of providing stability to the agricultural industry is to ensure that a tenant-farmer who is reasonably efficient can plan his farming operations well in advance with the knowledge that he is not likely to be disturbed in his tenancy without good cause. The 1923 Act in Britain (sections 12–14) gave the tenant a right to compensation for disturbance on leaving his holding. Under existing conditions, however, this provision is not considered to be adequate security. Accordingly, the present Agricultural Act provides that where a notice to quit is given a tenant, he shall be entitled to object to the notice, which is thereupon not taken into effect until the landlord has obtained the Minister's consent. The test to be applied by the Minister of Agriculture in deciding whether to give his consent is whether the change of occupation is likely to result in the more efficient use of the holding for agricultural purposes. The one exception is where an owner has acquired an interest in the land before March 25, 1947, and informs the Minister that he wishes to farm the land himself or have a child or grandchild farm it. In this case the Minister may not give his consent, even though the landlord does show that the change of occupancy will result in increased efficiency. Excluding this provision it would be unfair to owners of

agricultural land who had acquired it before having full notice of the effect of the Bill. Provision is made for appeal from the Minister's decision to the Agricultural Land Tribunal. If, after notice to quit has taken effect, the owner fails to carry out the proposals, or an approved variation of the proposals, the Minister has the right to take possession of the holding. Where a certificate of bad husbandry has been made against the tenant the Minister's consent to a notice to quit is not required. Where the tenant has broken a condition of his contract of tenancy which is not or cannot be remedied, where he is bankrupt, or where the tenant has died three months before the giving of the notice to quit, or where the land is owned for a non-agricultural purpose and planning permission has been obtained or is not required, the Minister's consent to a notice to quit is not required. The provision of the 1923 Act, requiring at least twelve months' notice to quit for agricultural holdings, is retained in the present Agricultural Act.[1]

DIVISION OF RIGHTS AMONG VARIOUS PRIVATE OWNERS

One of the most serious land-use problems in many areas, particularly in arid and semi-arid regions in the western United States, is that of blocking the numerous small ownership tracts into units of economic size controlled for maximum productivity. These numerous small tracts are scattered in shotgun fashion among many types of owners, including railroads, insurance companies, land banks, non-resident individuals, non-operating residents, resident operators, and others. The thousands of separate properties, combined with absentee ownership, makes the problem of working out effective utilization difficult. The numerous small absentee farms on scattered parcels of land necessitate farmers and ranchers leasing from several owners residing in various parts of the country. This places the operator in an uncertain position, because he has no assurance from year to year that he can maintain his operating unit intact. This insecurity encourages misuse and abuse of the land. Considerable progress in blocking out small tracts and establishing more secure occupancy and use of farm and ranch lands has been made in recent years by (1) consolidation of farms and ranches by the more successful operators taking over lands abandoned by their less successful neighbours; (2) voluntary grouping of ranchers to form co-operative grazing districts and acquire effective control of a given area through collective tenure; (3) establishing of adequate control of the public range in areas where federal lands are a signifi-

[1] *Explanatory Memorandum on the Agriculture Bill*, pp. 13 and 14.

cant portion of the total, through the Taylor Grazing Act; and (4) outright purchase of numerous small privately owned tracts in selected areas by the Federal Government to block out adequate operating units.

Grazing Districts. Many western states have passed legislation providing for establishing of grazing districts, which are non-profit co-operative associations of livestock operators to control and manage use of range lands within their boundaries. In general, state grazing-district laws empower co-operative associations of livestock operators to lease or purchase grazing lands, to develop and manage district-controlled lands, and to allocate grazing privileges among members and non-members. Thus, state grazing-district laws are a form of enabling legislation permitting the establishment of collective tenure devices for securing and maintaining control over the right to use range lands.

In areas where federal lands comprise a large portion of the total area and where the lands are of such low productivity that they have never been alienated from the public domain through private settlement and purchase, Taylor grazing districts seem to be an effective way of developing a satisfactory tenure system. The Taylor Grazing Act, passed in 1934, authorizes the Secretary of the Interior to create grazing districts on federal grazing lands in the eleven western states and North and South Dakota. Within districts grazing is to be regulated under a permit system similar to that in use on national forests. Permits are non-transferable and revocable, and granted for a period of ten years, renewable if the permittee complies with rules and regulations. Provisions of the Taylor Act, while designed for the public domain, can be applied to land in all types of ownership, provided co-operation of the various types of owners can be secured.

The provisions of state grazing-district laws vary, but two characteristics seem to be universal: (1) voluntary membership, and (2) restriction of membership to livestock operators. Grazing districts are established if, after proper hearings, a majority of those who own or control over 50 per cent. of the lands to be included are favourable. The district is formed by filing articles of incorporation.

Grazing districts generally may regulate and control the use of district lands and construct improvements for conservation and better land use. Some states' laws, however, provide that district control in some cases may be extended to privately owned or privately leased lands as well. This form of co-operative action or collective tenure has worked out satisfactorily in many of our western range areas. There are large sections of the West, however, in which

districts have not been established. The extension of grazing districts to these areas would appear to promise beneficial results.

Soil Conservation Districts. Nearly all of the forty-eight states in the United States, with the encouragement of the Federal Government through its Soil Conservation Service, have passed state soil-conservation district laws. These soil-conservation district laws permit farmers to organize soil-conservation districts which have the status of governmental subdivisions and thus combat soil erosion and prevent local misuse of land through land-use regulation. More than half the area of all farm lands in the United States is now covered by soil-conservation districts. District boundaries ordinarily include all the territory which should for physical and economic reasons be handled as a unit. A district is not limited in most states to any given political unit, and may cover parts of several counties or part of only one. In most states both the owner and the operators of land may vote in determining whether a district should be established. The district Board of Supervisors formulates a programme of erosion-control projects and preventive measures. Powers granted to a district are of two kinds: (1) authority to engage in co-operative action against soil erosion, and (2) authority to prevent local misuse of land by voting land-use regulations upon the district. The supervisors are empowered to carry out soil conservation operations on the land including contour cultivation, strip cropping, terracing, ridging of pastures, contour furrowing, &c. They may enter into contracts with farmers, give them financial and other assistance, buy lands for retirement from cultivation and for other erosion-control purposes, make loans and gifts of machinery, seeds, &c., to farmers and ranchers, take over and operate erosion-control projects, and recommend land-use plans for soil conservation. If such action is deemed desirable they may formulate ordinances prescribing land-use regulations for soil conservation, but such regulations cannot go into effect until they have been submitted to farmers of the district and approved by referendum by a majority vote. Some states' laws, however, require more than a majority vote. Soil-conservation districts also have power to levy taxes or issue bonds.

Soil-conservation districts are a use of the police power, but they do not contemplate zoning as this term is usually interpreted. Soil-conservation laws comprehend particular, individual soil-erosion practices, whereas zoning laws essentially contemplate regulation of land occupancy or broad types of land utilization by districts. Soil-conservation districts cannot control land occupancy except indirectly through forcing of agricultural operations to cease in extreme

cases. No technical restriction, however, prevents soil-conservation districts from being given zoning powers through broadening their present scope of action by statutory amendment. Since they have been set up as a specialized means of dealing with a specialized problem, erosion control, it would seem inconsistent to broaden these powers on this basis.

Weed Control Districts. Another form of co-operative action to conserve land is creation of weed control or weed-seed extermination districts. Establishment of weed-control districts occurs when 25 per cent. of the freeholders of any proposed district petition the county commissioners to create a weed-control and weed-seed extermination district. After proper hearing, if 51 per cent. of the owners of agricultural land in the proposed district file written consent to creation of the district, the county commissioners may create the weed-control district.

After a weed-control district has been established, all landowners within the district must comply with the rules and regulations established by the supervisors. If such compliance is not met within a time specified by the supervisors, they are authorized to destroy and exterminate weeds found on the land of non-compliers, and costs of such extermination must be borne by the landowners.

Each of the above collective devices has contributed much in recent years to conservation of soil resources, and calls attention to practices which will increase soil productivity. Each form of control has its particular advantages for special types of agricultural land-use, and undoubtedly there will be further developments and applications of these forms of collective tenure as the need arises for such collective control and voluntary group action.

Area Diversification. Because of the natural characteristics of arid regions, and especially semi-arid regions, where dryland agriculture is practical, farm operators must devise methods of adaptation to anticipated variations in growing conditions. The cardinal feature of a farm economically adapted to the variations of growing conditions characteristic of semi-arid regions is flexibility, or, as one writer has put it, the ability to 'roll up and unroll' much after the manner of some plants which have structural provisions for living through unfavourable growth periods, in order that they may later take advantage of suitable growing conditions.[1]

In order to achieve this flexibility, the farm operator needs a combination of enterprises which will allow him to take advantage of

[1] See E. A. Starch, 'Types of Farming Modifications Needed in the Great Plains', *Journal of Farm Economics*, Feb. 1939, p. 115.

good growing conditions when they occur and to cut down during unfavourable periods to avoid dissipating his accumulated reserves. This process of expanding promptly in certain periods and shutting down drastically and suddenly in other periods is not consistent with the usual conceptions of good farm-management practices, because most budget items in the farm-management account require continuous and steady operation for highest efficiency. Such 'rolling up and unrolling' procedures are essential in areas where precipitation variations occur in an irregular and unpredictable manner above or below a norm which is so close to the margin of successful crop production that bumper crops or complete crop failures occur from time to time.

Achieving a diversification or combination of enterprises which will give the flexibility needed for the 'rolling up and unrolling' practices essential in the arid regions is extremely difficult within the boundaries of an individual farm or ranch operating unit. *Area diversification*, rather than diversification by specific farm units, may be an adaptative procedure which will be useful. With area diversification, the farm headquarters would be located in the irrigated area along streams where feed crops and a large garden for the operator's family could be grown; grain could be grown upon good nearby land extending back to the benchlands above the irrigated valleys; and finally, livestock could be run on grazing lands lying beyond the grain-producing benchlands in the foothills or near the mountains. Modern rubber-tired machinery permits operating grain lands several miles from the farm headquarters without much loss in efficiency. Grazing areas could be handled co-operatively and cattle cared for by co-operative grazing associations during the grazing season. Thus, a farm operator could have a few acres of irrigated land surrounding his headquarters, additional grain-producing acres on the benchlands within a radius of ten, twenty, or thirty miles from headquarters, and an allotment of a number of animal units of sheep or cattle in the grazing district on the range lands beyond the wheat lands. Achieving flexibility in arid regions to the extent necessary for successful farm operation, however, requires more than flexibility through diversification. It requires flexibility in overhead costs—particularly debt service charges and taxes, the two major fixed operating costs in agricultural land utilization.

DIVISION OF RIGHTS BETWEEN OWNER OR OCCUPIER AND CREDITOR

The level of values at which ownership rights in land are exchanged is a major determinant of the practices and profitableness of utiliza-

tion of land. The widely prevalent idea of making easy credit available to tenants in order that they may become owners frequently leads to serious consequences in practice—too frequently it results merely in exchange of an obligation to pay rent for an obligation to pay interest, combined with the added risks and vulnerability accompanying ownership. Unless the tenant can pay down a substantial part of the purchase price of the farm, permanence of occupancy may be less rather than more assured. Sound farm-loan credit practices are, therefore, extremely important in a land-tenure system.

Capital Valuation and Credit. The first and most important step towards more satisfactory farm-credit practices is determination of the productivity value of land. The income capitalization technique supplemented with the comparative approach promises to be most useful. One of the major causes of unsatisfactory farm-loan experience is lending more than the productivity value of the land, so that excessive overheads and a false basis of operations are created. This tendency is particularly encouraged by the procedure of money-lending agencies in lending a given percentage, say, 50 per cent., of the current value as reflected by current loan appraisals and sales prices. During boom years, when land values are high, the 50 per cent. lent may be more than the basic value or true productivity value of the land, whereas during depression periods, when land values are extremely low, the 50 per cent. may be much less than that which could be safely lent and may be low enough to keep the borrower from carrying out operating plans which in themselves may be sound and desirable.

After productivity values have been determined by scientific methods of land appraisal, a concerted effort should be made to lend a smaller proportion of this value on poorer lands or sites than on higher grades. The total income on which debts can be charged is greater in relation to the capital on a good farm than on a poor one. In general practice, of course, loans should not ordinarily equal the full value of the real estate on land, because there would be no margin of security to provide for contingencies, but if 80 per cent. or so or the maximum per cent. were given on higher-grade lands average loans on the poorer grades should be proportionately less.

In general lending agencies, including federal land banks in the case of the United States, have in practice lent the same percentage of appraised value on all grades of land in a given area. Loans have apparently been made on the theory that a residual rent should be received at the same rate on all grades of land after the labour has

been reimbursed. Studies show that the failure to use scientific methods of land appraisal results in the poorer lands usually being over-valued. It is no wonder, therefore, that under these conditions the percentage of loans which have failed, as indicated by foreclosures and bankruptcies, is naturally considerably higher on low than on high grades of farm lands. Changes in prices of farm products cause greater relative changes in value of land near the margin than of good land. The use of scientific methods of land appraisal, the use of productivity value as a basis for farm-mortgage credit, and the lending of a variable percentage of the appraised value, with the highest percentage on the highest quality of land and the smallest percentage on the lowest quality of land, would do much to improve our farm capital and credit systems and contribute to improved farm-tenure conditions.

The percentage of the productivity value of the land which should be loaned is a question which should be discussed thoroughly. Many farm operators can supply only 10 or 20 per cent. of the capital necessary to finance purchase of a farm, and most lending agencies will not loan more than 50 per cent. of the appraised value. The making of government loans of 100 per cent. of the price of farms is not considered a sound method of promoting general farm ownership, even under normal conditions. The tenant purchase loans of the Farm Security Administration in the United States cannot be considered an adequate solution to the problem. They have been effective in their limited way, but they have operated only during a period of generally rising real-estate values and their long-time effectiveness is not known. The second mortgage is about the only device that has been offered to bridge the gap, but it has not proved satisfactory, particularly as a means of tapping the more stable and dependable sources of funds of the central money markets.

In general purchasers should be required to make a cash down payment of at least 10 or 15 per cent. in addition to having a substantial equity in the necessary livestock and machinery. A fair land-purchase contract should be employed until the debt has been reduced to the proportion of the usual first mortgage. The lending agency should have option to buy the farm at the purchase price plus improvement in case the owner wants to sell during this period.

Flexible Methods of Loan Repayment. The dangers and disadvantages of low-equity financing must not be ignored, particularly in the case of semi-arid and arid regions. It may be argued that deserving young farmers would benefit in many cases if they were able to finance their

operating capital and equipment with less equity than is now rigidly required. A substantial equity in mortgage property, however, has often enabled borrowers to ride through difficult periods of financial stress when other borrowers of less equity were facing foreclosure. In fact, in certain marginal areas or high-risk regions, such as arid and semi-arid areas, public ownership or ownership by large corporations or landlords in strong financial position is preferable to individual operator ownership. Under such arrangements the operator is usually able to manage his business more effectively than he could were he heavily indebted, because of the more flexible nature of his capital resources, particularly operating capital.

Flexible but realistic repayment schedules are of major importance in assisting large numbers of low-equity borrowers through temporarily unfavourable seasons. Relatively lower amortization requirements in the early part of the loan, with the option of additional payments as desired, would permit more rapid accumulation of operating capital, with resulting added flexibility of management.[1]

The equal annual instalments of the usual amortized loan are much more desirable than the straight-term loans which too often in the past have been made for relatively short periods at comparatively high rates of interest and require the operator to pay the principal in a lump sum at the maturity date of the loan. The annual instalments of the usual amortized loan, however, are not in terms of purchasing power or actual ability to pay. Such equal annual instalments in terms of dollars do not constitute a flexible or elastic overhead. Such flexibility is particularly essential in the semi-arid sections, where a combination of climatic conditions and one-enterprise agriculture makes farm operators especially vulnerable to fixed overhead charges. The loan contract might stipulate that the owner should pay back dollars of the same purchasing power as those he borrowed. This would require use of information on changes in production or yields, changes in the general price-level, and changes in the present portion of commodities the operator produces, so that the annual loan payments could be adjusted to current ability to pay.

Useful as flexible payment plans are in improving farm-mortgage credit practices, they are of little real value over a long period of time if too much has been lent on the farm in the beginning. Combined

[1] Butz suggests that it might even be practicable in some cases to amortize a loan over a period of, say, twenty years, but to set aside, say, one-half of the amortization payments for insurance so that payments could extend over forty years if necessary without the loan becoming delinquent. See Earl L. Butz, 'Postwar Agricultural Credit Problems and Suggested Adjustments', *Journal of Farm Economics*, vol. xxvii, No. 2, May 1945, p. 285.

with sound practices of lending, however, a reasonable proportion of a reasonable value based on productivity varying with the grade of land, flexible payment plans are effective in improving farm real-estate mortgage-loan experience and making possible more successful farm-operation.

Substantial improvements in production credit available to farmers have been made in the United States during the past decade, both by production-credit associations and banks. Perhaps the most significant improvement is the shift in emphasis from security to ability to repay as a basis for extending credit. With this shift has come the budgeted loan under terms of which a borrower may have money advanced to him as he needs it and may repay the loan as income becomes available. Interest is charged during the time the money is actually in use.

Credit for Improvements. Under existing practices it is difficult for institutional lenders to extend credit for financing land improvements such as buildings, tiling, soil conservation, &c., because not enough is known concerning the productivity of improvements. Nearly all types of lenders are hesitant to reopen a mortgage and extend additional credit for obviously desirable improvements like drainage, new buildings, fences, &c. Where a mortgage already exists on the farm practically the only way additional credit may be secured is through a complete refinancing of the mortgage. This is both bothersome and costly. Arrangements must be developed under which qualified borrowers may receive additional funds from the mortgagee without rewriting the mortgage for the purpose of making improvements which are clearly desirable. One student of farm-credit problems has indicated that it may be desirable in the more stable agricultural regions of a capital-surplus country like the United States to have a long-term loan system at low-interest rates, with little or no amortization, in order to encourage the improvement of farm homes and the improvement of farms generally. Under this proposal, amortization payments could then go into the improvements themselves rather than into reduction of principal. Such an arrangement would be similar to the corporate practice of operating indefinitely on borrowed capital so long as improvements so financed yield a rate of return in excess of interest cost. This type of financing for rural improvements, if used intelligently, should result in bringing about a higher level of rural living.[1]

Mortgage Provisions for Better Land Use. Clauses in mortgage contracts can be used to assure improvement in management and

[1] Compare with Butz, op. cit., p. 290.

land-utilization practices. Both borrower and lender must, of course, be in close agreement regarding the features incorporated in the mortgage contract. Recent agricultural adjustment programmes and related governmental activities in many countries are increasing annually the amount and accuracy of data on quality and character of the soil and weather, yield, price, rent, or cost-of-production data on which more accurate judgements of proper conditions and long-time productivity value can be made. It is significant that agricultural credit is coming to be regarded more and more as an instrument to further social progress. In the past neither creditor nor borrower was particularly concerned with the broad social effects which might flow out of the loan, but to-day a more general recognition exists of the place of credit as a means of altering land-use patterns or solving tenure problems and controlling land speculation influencing agricultural settlement, &c.

Crop Insurance. In certain sections, particularly in arid and semi-arid regions, even though future prices and costs to farmers can be made to be fairly stable over a period of years it is hardly likely that yield variations will be reduced considerably in intensity. Drought-resistant varieties of grain, more general use of moisture-conserving practices, and related practices all play a part in reducing the intensity of such fluctuations, but they cannot be expected to reduce greatly the magnitude of the variations. Even a livestock enterprise under conditions in sections without irrigation like the northern Great Plains of Canada and the United States would show a considerable variation in returns from year to year, due to changes in the carrying capacity of the range, supplementary feed reserve that could be produced, &c. A sound crop-insurance programme is one way by which more stable incomes can be assured in such areas. Adjustments must be made in the form of crop-insurance premiums, however, if such a programme is to be most effective in stabilizing farm income.

The present crop-insurance programme in the United States is difficult to operate in periods of high yields when premium rates are still necessarily high because of past experience with low yields. The psychology of the average farmer is to participate in the insurance programme less after a succession of good years, but to participate highly in periods of successively low yields. This makes it difficult to administer and maintain a sound, self-sustaining insurance programme with reasonable rates. A long-term insurance contract such as a three-year policy would help. One writer indicates that 'yield percentage premium' plans would be most effective in stabilizing

farm income.[1] To be administratively feasible, however, the yield-percentage premium plan would require some method of obtaining continuous participation in the programme.

Flexible debt service charges; less emphasis upon rigid property taxes as major sources of governmental revenue, particularly for schools and roads; 'yield-percentage premium' plans of crop insurance; and related financial and risk-bearing devices offer considerable hope of providing more income stability in the inevitable swing from crop failure to bumper yields in areas where income capabilities averaged over a long period of years are reasonably adequate.

Other Debt Arrangements. The following recommendations were made by the Committee on Post-war Agricultural Policy of the Association of Land-Grant Colleges and Universities, of which the author was a member, in its report on post-war agricultural policy in 1944: (1) A public appraisal service should be provided so that all prospective buyers and sellers would have a knowledge of the basis on which they would be able to judge the approximate long-time value of farm properties. A re-sale gains tax should also be enacted. (2) Particularly undesirable is the practice of investing in farms by people whose interests are not primarily agricultural, as a means of reducing the amount of tax that must be paid on incomes obtained in non-farm enterprises. This can be discouraged if income-tax laws are changed to specify that depreciation and losses on farm properties shall be deductible only from income derived from such properties rather than from the total income of the taxpayer. (3) Closely associated with this problem is that of abnormally large-scale ownership, frequently of the absentee sort. One solution is a graduated land tax which imposes a higher rate for additional farms owned by the same taxpayer. (4) State laws should be improved to prevent injustices in foreclosures. One essential is receivership or moratorium rights for debt-ridden farm owners during depression emergencies. Another is the establishment by courts of a fair long-time value for foreclosed farms, regardless of the bids of mortgage holders. Deficiency judgements should be limited to the difference between this fair value and the amount due on the debt, and should be enforced only against owners who have other property or sources of income, or who have been guilty of bad faith. (5) Legal costs in transferring and mortgaging farms are excessive, particularly as to the preparation and examination of abstracts of title, title insurance, and foreclosures. Variation in procedures exists among the states.

[1] See Carl P. Heisig, 'Income Stability in High Risk Farming Areas', *Journal of Farm Economics*, vol. xxviii, No. 4, Nov. 1936, p. 963.

Legal procedures and transfer practices should be simplified with resulting reductions in cost.[1]

DIVISION OF OWNERSHIP BETWEEN PUBLIC AND PRIVATE OWNERS

Public land-use control may take an almost endless variety of forms and may serve a great variety of purposes. It is generally conceded, however, that adjustments between individual and social rights must be attained without the discouragement or destruction of private initiative. Some of the older European nations have attempted to develop an optimum of individual freedom combined with social control, on the grounds that public ownership or operation means political instead of economic control of production, and that while the process of reconciling private control with social control is tedious and time-absorbing it is desirable in the last analysis.[2]

In marginal areas where the ownership pattern contains many small absentee-owned parcels, so that there is no common interest among different private landowners, it is frequently desirable and necessary to purchase outright most of the numerous small privately owned tracts to secure the control necessary for establishing and maintaining correct land-use practices. Through grants-in-aid or in-lieu-of-tax policies, public agencies can provide revenue for local governments formerly dependent upon tax revenue from the lands, and in this way help meet the practical problems of fiscal support for local governmental services.

We should keep constantly in mind the fact that while soil-conservation districts and grazing districts, zoning, and related land-use controls may be effective for a certain time or for considerably long periods, they may, nevertheless, be terminated in the case of the United States by local or state action, whereas federal ownership necessitates a more far-reaching, widespread change in public opinion before lands can be reopened to private acquisition and unwise practices. Under certain conditions it may be desirable for the Government to sell or delegate responsibility for administration

[1] See Committee on Post-war Agricultural Policy of the Association of Land-Grant Colleges and Universities, *Postwar Agricultural Policy*, Oct. 1944, pp. 31–3.

[2] Karl Brandt, 'Public Control of Land Use in Europe', *Journal of Farm Economics*, vol. xxi, No. 1, Feb. 1939, p. 70. Brandt states that in Europe, 'For three generations the philosophy behind the scores of laws referring to land use has been that adjustments between the rights of the individual and of society as a whole must be attained in a manner which does not discourage or destroy private initiative.' According to M. M. Kelso, discussing Brandt's paper, 'A great deal of education and "trial by fire" will be needed before a web of land use controls in the public interest will exist in the United States in any degree approaching what now exists in Europe' (Ibid., p. 73).

and supervision of lands it acquires through purchase programmes or other means.

DISCUSSION

W. G. MURRAY, *Iowa State College, U.S.A.*

I am in general accord with Dr. Renne's paper. I have one or two points I would like to add, however, regarding the discussion on appraisal and the valuation of land. This question of whether or not we value the lower-grade or the poorer land too high is a very perplexing problem in our country. Although we have given it a great deal of thought I do not believe we have arrived yet at a correct solution. There are a number of people who are certain that there is a scientific method of valuation, a productivity-value method that will get around this problem. After the depression of the thirties considerable effort was devoted to a productivity method of appraisal. By taking a representative yield for each soil type and converting that on a rental basis into a yield in dollars we were able to obtain a normal return from a given piece of land. That normal return from a given piece of land is based, as you well know, on estimates, and those estimates in many cases may not be accurate. I am afraid that we, in our country, are claiming too much for what I call this scientific or productivity method of valuation. We have individuals who, under the guise of a scientific method of valuation, are coming out with figures to the third decimal point on the value of a piece of land. They are using scientific soil terminology and other terms which to most laymen are difficult to understand. For example, one of these values would come to 35 dollars 67 cents an acre, and figures like these are being considered as accurate. I favour the productivity system of appraisal, but I do not think we are able to appraise land as exact as this.

There is another factor which some people have overlooked, namely, that on the poorer land we cannot count on as good management as we can on the better land. In this connexion there is the point which has been brought out, I think first by Mr. A. B. Lewis at Cornell University, that on many of these lower-grade farms a place to live has a certain amount of value. Some people say the very fact that the farm helps to hold the world together may give the farm some value. However, this quality does not help to pay the interest on the mortgage.

Over time people have put too much emphasis on superficial appearances. To some people the fact that a farm has length and breadth gives it a certain amount of value. They are not in a position

to judge just how much there may be under the surface, but in many cases they get the feeling that it is worth more than it turns out to be worth when they cultivate it. We have had many examples in our state of that situation and I shall mention one which has given us a lead on where we think part of the solution lies. We have in our state some areas that are very low in value, some other areas that are on the margin, and then large areas which are above the margin. Strangely enough our trouble has not been in the areas with very low values. Our trouble was in the marginal areas, in the areas that appeared to be a little better than the poor areas but not as good as the better areas, and it is in those areas that we have had over-valuation. We think an improved method of appraisal will consider three dimensions instead of two, will consider not only the length and breadth, but also the depth of the soil and the probable type of management. If we can get this type of valuation both in sale value and in mortgage appraisals we will have made progress.

D. WITNEY, *Edinburgh and East of Scotland Agricultural College, Scotland.*

I should like to say that all that I have heard this morning emphasizes that each country has through a process of time evolved its own system of tenure suitable for its own systems of agriculture. The system of tenure is moulded in each case by the character and the social habits of the people, by the position which agriculture holds in the national economy, and by the country's constitution, laws, and institutions. Every one of us, then, speaking of land tenure, is looking at it from the standpoint one would expect of the country from which we come.

There are, for instance, differences in the system of land tenure even between Scotland and England, and it might perhaps help some of our overseas visitors if I illustrate what these differences are. Although in broad principle the type of land tenure is the same, some of the differences are really fundamental, even if, for the sake of simplicity, we refrain from making any reference to the special problems peculiar to the crofting counties of Scotland. In the first place Scotland has its own Agricultural Holdings Acts. The first Agricultural Holdings Act was passed in England and Wales in 1875. Its effect was neutralized because it was possible for landowners to contract out of it. Scotland would have none of this—she looked at the question of an Agricultural Holdings Act for quite a considerable period. Eight years later, in 1883, she said: 'Well, this thing that the Englishmen seem to have swallowed holus-bolus has something in it; we will have an Act somewhat similar.' Hence, in 1883, when an

Amending Act was passed which applied compulsorily to England and Wales, a separate Act, also compulsory in character, was passed for Scotland. In later years Amending Acts and Consolidating Acts have been passed in both countries, e.g. 1906, 1921, and 1923, and, in Scotland only, in 1931.

The Agriculture Act, 1947, to which Dr. Renne referred, has now been passed applying to England and Wales, but Scotland's legislature has not yet reached that stage. There is an Agriculture Bill for Scotland that has just been presented to Parliament, and should become law before the end of the year.

Scotland differs from England not only in that it has its own Agricultural Holdings Acts, but its system of tenure differs in other ways. For instance, in Scotland the long-term lease-system is common, whereas in England and Wales tenant farmers hold their farms on year-to-year tenancy agreements. The Scottish long-term leases generally run for fourteen years, sometimes with a break at seven years, sometimes with two breaks at five years or ten years; leases for nineteen years are not uncommon. Again Scotland differs from England in the system of letting farms. It differs also in its administrative machinery with which its land-settlement problems are handled. There are therefore very fundamental differences between Scotland and England and the more one looks into problems of land tenure the greater those differences seem to be. Between Great Britain, on the one hand, and Northern Ireland, on the other, there are even greater differences in tenure.

I should like to refer briefly to this system of tenure with which we are broadly familiar in Great Britain, where it caters for what is in the main an intensive system of farming, and where something like two-thirds of the farmers are tenant farmers. In considering it we should try to regard it not as a problem of purely academic interest, but one that vitally affects the whole set-up of our agricultural industry, and I should like to suggest that the main purpose of any system of land tenure should be to see that the farmers operating under it are achieving the optimum production from their land in conformity with the needs of the nation, whilst assuring to those engaged in the agricultural industry a reasonable livelihood and at the same time maintaining the land in a high state of fertility. We in this country, where land is so limited, must come more and more to regard the land as a trust, a national heritage. We must see both that we get the best use out of it for the nation as a whole, and that any impediment, any obstructions, preventing that are swept away.

I myself believe that in this country the best system of tenure is

occupying-ownership, but I think that our system of tenancy does offer very great possibilities and has really proved of immense value during the past 100 years and more. The key to the whole problem is security of tenure, and the successive changes in the Agricultural Holdings Acts and the resultant changes in our tenancy system have been largely to give the tenant an ever-increasing measure of security, to enable him to see that what he sows he will reap. Our tenancy system in this country gives the occupier three safeguards. He is protected in the first place by the Agricultural Holdings Acts, i.e. by the landlord–tenant legislation to which I have already referred. Secondly he is protected by what we term 'customs of the country', which have grown up over a long period of time, that have almost the sanctity of law, and which do immensely strengthen the tenant's position. And thirdly, in Scotland, we have the lease, and in England and Wales the tenancy agreement.

I might perhaps refer in a little detail to leases since Dr. Renne has mentioned them. Most of us agricultural economists working in our own areas have seen a great many of these leases as used on our landed estates, and we have some in our possession as examples. They are instructive and they do indicate how difficult our problems of tenure are. Probably you all know that two model leases were devised some ten years or so ago and printed, one that is regarded as suitable for England and Wales, and one that is regarded as suitable for Scotland. In both countries, however, so numerous are the different types of farms, so varied are the dates of entry and other matters of moment, that it is almost impossible to devise a single type of lease that would suit all types of farms.

Our tenancy system works well in certain conditions. It works well where the farms are of a reasonable size, where they are well laid out, where they are compact, equipped with good buildings and permanent improvements, such as fences, water, and so forth, and where, in addition, the landlord not only has ample capital to spend on his farms, but is interested in them and endeavours to keep them in a good state of repair. Given those conditions our land-tenancy system works well. I am quite sure that all agricultural economists here could take you to farms in their areas where those conditions are fully satisfied, where the tenants are highly successful, where they make a good job of things, and where they have no desire whatsoever to become owners.

But there is another side of the picture. There are many farms where the reverse holds good, where, as the National Survey shows, farms are practically derelict, where the buildings are tumbling to

pieces, where they require large sums of capital expenditure on buildings, on drainage, on fences, and on roads to give the tenant even an opportunity of making a good job of his farm. And there is this also to be borne in mind. In this country, where the system of farming is *intensive*, this measure of security that the tenant enjoys enables him to maintain a high standard of farming, and discourages what we call 'farming to leave'. But this system of farming does mean that a tenant requires a very large amount of capital. Hence when a farm changes hands the incoming tenant has to provide not only a large amount of cash for his working capital in stock, implements, and so forth, but to take over growing crops and improvements which the outgoing tenant leaves, and to which Dr. Renne has referred. There are, therefore, very serious defects to our present system of tenancy, but some of these defects will now be swept away, we hope, with the passing of the Agriculture Act. I should simply refer to that Act as the coping-stone in our landlord–tenant legislation—a very important one, so much so that I myself regard it as the most important measure relating to agriculture that has been passed through Parliament since 1883. Properly interpreted and applied it can be of immense value to our agricultural industry.

It is perhaps opportune to look at the possible effects of our new agricultural policy to which reference has been made. First of all, as to the system of guaranteed prices and assured markets, you have all seen in the newspapers during the past week the very substantial increases in prices that are to be given to the farmers under the new price agreement. What will the effect of that be having regard to our land-tenure system? One would assume that it will have the effect of increasing farm profits, and therefore raising the value of land very considerably, so that every landlord who has a farm to sell would, I think, assume that the value of his property has gone up by reason of these price increases; and it is likely to remain high. Land values to-day are extraordinarily high, and the effect of this price agreement will be to raise land values still further. The cynic might say: 'Well, surely that is making a tremendous present to the landowning class?' I rather agree that it is, and it is this that makes one wonder about the ultimate long-term value of this policy.

Secondly, under the Agriculture Act of 1947 provision is made for power to dispossess landlords who no longer perform their proper function of land management, and there are many of them, as I have already explained. The effect of the Act should be that a great deal more land, by reason of this clause and certain others, will come into the hands of the State. The State in this country already holds a very

considerable proportion of land, for between them many government departments hold hundreds of thousands of acres, e.g. the Forestry Commission, the Department of Agriculture (in Scotland), or the various County Councils (in England and Wales), the Commissioners of Crown Lands, the Defence Ministries, and so forth. For various reasons there is likely to be a great deal of land coming into the possession of the State, so that whether we want it or not we are going to see an increasing proportion of the total surface of this country owned by the State. In addition to this, there is much land in the hands of the Church and the colleges of Oxford and Cambridge. But I am not going to enter into the realms of discussion about the merits of land nationalization or occupying-ownership or tenancy. That, of course, may come up later, but I suggest that we shall see a development of three systems side by side: first, an increasing measure of State ownership; second, a greater measure of occupying-ownership assuming that long-term credit facilities are made cheaper than they are to-day; and, thirdly, I think, we shall see our present tenancy system completely overhauled and streamlined to make it more suitable for twentieth-century farming.

I should like before I conclude to put in one plea for further investigation. I think before anything so far-reaching as land nationalization is even considered, the time is ripe for large-scale economic experiment. Would it not be possible for us in this country to think of something, not so ambitious or far-reaching, as, for instance, the T.V.A. experiment in America, but a more modest one comprising, say, one or two large parishes, or perhaps even a small river valley running maybe to 20,000 or 30,000 acres, taken into the hands of a specially constituted corporation which in that small and limited area could pool and reallocate the lands in such a way as to ensure that the farming units were economic, well equipped and well laid out, and within its scope endeavour to tackle a new system of farming with the assistance of agricultural co-operation? I think the time is ripe for that kind of experiment.

Now I should like in conclusion to tell Dr. Renne a story which I think may be regarded as illustrating the difficulty of using calculations in agriculture. It is perhaps not very apt, but it does emphasize that when he is trying to estimate the capital value of his farm, the farmer himself may miscalculate. This story has the merit of being true. It relates to a lady in Scotland who held a public appointment as agricultural adviser (or in the American term an 'agricultural extension officer'), rather a unique position for a lady in this country. She was unique also in that she was of elephantine proportions.

She was very well known for that, as well as for being a very able extension worker. On one occasion she was looking over a farm accompanied by the farmer. They had gone through one field and when they were making their way to the second field the farmer was tactfully heading a long way round in the direction of the gateway. The lady, however, was making no concessions to weakness and insisted on their climbing the fence at the nearest point. But she had misjudged her agility. She got to the top of the fence and there she stuck. The farmer went to her assistance, and after two or three tremendous efforts behind her ample posterior he succeeded in heaving her over the fence, but it was the hardest day's work he had done for a long time! When he got over himself he said: 'Lord, Miss, how much do you weigh?' 'Eighteen stone,' she said. (That was before she had really put on weight!) 'Good God, woman,' the farmer replied, 'another two stone and you would weigh a ton.'

G. R. Simpson, *Commonwealth Bank of Australia, Sydney, New South Wales.*

First of all I have a serious admission to make. I am not an economist, but also I am not altogether an intruder here, as in the Commonwealth Bank of Australia I am in charge of a section which has lent, and I hope will continue to lend, large sums to Australian farmers on long terms at a fixed rate of interest. In that capacity you will realize that I must keep in close touch with rural economics, land tenures, credit systems, production goals, and existing and future markets for primary produce.

Unlike Dr. Renne, who expressed concern that twenty of his American colleagues were listening to his address, I have only one of my countrymen here and I am hopeful he will not be over-critical. Addressing an audience of experts always calls up some degree of nervousness, but I am confident the information I intend to give you will assist your discussions on the important question of the flexibility of land tenure, capital, and credit systems to meet technical, economic, and social development.

You will remember that at the Hot Springs Conference in 1943 all nations which attended were urged to make a full survey of their tenure systems in the hope that means would be found to increase productivity and improve conditions of farm-owners and tenants. In this decision the Conference recognized that any rigid tenure system is a bar to progress. We have made that survey in Australia, and I think a short summary of the findings of our Rural Commission, which

travelled to all parts of Australia and interviewed hundreds of farmers, will be of interest.

You might think that Australia, being a young country, would have few tenure problems, but in order to get the country colonized and developed as quickly as possible it was necessary in the early stages of settlement to offer land on terms that would attract settlers.

We have seven governments in Australia; a Commonwealth Government and six individual state governments. The control of land is in the hands of the states and altogether an enormous amount of legislation relating to land has been enacted. Varieties of tenure are many, but for the purposes of this talk I will reduce them to five groups:

1. Freehold.
2. Improvement leases.
3. Conditional purchases.
4. Restricted leaseholds.
5. Perpetual leaseholds.

Altogether about 1,000 million acres are held under leasehold or licence and I will deal with these.

Improvement Leases comprise large tracts of land leased to individuals or companies having the resources to develop the areas. Occupancy was granted on condition that the lessee effected such improvements as clearing, fencing, and the provision of water. At the termination of the lease the land is often split up into smaller blocks, given a new title, and balloted for.

Conditional Purchase, as the title implies, is a sale by the Government of a living area to an individual on long and easy terms. The lessee has the right to repay the Government the full amount owing at any time.

Restricted Leaseholds. Leases are generally confined to a suitable living area only, and are for varying periods, usually for 28, 33, and 52 years, and, providing the farmer does a good job, he may rest assured that a further lease will be granted him at the termination of the existing lease. He may also apply to have his lease extended in perpetuity.

Many thousands of acres in Australia are now held under *Perpetual Lease* with an annual rental based on the freehold value. After fulfilment of certain conditions, usually during the first seven years of the lease, the lessee has almost the same rights as a freeholder, except, of course, he must pay to the Government the annual rental. In all land settlement in Australia two things are watched closely, the first is undue aggregation, the second over-subdivision. Care is taken that the standards of those engaged in the industry do not fall

through fault of their holdings being too small. What we are aiming at is a higher standard of living and a greater farm population. Latest policy moves are towards security of tenure with the State having the power to ensure proper use and soil conservation, and recommendations have been made to the Australian Government on the lines of clauses in the British Agriculture Act as mentioned to you by Lord Huntingdon in the opening session. Although in Australia as in most countries there is a disposition to believe that an owner should be free to do as he likes with his land, it is thought the dominating function of a land-tenure system is to secure from the land the maximum contribution to the needs of the community. As in England, where the supply of good agricultural land is limited, it must be treated as the heritage of all the people and should be used and conserved not only for this generation but for the generations to come. When speaking of conservation I not only refer to good methods of tillage and crop rotation but also to control of noxious animals and weeds, such as rabbits and prickly pear. You will realize that lack of control by an occupier may have ruinous results for adjoining owners.

When a man is given a restricted tenure, that is, one for a limited period of years, towards the end of the term he is likely to lose interest in maintenance or improvements. There is also a tendency under these conditions to flog the land, to overcrop or overgraze, in other words, to destroy rather than to conserve it. This was the second reason for the Commission's decision to favour the perpetual lease.

The third reason is that we like to give the good type of settler with limited capital a chance to acquire his own place, and so a tenure must be one that is attractive to lenders. In recent months, for instance, we have granted individual loans of up to £5,000 to fine types of young ex-servicemen who, prior to being successful in a land ballot, had very small resources.

Australian farmers have numerous avenues of credit available to them, the most important being the trading banks; government agricultural banks; insurance and trust companies; private lenders; traders and agents. However, the Commission, after taking evidence, feel that all these have drawbacks. For instance, the banks prefer to restrict advances to a certain percentage of their valuation of the security—usually 60 per cent.—the insurance and trust companies and private lenders make loans for short terms and the farmer is sometimes faced with a matured mortgage just when credit is difficult. This method of financing is also costly as fresh mortgages have to be drawn up each time. In all the avenues I have mentioned it is considered

there is also a great risk of embarrassment for the farmer, as lenders are inclined to close down on further credit in periods of low prices.

Another weakness is that a farmer will approach several sources as the need arises, and he finishes up with a little here and a little there; a long-term from an insurance company; seasonal carry-on from a bank; perhaps he will purchase a tractor or other machinery under a hire-purchase agreement, and run up a fairly heavy debt for stores with his storekeeper, with the rate of interest climbing as the risk increases. This spread of borrowing has been one of the major causes of failure. No one credit service is broad enough to meet all the demands of agriculture; each service operates in its own particular field and the whole is badly integrated. It leads to an over-supply of credit in certain times (such as at present when there is a strong demand for rural investment) and an under-supply at other times. Governments have had to step in from time to time to fill gaps in our existing private forms of credit. In other words, they have become a lender of last resort.

As a result of these deficiencies the Commission has made a recommendation that the Australian Government should sponsor a specialized Rural Credit Service, broad enough to meet all the needs of Australian agriculture. An eligible borrower would be able to obtain a fixed loan or a long-term loan on the amortization principle. An overdraft could be arranged against suitable security, such as a second mortgage, a stock mortgage, a crop lien, or against a life policy. Development and reconstruction loans would be available at concessional rates of interest. The bank would set up a research section and a valuation section. These divisions would give expert advice to farmers running into difficulties. The Australian Government has at different times made funds available to compensate farmers for losses due to drought or flood. The bank would act as agent for the Government in administering the allocation of such monies and also in the collection of crown dues.

It will be seen that the proposed service would be a complete one, competing in all fields.

Well, Mr. Chairman, my time is nearly up so I will just conclude by setting out the main recommendations I have outlined to you. Firstly, in Australia we believe in a system of farm units occupied by owner-operators. We think the farmer should have authority over the land he uses. Secondly, he should have security of tenure and all future settlement should be on the basis of leases in perpetuity. Thirdly, the Government should have the right to resume possession of the land if it is thought that the holding is not being efficiently

farmed; and, finally, the setting up of a credit service capable of meeting the full requirements of Australian agriculture.

There are many other matters linked with these questions, such as the method of valuation, but I cannot go into those now. I think you might agree with me that if such conditions are set up Australian farmers will be able to face the future with confidence.

I trust that what I have had to say to you has been of interest and will assist your discussions.

Question by *Dr. Norton*, U.S.A.: Do the different states in Australia have similar land laws?

Answer by *Mr. Simpson*: No. As I told you earlier, the control of land is a matter for each state and the titles of tenures differ greatly, but in the main they may be divided into the five divisions I have outlined. It must be remembered that Australia is a large country, as big as the United States, and we vary from tropical land in the north, growing sugar-cane, down to the cold country in southern Tasmania. In all states the tendency is to favour perpetual leaseholds.

Question by *Dr. Norton*: What is the common form of tenure in the wheat-growing regions?

Answer by *Mr. Simpson*: The area suitable for the growing of wheat in Australia is restricted. Being the best-quality land it was taken up quite early, so that in nearly all of our wheat-growing areas the land is freehold.

I would like to mention at this stage that the Government is not harsh when a restricted leasehold matures. If the Government resumes the holding it pays compensation for structural improvements, and should a man be holding a very large area he is generally offered a lease of a section equal to a living area—usually the homestead block containing the main buildings.

Question by *Dr. Norton*: How large would a holding be in the wheat-growing regions?

Answer by *Mr. Simpson*: That is a difficult question to answer as we range from rich land to areas which may be classed as marginal. I would work it out this way. A living area in Australia is one that would produce on an average approximately 3,000 bushels of wheat per annum.

Question by *Dr. Norton*: What percentage of the appraised value would a bank lend in the wheat-growing regions?

Answer by *Mr. Simpson*: Well, that question is linked with the method of valuation, and if I started on valuations I am afraid the Chairman would have to close down on me as I am one that advocates

productive valuation added to common sense. I am very opposed to the method of just following the market, which, after all, is the opinion of the most optimistic bidder present at the sale. But on our valuation, which is usually based on a long-term productive basis, the Commonwealth Mortgage Bank is prepared to advance 70 per cent. Our General Bank section and most of the trading banks in Australia lend up to 60 per cent. of their valuation.

Question by *Dr. Young*, U.S.A.: When land is drawn in a ballot has the successful ballotee an equity?

Answer by *Mr. Simpson*: I am very glad you have brought up this question. Until recently it was the practice to wait until a man, successful in a ballot, had fulfilled the conditions attaching to a lease before accepting the title as a good security, but lately the Commonwealth Mortgage Bank has decided that when a deserving ex-serviceman is successful in a ballot we are prepared to lend him immediately up to 70 per cent. of our valuation of the security.

In recent cases the bank's valuation of holdings allotted by ballot has been about £7,000, so that the loan the bank is prepared to make immediately would be in the vicinity of £5,000, to enable the man to effect further improvements, build a home, and buy stock. It may interest you to know that our method of valuing perpetual leases is as follows. We value on a freehold basis, capitalize the annual rental at a rate of interest decided on—at present it is 4 per cent. per annum —and deduct this amount from the freehold value. An example would be:

	£
Freehold value of property	8,000
Annual rental £40 capitalized at 4 per cent. per annum .	1,000
Value for security purposes	7,000
70 per cent. loan	4,900

G. Baptist, *Leerstoel voor Landhuishoudkinde, Gent, Belgium.*

I would like to make a few remarks about the problem of leases. The question of the adjustment of the lease to economic circumstances has been discussed quite lately in my own country by a committee of which I was a member. The first proposition we discussed was the possibility of having rents change from year to year according to a weighted index of farm prices. That proposition was not accepted because people thought, firstly, that it would cause too much discussion if the rent had to be changed every year and, secondly, that in any case the farmer and even the landlord should take some of the risks of price changes.

Finally, a proposition was accepted by which the farmer or the landlord can ask for a change in the rent if the decrease or increase in prices is more than 20 per cent.

Should the lease be written or not? Ideas about that question are different. Some people point out that the farmer should be free to have a written lease or not. When there is a written lease the landlord is at an advantage in the company of his tenants. He is better educated, knows better how to draft the contract, whereas on the other side the farmer, not generally very well educated, may be inclined to sign something he does not clearly understand. He may even be inclined to sign too rapidly when land is scarce. When the lease is not written difficulties have to be settled according to local customs. As the renter most likely knows the local customs as well as the landlord there is no relative advantage to the landlord.

Anyway, even when the lease is not written the renter and the landlord should, at least, make a full description of the condition of the farm at the time the tenant takes over; a complete inventory that will avoid difficulties when the tenant has to leave.

The question of the length of lease is, of course, very important and is still more and more important in relation to the scarcity of land and to the intensity of the agriculture. The scarcer land is the greater the desire of the tenant for a long-period tenancy. The more intensive the agriculture is the more important it is to stay a long time on the farm. Some of the reasons have been given by the Australian representative. It is a question of the renter getting the full benefit of the temporary improvements he makes to increase production per hectare.

When the agriculture is intensive there are big differences in farms, in crops, and ways of breeding cattle, even within short distances. The more intensive agriculture is, the more difficult it is to change from farm to farm. In such a case it is necessary to know more accurately the climatic and soil conditions on the farm. This takes time. The farmer may need different machines. Altogether these make the changing of farms difficult in regions of intensive agriculture.

For these reasons we have had a law in Belgium since 1929 which makes the nine-year lease obligatory. If the landlord does not inform the renter at the end of the eighth year the lease is automatically renewed for three years from the end of the ninth year. Of course, landlord and renter may make a new nine-year agreement at once.

Since 1929 we have also had provisions for the payment for improvements. The tenant has to be paid for the temporary improve-

ments he has made on the farm. For definite improvements he has to have the consent of the landlord. If the landlord gives his consent he will have to pay for the value of these improvements when the tenant leaves.

The tenant may make definite improvements without the consent of the landlord. He still may ask the landlord to pay for it at the end of the tenancy. If the landlord does not pay the renter may take the improvements away. Quite often the next tenant will pay for the improvements.

G. MINDERHOUD, *Landbouwhoogeschool, Wageningen, Holland.*

I need not say that Holland is a small country, and has also a very dense population which is increasing rapidly, especially in the rural districts. The increase is about 1 per cent. per year. The land is and has always been in the hands of private owners, but not all the owners of land are farming themselves: about 50 per cent. of the land is rented to farmers. Almost all our land is in cultivation, and, as the rural population is increasing so rapidly, there has always been a strong demand for farms and a keen competition among the tenants. As a consequence farm rents have always been high. To give an example, before the war the yearly rent was about 15 dollars, that is about £4 per acre. When we hear Lord Huntingdon speaking of the scarcity of land in England, and even Mr. Witney on the scarcity of land in Scotland, we have some difficulty in understanding it, because the average size of farms in Holland is about 25 acres. In the period of depression after 1930 farmers got State aid, but as soon as farming became more profitable as a consequence of the State aid the rents of the farms increased. As a result a good deal of the money the State spent to help the farmers did not remain in the pockets of those farmers, but was passed to the landlords. That was not what the Government had meant by State help to the farmers.

Just before the war we passed a Tenancy Act. The Act was slightly modified during the German occupation, but not much. It gave more rights to the tenants than they had ever dreamed of before. Our farmers fought for the right to the three 'Fs', which they learnt, I think, from Ireland. They fought for a fair rent, free sale, and fixity of tenure. They have now got the right to two 'Fs'. They did not get the right of free sale, but they got the right of a fair rent, and the rent of every farm now in Holland must be approved by a governmental board, called the Farm Rent Board. If a rent is judged too high the landlord has to reduce it. If he does not consent to reduce the rent, then the Rent Board has power to do so or to

cancel the contract. In that way farmers get a fair rent, and they also get fixity of tenure, or at least security of tenure. The leases are for twelve years, but after those twelve years they are renewed for another period of twelve years and so on, except in a few cases, namely, when the landlord's son wants to start farming on a farm owned by his father that has been farmed by a tenant. In that case the governmental Rent Board examines the case and makes the decision of whether the tenant may keep his farm or not. Thus there is security of tenure as well as fair rent. They also get compensation for improvements, but not compensation for disturbance, as a farmer farming well can never be disturbed.

The Act of 1940 solved the problem for some years, not for ever, as the principal problem was and still is that there are far more people who want to rent a farm than there are farms available. We have not found the solution of that problem, and a solution is not likely to be found as all the land that can be cultivated is in cultivation. The average size of farms in Holland is less than 25 acres, so that the further splitting of them is impossible. Of course, before the war there was not only a keen competition among tenants, but also among those who wanted to buy a farm. During the German occupation farm prices were simply fixed on the pre-war basis. It was the easy way, but as farming during and after the war has been more profitable than before the war few farms are sold, and if they are sold they are sold at a black-market price. I think it is the fate of planned economy that when you find a solution for one problem two new problems arise from the first one.

C. IHRIG, *Agrarian Research Institute, Budapest, Hungary.*

I am sorry Dr. Renne has not given some emphasis in his comprehensive opening to that system of land tenure where private ownership is combined with co-operative management. It is unfortunate that we cannot go into this problem owing to lack of time, because it has no small significance in some countries. I cannot take the time to tell you about its implications in my country, Hungary, which is perhaps typical of all this part of Europe. I only want to put our problem before you. It arises from the fact that a considerable part of the land is split up into holdings which are too small for rational management. They are too small to absorb the family labour, for market connexions, and even in many cases perhaps for a sound crop-rotation system. So a considerable part of the land cannot be used in independent individual farm management because then there would arise a great loss for the national economy, that is to say, for the

agrarian sector in the national economy. Also great social danger would arise because the people could not earn their livelihood on the standard of living which they think is due to them. Well, what is to be done? It is very simple to say that some way of co-operation within production should be introduced. But how is a compromise to be made between private ownership and production in common? The people, the owners, and also the new smallholders created by the Land Reform insist upon private ownership, and they are very suspicious of any measure which, according to their suspicions, might endanger private ownership. This principle must therefore be maintained, and I think it may be stated that all political parties in my country agree on the principle that private ownership for smallholdings will be and must be maintained.

On the other hand, it is a problem to maintain the proper efficiency of labour when these farmers, as members of a co-operative, are working in common and the common products have to be distributed. The task confronting us is first to convince them that a compromise might be found between these two principles, and secondly, to find a way of management which induces them to give their best effort for the common work, and which thereby does not reduce the output of this common farm management. This is a great problem, for instance, in Hungary, where I estimate about one-fourth of the arable land is now in the ownership of such very small farmers. If this problem cannot be solved, then the total yield of agriculture will be lower than it was before. Therefore I think it is a pity that there are no members here among us who could tell about the experiments and the solutions which have been found in other countries. There are other countries in Europe where this problem may have arisen also, perhaps even much earlier. It would underline the international character of our discussions if they could be extended to these and similar questions which have perhaps no actuality in most of the countries represented here but are of great significance in some parts of Europe.

A. Huni, *Swiss Farmers' Union, Brugg, Switzerland.*

I would like to say a word about the proportion of tenancy in Switzerland. Only one-fifth of the agricultural land in Switzerland is owned by non-agriculturists. Nevertheless, farm people in Switzerland think that this is the highest level that it should reach. By tradition and by our conscious thinking we believe that the interest of the nation is best served when the number of owner-occupiers is high. We have in Switzerland, of course, a few farms where, as

Mr. Witney has quoted, the farmers are satisfied to remain tenants. But these are exceptions in Switzerland. In general the Swiss peasant regards tenancy as a means of acquiring experience and a little more capital, which will enable him to become an owner later. The goal is ownership, even if the peasant knows that he may be just as well off financially by being a tenant.

In order to help this process and in order to keep down prices of agricultural land, the Swiss Government at the beginning of the war made a regulation whereby non-agriculturists were unable to buy agricultural land, and even farmers were not allowed to buy another farm or part of a farm unless they could prove that the additional land was needed for the maintenance of their families.

EARL O. HEADY, *Iowa State College, U.S.A.*

Farm-tenure policy (or research) may centre around various objectives. It is possible that two or more of these may be in conflict. We can come to few well-defined conclusions if we attempt to discuss all facets of this heterogeneous mass simultaneously. Instead we need to isolate the individual components of the overall problem. Until this is accomplished we are likely to do a large amount of meaningless wandering. Farm-tenure policy might, for example, be directed at any one of the following objectives:

1. Redistributing the wealth in agriculture by dividing large holdings among small-scale operators. This has been the objective of recent land-tenure reform in some of the nations' representatives at the Conference.
2. Making farm owners from all or the majority of tenant-operators. Some of us in the United States tend to focus emphasis in this direction. Many point out our policy in respect to land settlement and farm credit, and thus suggest that one of the given values of our society is the owner-operation of farms.
3. Creating security of tenure regardless of ownership or farm size. This objective is sometimes considered independently or is sometimes related to other objectives.
4. Maintaining an upper limit to the size of farms. An endless chain of discussion has centred around this question of area. In the United States, for example, there are many who insist that farming should be maintained as an industry of family units (defined variously in terms of income or labour).
5. Encouraging a 'large' portion of the population to remain in or enter agriculture. The reasoning behind this objective is often sociological, ethical, or political.

6. Establishing alternative tenure or leasing arrangements which will make possible, or result in, the most efficient use of farm resources.

Other possible objectives might be listed. Enough have been set forth, however, to indicate that (*a*) any two or more may be in conflict, or (*b*) the answer for a given objective may well differ, depending upon the social values of the economic group in question. Yet it is evident that unless we separate some of these threads we continue to travel in circles.

A first task should be the isolation of those ends which are either compatible or are in conflict. For this purpose the multitude of economic objectives can be broken down broadly into problems of (*a*) income or wealth distribution, and (*b*) efficiency in the use of resources. I am prone to throw several of the first four objectives listed above into the general category of income or wealth distribution. The specific end in respect to the distribution of income or wealth in agriculture is a value judgement which must be made by each individual national group. The role of the economist is not that of making value judgements. However, as economists we can point out that given objectives may be in conflict with others. An equal distribution of wealth in agriculture may be effected by dividing holdings into 2-acre units and distributing these among the peasants. But certainly this is inconsistent with farming efficiency. Policy which attempts (either directly or indirectly) to make owners out of all farmers may result in an unproductive combination of resources when operators are limited on capital. An upper limit on farm size may well result in an inefficient scale of operations for all, or at least for some, systems of farming. Conversely, added security may go hand in hand with farming efficiency.

There are numerous combinations of objectives which may be either complementary or conflicting. Analysis is needed which will indicate the sacrifice society must make if it adopts alternatives A or B. If a democratic society adopts alternative A with full recognition that it means, say, some sacrifice in the efficiency with which resources are used, then the agricultural economist's duty is fully discharged. Of course, this supposes that the economist will have indicated in which cases the ultimate objectives under alternative A may be accomplished by measures supplemental to alternative B. The agricultural fundamentalist argues that we should have a large number of people in the industry because agriculture is a way of life. One alternative here would include a large number of small farms and thus make possible many families in agriculture. Yet a

large number of families might be allowed to 'live in the country through the following alternative: farms of the most efficient size might be encouraged while society made up for fewer farms by subsidizing the living of other families whose homes were scattered over the country-side and whose farming operations were restricted to a few acres for table use. The last alternative might not only allow the same number of people to 'live in the country' and 'avoid the vice of the city' but would also allow the same output of food with a smaller input of resources. These examples are cited not as recommendations, but to suggest the kinds of analysis needed.

Dr. Renne has suggested that efficiency in farming may vary depending on whether the farm is owned or rented or on the type of leasing system employed if it is tenant-operated. I wish to probe farther in this direction. My subsequent remarks will be confined to the resource-efficiency aspects of alternative tenure and leasing systems. I have in mind the maximum output of food and fibre from a given amount of resources or, conversely, the minimum input of resources for a given output of product. The following provide criteria for the evaluation:

First, if consumer satisfaction is maximized with a combination of Xa units of commodity A at price Pa and Xb units of B at price Pb, a leasing or tenure system is imperfect if it results in an output or price either higher or lower than the otherwise equilibrium.

Second, if a total output of X units of all products is possible on the basis of the most efficient techniques, any characteristic of a leasing or tenure system is imperfect if it results in an output of less than X from the given stock of resources.

On the basis of these criteria there are numerous instances in which (*a*) rented farms as compared to owner-operated farms, or (*b*) alternative leasing systems may result in variations in farming efficiency. Briefly, these imperfections grow out of the three following cases:

First, a fixed supply of specialized resources is established within the farm business and input of these is not related to their marginal returns. In the United States this division grows out of the custom wherein the landlord furnishes one category of resources while the tenant furnishes another and proceeds are split along similar lines under crop-share leases. The landlord ordinarily furnishes the buildings, but since his return thereon is indirect or perhaps non-existent he is often unwilling to invest in the kind or quantity of buildings necessary for the most efficient organization of the farm. Accordingly the tenant may produce pork since he can furnish the equipment and realize all the return rather than produce dairy pro-

ducts which would otherwise be more profitable on the basis of consumer desire as reflected in market prices. Or, if he does select dairying, he may employ the hand-milking technique, whereas machine-milking would be more profitable were the landlord to provide the equipment.

Second, uncertainty is created beyond that which normally exists in the market or for a given state of technology. In the United States this uncertainty grows out of the short-time period for which leases are made. In the case where the tenant knows with certainty that he will move from the farm at the end of the year, he tends to invest in inputs or select enterprises which will give him a return in the same year. Even though his lease does not terminate at the end of a given year he will still tend to invest in types of inputs which give a quick return as long as there is uncertainty as to how long he will remain on the farm. Uncertainty or short-term leases tend to result in a discounting of future returns and places a premium on production plans which are of short duration. Specifically, this means that our nation gets more corn, pork, and similar products and less forage crops and dairy products than it desires were the pattern of production to coincide with the equilibrium conditions outlined earlier.

Third, costs and returns are distorted within the farm business. This imperfection is quite frequent under our crop or livestock share-leases in the United States. There is a tendency for crop-share rents to become established at some given level without much variation over relatively long periods of time. However, instead of charging shares greater than a customary one-half on corn the landlord may add a cash premium for hay or pasture. Or in areas where farm population presses land resources there is a tendency to include in the share rent some premium for using the farm as a place to live. Obviously, these and other cost transfers within the farm business distort the use of resources. In the first case cited corn acreage tends to be expanded at the expense of hay. In the second case the tenant may well find it less profitable to invest in land improvements when he pays a one-half share instead of a one-fourth share if the latter represents a transfer of costs from the household (rent for the privilege of living on the farm) to the business. Many other examples of cost transfers within the business could be cited for the crop-share and the livestock-share leases.

At first glance imperfections make it appear that tenant-operation must necessarily give a less efficient use of farm resources than owner-operation, or that one form of lease is less efficient than another. Yet this need not be so. Theoretically it should be possible that the

organization of enterprise or the combination of productive factors be the same whether the farm is rented or owned or regardless of the form of lease employed. The imperfections grow not out of tenant-operation or leasing systems *per se*. Instead they grow out of the special arrangements and customs which have grown up around the various renting systems. We have tended to perpetuate these imperfections through the advice retailed to landlords and tenants. For example, we tend to describe the existing leasing systems and arrangements and recommend the one of these which fits the conditions peculiar to a landlord or tenant. We need to give more recognition to the imperfections and suggest arrangements which overcome these. This has been partially accomplished in discussions which centre around such problems as compensation for unexhausted resources. However, we have not given enough thought to the effect of various leasing arrangements and systems of sharing on the combination of resources and enterprises. We can make improvements here by suggesting arrangements which will encourage the same farming efficiency on rented as on owned farms. We need to think not so much in terms of existing customs but in terms of conditions which would hold were leasing systems perfect in respect to their impact on the combination of resources. The imperfections cited above would be eliminated by perfect leases in the following methods respectively:

First, the rigid compartments between categories of resources and division of receipts should be abolished so that resources can flow from one investment opportunity to the other in a manner to equate marginal returns throughout the business.

Second, farming inefficiency growing out of uncertainty or the short-time span of leases may, of course, be handled in two ways (*a*) compensation for unexhausted resources, and (*b*) long-term leases. However, one further point is in order. The amount of compensation must represent not only the original outlay but also some return to represent the future returns on the resources. Otherwise the premium is still on investments which return the original outlay plus the 'normal profit' in a short period.

Third, costs and returns should be restricted closely to the individual enterprises of the business or the segments of the household and business which they inherently represent. The lease is not perfect if it is approximately correct for the farm business as a whole. It must go farther and tend towards perfection for each segment of the business. Otherwise inefficient combinations of resources will occur within the individual farm units.

Mention has also been made of the level of rents which is equitable. The level of rents is also a factor affecting the efficiency of resource use. The above discussion treated the combination of resources within the farm business. The level of rents in general is important in determining the allocation (and hence the efficiency) of resources between agriculture and other industries. If rents are lower than the marginal productivity of the land the quantities of other resources combined with the land will be too great. In a practical sense tenants who would otherwise move to industries with higher returns will remain in farming on small, unproductive units when the contractual rents which they pay are relatively lower than real rents. The level of rents paid by the individual business in agriculture should equal the true-value productivity of the land regardless of whether the basic economic system is one of individual enterprise or socialism. Otherwise the flow of resources into alternative industries will be imperfect. If the distribution of incomes is to be altered there are means of accomplishing this end without distorting the efficiency of resource use such as would be the case if rents lower than the marginal-value product of the land were charged. Income tax with public grants in the form of education, food, &c., is one alternative here.

C. MUMFORD, *Oregon State College, U.S.A.*

My good friend and colleague, Dr. Renne, this morning suggested that on poor land the tenant should have a larger percentage of the crop than on good land. I have a suggestion to make, but first let me offer a restatement of the proposition. I have talked with Dr. Renne this afternoon and I know that he will approve of this restatement, namely, that on poor land the tenant should have a larger percentage of the gross income than the tenant on good land. This restatement needs a bit of modification, at least in our experience.

First, agricultural economists should not use the terms 'good land' and 'poor land'. I shall probably be caught in my own trap even in this short speech, but I shall try not to mention poor land and good land, because each quality of land has its own best use. Therefore in many instances it would be more helpful to use the terms 'more productive land per acre', and 'less productive land per acre'.

Second, Dr. Renne's paper implies, does it not, that the net income per farm on the less productive land is lower than the net income per farm on the more productive land. In that connexion may I call attention to a study conducted in my state. Just before the war we

made a farm-management study in the Willamette valley, which is a rather diversified farming area.[1]

We studied all sizes of farms, all types of farms, and all soil types. We divided the valley soils into four groups, based essentially upon land adaptibility. First, we used No. 1 to describe the soil which is the most productive per acre and which occurs along the river, widely adapted to many crops. Soil class No. 2 is soil that is not quite so productive as the first. Third, a little bit less productive, poorly drained; and fourth, the land, which our soils people called (I am not saying this—it is the soils people) poor land, and very poorly drained. Now this little study resulted in the following facts. On the No. 1 soil, the most productive, we found 50 acres in crops. There was more land, but I am speaking now only of land actually in crops. No. 2 land, 78 acres; No. 3 land, 97 acres; and No. 4 land, 194 acres. You see as the productivity per acre goes down notice what is happening in the crop acreage per farm. It is going steadily upward.

Surprisingly enough, I see some of you look worried. This may not work in other countries or in other parts of my country, I am only claiming that it works in my Willamette Valley. As to the results on income, the most productive land per acre did not yield, in the year of the study, the highest labour income, or the highest per cent. return on investment, nor did it show the highest capital accumulation per year. On the contrary the No. 4 soil resulted in the highest labour income, the highest per cent. return on the investment, and within 2 dollars of the highest capital accumulation per year. I think the reason is obvious: that this county has been farmed long enough for the farmers to determine what is an economic unit on almost any type of soil, and they have arranged the size of their units in accordance therewith. The capital invested on the No. 4 type was a little higher than the capital invested on the other units.

So at least from my standpoint I say that Dr. Renne's broad statement needs some modification in our area. If this finding is true it presents a very constructive and hopeful aspect to us agricultural economists. There is not enough highly productive land to go round, and, therefore, if we look forward in our work to combining the factors of production in such fashion that we may reasonably expect to make about as much money per farm on one type of soil as another then to me this thought is hopeful and constructive.

[1] *Farm Organization and Financial Progress in the Willamette Valley*, Oregon Agricultural Experiment Station Bulletin, No. 444.

In view of the foregoing I would like to suggest this formula: first, know your soil—what it is good for; second, use it for that purpose; third, try to get the proper amount of it, so that you may have an economic unit; and fourth, buy it right—do not pay more than it is worth. Viewed in this light I submit to you that there is a great deal of possibility that a farmer can make about as much money on one type of soil as another.

In this study there are several other things that bear upon the question of the stability of tenure and credit which I would be glad to discuss later with any of you individually. For example, we found that the younger men were making far more labour income in the year studied than the older men—approximately 600 dollars and over for the men under 40, but for the men over 60 a minus labour income with a gentle gradation in between.

G. MEDICI, *Istituto di Economia Agraria, Rome, Italy.*

Some of our colleagues have asked me to give some information about land tenure in Italy, and it gives me an opportunity for making some observations about the general problem of land tenure. The question of land tenure is before everything else a political question. If you look at my country, for instance, to-day agrarian reform is one of the most important political problems. You will realize that its most important aspect is the problem of land tenure. For that reason it is not a typical economic problem. With this in mind I would like to raise the following points.

First, I listened with great interest to the point developed by Dr. Baptist about fair rent. The question of fair rents is as old as the question of a fair price, because after all rent is the price for using the land. This question is very important from a political point of view. It is without any scientific and economic importance because we do not know the exact 'fair' and the exact 'unfair', but merely whether prices are in equilibrium or not in equilibrium. From a scientific point of view unless we agree on this point we are unable to discuss about what is fair and unfair. This problem is a political one and as such the question of establishing a fair price is not posed from the scientific viewpoint. It is put by the Government to agricultural economists as a practical political problem, and we are therefore obliged to give an answer, not an abstract answer with the equation of the general economic equilibrium, but a practical answer as men living in a social world.

My personal opinion is that from a technical point of view the best method to solve the problem is to consider a typical farm with a

normal budget, and to establish what rent is the landlord's due. Posed in this way it is possible to solve the problem because we can determine what is the normal income in wheat, in oats, in sugar-beet, in many other crops from a normal farm using the normal methods of cultivation and which is of normal size.

My second point is: some members here set forth the distinction between a system of renting farms which is nothing more than the payment of feudal tribute, and a system which makes contribution to the progress of agriculture. This issue is put in Italy, too, with great political force because a lot of people to-day speak of rent as if it were inconsistent with a progressive outlook on agriculture, and it is interesting to consider this point. The system of renting can be a good thing when it makes it possible for people to invest capital in agriculture when they have no part in the managing. In north Italy, in the Po valley, we have a lot of excellent farmers who are unable to buy the land. At the same time we have professional and industrial people who have the savings made in other activities which they can invest in land. If we compel these people to be the operators of their land we will see a drop in agricultural production.

Nevertheless, I think the best future, especially in this old part of the world, where the familiar capitalist system prevails for the most part, lies in aiding the cultivators to buy their land. In Italy it was possible to sell to peasants 1 million hectares of good land without any direction by the State. Our biggest agrarian reform was made in liberal form. In consequence of an increase of the land tax many peasants who made a lot of money during the First World War were able—as is happening to-day—to buy their piece of land.

I am sorry I am not able to quote Italian experience on the point raised by Dr. Ihrig of Hungary on co-operative farming. Co-operative farming as such has not been a success. In Italy co-operation is fundamental in marketing, in the best utilization of agricultural machinery, in reclamation and irrigation, but tentative efforts to establish co-operative farms were disappointing. The two or three cases which were interesting were the result of the exceptional capacity and exceptional activities of two or three men.

Third, in Professor Renne's paper there is one extremely interesting point, especially from a theoretical point of view. This is the point about the rigidity of the existing tenure system, and the question of finding the best methods for adequate flexibility. It is fairly clear from European history that only the freedom of enterprise in the system of land tenure can assure the maximum flexibility. When the State starts to make laws which aim to determine the best of fair

land-tenure systems the maximum of rigidity is assured. This is our experience in some parts of southern Italy where there is a general tendency to determine by regulation the level of rent for each quality of soil.

A recent general survey of the distribution of rural proprietors in Italy as related to the system of land tenure reveals that the greatest reclamation and the most striking transformation of poor soils into good orchards, citrus gardens, vineyards, &c., are found either in properties which are owned by the farmer, or in properties which are rented (Plain of Lombardy); it is closely related to the size of the undertaking. Broadly speaking, it is in small and medium-sized properties that we find the most intensive production. In Italy small and middle-sized properties mean from 10 to 100 acres, or perhaps 10 to 80 acres, and it is in those districts that we have maximum employment and the best standard of living.

If we consider the trend of landlord rent in Italy, for instance, over the last fifty years, we realize that there has been a gradual diminution; often this diminution in purchasing value is hidden by inflation. The general diminution in landlord rent has resulted from the increased taxes and wages, which have absorbed all the improvements realized in agriculture through the discoveries of science.

In many countries of old civilization—as are most European countries—the function of landowner is to-day becoming more and more a social function; this is particularly evident in Italy, where progress in methods of cultivation and animal husbandry is due greatly to the educated type of landowner, who spreads among his tenants, share-croppers, and land-workers the teachings of modern agronomy. Only in limited areas of certain European countries is there still a wide gap between landlord and tenant, and this is where latifundia still remain and represent an old period which is fast fading away.

G. A. HOLMES, *London Office of the New Zealand Government.*

Whoever drew up our programme for the first two days of this Conference must have given the matter a great deal of careful thought, because yesterday we took the study of man, the study of migration of peoples, and to-day we have the second important study—land, capital, and credit. I must compliment Dr. Renne on the very able talk he gave this morning, and my only complaint was that it was much too short, because you would all notice from the skeleton draft which was handed round that Dr. Renne was able to get only a little over half-way through. I feel, too, that while the question of land tenure is of paramount interest, the other subjects mentioned

here are equally important. But you will notice that there are three multiplied by three: land, capital, and credit, to meet technical, economic, and social developments. It would take a good deal more than the hours we have spent to-day for us to study those nine possible interconnected factors.

I come from the little Dominion of New Zealand, which was once administered by New South Wales. I will not recapitulate what Mr. Simpson put to you so clearly to-day, because our problems have been very much the same as those of Australia. Our experiments in land tenure and our political experiments have followed very much those of the Commonwealth of Australia.

We first had the problem of land tenure 100 years ago, when the first settlers from Scotland reached the far south of New Zealand. They arrived in a strange country, and felt themselves so completely isolated from the rest of the world that they had to adopt completely new practices. It was impossible to value land when a great deal of it was covered by a totally unfamiliar type of native evergreen forest, and it says a good deal for the shrewdness of the early settlers that they were very soon able to assess what was first-class land, what was second, and what was third-class by the type of vegetation which grew there. The governments in their earlier years tried to encourage and extend settlement, but all the time they were also careful not to perpetuate out there the inequalities from which they had suffered in the old lands. Some, quite a lot of our best settlers, came from the Highlands of Scotland, and they had memories told them by their parents of the Highland clearances. Some came from Ireland and had bitter memories of the Irish evictions. And so they were determined that the land should not get into the hands of a few powerful landowners.

At the same time, as it was obviously necessary to get land put to use, the Government granted short-term leases called pastoral licences. These were assigned for five years only, the expectation being that the pressure of increasing population would soon force the land to be divided up into smaller areas. Much of the land covered with tussock (native grass) was totally unimproved. The settlers had to rely on the natural boundaries to keep their sheep in, rivers and mountain ranges. They were able to run merino sheep from Australia very cheaply with a minimum of labour. The introduction of refrigeration in 1882 made it possible to keep English breeds of sheep for mutton purposes, the merino being, as you all know, principally a wool breed. To keep a dual-purpose breed demanded more intensive farming.

A good deal of the best land was purchased from the Crown—I

should have mentioned that Queen Victoria had taken the sole right to buy land from the natives of New Zealand, the Maoris—and our position to-day after many experiments in the different types of tenure is that about 50 per cent. of the occupied land is freehold tenure, owner-occupier, and the other 50 per cent. (and that mostly the poorer land) is leased from the Crown. There seems no room for the private landlord in between the State and the owner-occupier.

I was interested to hear our colleague from Italy mentioning that land tax had been used as a device for compelling the subdivision of land or the sale of land to peasant proprietors, because that was tried and still operates in New Zealand. It was tried by a Liberal Government away back in 1893 when the call was for closer settlement. The idea was a steeply graduated land tax which would enforce subdivision. Later, again parallel with what Mr. Simpson told us this morning, the Government set up, not a bank, but a State Advances Department, which extended credit to settlers when we had, just after the 1914–18 war, a large-scale development of land by returned servicemen who obtained farms under a balloting system.

We have in New Zealand a system which is rather unique—at least it is unique to Australia and New Zealand. A great deal of the farm finance is conducted by private enterprise companies, known as stock and station agents, who are extremely diverse in their activities. That is a very suitable thing in a country where distances are considerable and where the farmer cannot go, for example, to the market town whenever he happens to have some sheep or some calves to sell, or whenever he wants to buy something for the farm or something for the house. It is quite possible if you have the telephone—we have that even far back—to ring up the stock and station firm and say: 'I want a few rolls of netting, so-many hundredweights of barbed wire, a bath for the baby, and half a sack of flour.' They will supply everything the farm requires; they will sell on commission everything which the farm produces.

We also invented the device of a Land Sales Act to control the inflation of land values. That was necessary legislation in view of the amount of money which is in circulation at present, and the obvious tendency in certain countries for land values to get right out of hand. I was amazed, for example, during the war to find dairying land in Britain being sold, when it was offered freehold, at prices which seemed to me considerably above the economic level. In 1942 New Zealand passed a Land Sales Act which limits the price at which land may be bought and sold. You have a farm, and I want to buy it, but we cannot deal until the price and conditions are approved by a

government-appointed board of expert valuers. I say the legislation is necessary, but, as you can imagine, it produces certain undesirable effects. It is quite a common objection in New Zealand that the operation of the Land Sales Act has to a certain extent driven sellers off the market. An old farmer, for example, who should sell out and retire is apt to say: 'I gave £30 an acre for this land in 1928; the Government value it to-day at £24. I'm not going to lose £6 an acre. Therefore—I've got a home here—I'll sit out on the veranda and run a few heifers; and I won't sell until this legislation is repealed, and I'll hope and pray that that won't be very long.' So, you see, the Land Sales Act, well intentioned, well meaning as it is, can bring a hold-up in the transfer of land from a less efficient to a potentially more efficient younger man who would make better use of it.

It is hardly my task to continue the questions of the flexibility of land, capital, and credit to meet technical, economic, and social development. But there are one or two brief practical points which I should like to mention as they may be of interest to others. On the technical side we have to record some notable achievements. You have only got to think back to a little over 100 years ago when superphosphate was invented and, a much more recent invention, the fixation of atmospheric nitrogen. Those two chemical developments should have far-reaching effects on the operation of farms. The Indian peasant, I understand, spends little or nothing on artificial fertilizers. The progressive Western farmer spends a great deal, and, of course, the higher your ratio of expenditure the more you lean on capital requirements.

Mechanization, which might be called a technical development, is also a very expensive one, particularly in countries which do not manufacture their own machines. We hear people saying very glibly: 'Oh, all our difficulties will be solved when we get our farms more highly mechanized.' Well, in some cases the mechanization is reaching the stage of using a steam hammer to crack a walnut. You buy, say, a combine harvester. Well, that's the best part of £1,000. You then buy a pick-up baler to bale the straw, because you want that as well, and then you have to put in a drier to dry your grain; and you will find sometimes that header harvester doing less work per day than the ordinary old-fashioned reaper and binder. It is a reflection, of course, of the labour position, the inertia which seems to have afflicted some of our labour. I have seen farmers in this country with a patch of potatoes that a couple of energetic Irishmen could dig in a couple of days, who have gone to the expense of a specially imported American potato-digger.

Now in the technical sphere in New Zealand we have developed a very useful practice. That is the practice of the farmer having some of his work done for him by a system of contract operation. In New Zealand the dairy farmer can carry on with his morning milking, but before he has finished the contractor will have started, away down the field, at one of the heavier jobs on the farm. In winter-time he may be spreading lime, with tractor, trailer, and a wide box distributor. In haymaking time he may be going round the field with a pick-up baler at so much a bale. At other seasons he may be doing the ploughing and disking, while the dairy farmer himself is busy with his various other tasks. That is one aspect of the flexibility of capital, because the farmer's capital is not at stake. The contractor provides the capital for this mechanization to give the maximum utilization of that machinery. Instead of it sitting in the shed, the property of the farm owner, it moves round from farm to farm, therefore achieving a much higher efficiency in the use of capital as represented by that rather expensive machine.

JOSEPH ACKERMAN, *Farm Foundation, Chicago, U.S.A.*

I work for the Farm Foundation, which was created by a group of men who deeply desired a better life for the rural people of our nation. They believed the welfare and continuing progress of rural America essential to national welfare. In developing the programme we constantly keep in mind a statement of one of our founders that 'the quantity and the quality of the rural population is a major and most important factor in determining in the long run the strength, the character, and the well-being of the people of the nation'.

A major project of the Farm Foundation is the improvement of farm tenure. Activities include the study of various problems connected with rural land ownership, tenancy, credit, land values, and soil conservation as well as other land problems affecting the social and economic status of the farm population.

Land tenure presents, in my thinking, one of the most serious and long-standing problems in agriculture. It continues to become more and more important as population pressure on the land increases. I am, therefore, delighted to have the opportunity of securing a better understanding and a broader concept of the tenure problems of the world. The knowledge of what problems other countries are facing and their approach to the solution broadens one's vision and provides a better background upon which to base the development of an improvement programme.

Of interest to this Conference is a meeting arranged by the Farm

Foundation in February 1946, at which people from eleven foreign countries in addition to technical people from the United States were brought together to discuss family farm policy. One thing that interested me was that after we got our definitions clear we began to understand that the issues faced by most countries were about the same. The objectives might be summed up as follows: (1) to achieve an adequate income, (2) to attain and maintain security, and (3) to provide opportunities for people now on farms, and for young people as they grow up, to remain on farms under conditions that will enable them to secure an adequate living. Although the objectives were very similar, the means of attaining them were somewhat different. In England and Scotland the problem of establishing a secure tenancy was approached through the Agricultural Holdings Acts. In some other countries, such as Denmark, security seems to be achieved best through owner-operatorship, and legislation was developed with a view to eventual acquisition of the property by the operator.

In our country we stress the family farm as the ideal. It is difficult to arrive at a clear-cut conception of the family farm because conditions vary with the family and with the type of farming. A definition worked out by one of the committees at this international meeting included the following requirements: (1) that the entrepreneurial functions be vested in the farm family, (2) that the human effort required to operate the farm be provided by the farm family with the addition of such supplementary labour as may be necessary, either for seasonal peak loads or during the developmental and transitional stages in the family itself, and (3) that the farm be large enough, in terms of land, capital, modern technology, and other resources to employ the labour resources of the farm family efficiently.

At the same time, as we hold the family farm to be a desirable goal, we need to point out that other tenure patterns have a very definite place. In the north-eastern part of the United States we have almost complete ownership. In the mid-west a large percentage of the land is operated by tenants because land is of such high capital value that a man finds it to his advantage to provide good machinery and equipment with which to work and let someone else furnish the land. In the south, then, we have the plantations operated by share-croppers. It is difficult to generalize too much about tenure in our country because it represents a multiplicity of systems of tenure.

In discussing the types of reform needed, it is important to mention that social, economic, and political factors are all involved. Yes,

even religious and cultural traditions help to determine the type of farm operations, the arrangements made between parties with respect to land, and the means of passing on rights from one generation to the next.

Because of the importance of education in improving farm tenure, last spring the Farm Foundation brought together a group of extension workers from the states to discuss what kinds of programmes are needed to achieve some of the important tenure goals. How can we bring to our landlords and our tenants facts and experiences they need to solve their individual problems? How can we prevent farm units from being cut up into smaller and smaller farms which can provide only insufficient incomes? What kind of educational information can be given to farm families who want to develop an inheritance pattern which is satisfactory to all members? These are some of the many questions discussed at the meeting.

Some of the discussion here has been centred on problems growing out of population pressures. When there are several children in the family, what happens to those who cannot farm? Our answer is usually that if we are to maintain an economic-sized farm unit, we need to have a continuous free flow of people from agriculture into industry. At a meeting like this we need to describe briefly the situations as they exist within various countries to clarify the issues involved. I for one would like to see further exploration of the tenure problems of other countries in order to learn what is being done to solve them. What efforts are being made towards educational programmes? Towards legislative regulations? What skills and abilities need to be developed by rural people who go from farms into industries?

We continually need to look ahead and try to anticipate the tenure problems that are likely to confront farm people so that they will have useful and timely information readily available when the need for it arises. The place of tenancy, as well as the forces which facilitate, and the conditions which retard, the acquisition of land by farmers constantly needs to be studied in an effort to find rational means for promoting land ownership and providing the desired landlord–tenant relationship on tenant farms so that the best use is made of the soil in view of the welfare of both the present and the future generation.

E. C. YOUNG, *Purdue University, Indiana, U.S.A.*

I would like in the few minutes I can take to relate the discussion to the problem we discussed last night, that is, the movement of

population. This characteristic of mobility was almost completely neglected in our discussion last night and, in my opinion, is very closely related to the problems we have in hand to-day. In the older countries populations are extremely immobile. In the United States they are exceedingly mobile. Our people are born with wheels on. They start moving about almost immediately they are born, and they keep it up at an accelerated pace. With the passage of time, especially with the very rapid changes incidental to the war, our mobility increased still further. In prosperous times we are still more mobile. As a result, economic changes which we initiate in the markets catch up quickly with us in our population movements. I am confident that if we develop a system of price control and depart from the free market it will just be a matter of a very short period of time until we get into trouble with our tenure system. In older countries where populations are less mobile it will take longer, but with us it is just a matter of time until our population becomes hopelessly ensnared as a result of the poor allocation of human resources which would result.

Historically, population movement has been slow in its adjustment to price changes. Under our conditions I am confident that the very great mobility of our population would result shortly in serious population maladjustments under a system of controlled prices.

This analysis applies to farm populations and industrial populations alike. The labour turnover is very rapid. Hired men stay only a few hours, or a few days, or a few weeks. Tenants are always on the look-out for a farm to buy or for a better farm to rent. The short-tenure system which we have, and about which we worry so much, is almost inevitable in our circumstances. It is directly related to the question of mobility. A possible but not a practical alternative is to lower the mobility of the population. Only under conditions of extreme mobility of population and other resources does an economy have an opportunity to readjust itself continually to changing economic and technical conditions. Undoubtedly any action that would cut down population mobility might serve certain ends as suggested by Professor Heady, but at the same time it would reduce our efficiency and reduce the constantly increasing rate of economic productivity.

C. R. Sayre, *Delta Experiment Station, Mississippi, U.S.A.*

I should explain before I begin that my interests are in the southern or cotton-growing regions of the United States, where we have the highest percentages of the more unfavourable types of tenancies

which exist in our country. I can agree very readily with Professor Young that we must maintain mobility. I think, too, however, there are two or three things which need to be recognized concerning farming and tenancy as it has developed in the south in relation to mobility and ways toward which we should look for future solutions, unless we want to take some very direct types of governmental action. In the first place, the tenancy forms in the southern parts of the United States have developed from very strange mixtures of social and economic conditions. Many of them grew directly out of the conditions following the war between the States. Those conditions, in the sense of adequate education and vocational training facilities, development of desirable ratios between land resources, and the accumulation of capital resources, have not corrected themselves very satisfactorily over a period of almost 100 years. Although we can take the social objectives which Mr. Ackerman mentioned, higher incomes, security, and opportunities for improvement, as the objectives for improvement of living on southern farms, I doubt within our political situation—either in the south or for that matter in any other of the major areas of the United States—if we can depend upon social consciousness as an approach to the attainment of these objectives. It seems to me that we must turn to an economic approach to generate changes for improvement which will mean widespread adjustments.

Unfortunately, with the exception of the alluvial valleys and a few other rather fertile areas, most of our soil resources in the south are relatively infertile. They are hard to manage and to operate profitably. They are high-risk lands under most conditions. The point which seems to me as the inevitable conclusion is that if we change the economic balance between people and land and capital in the parts of the south with relatively infertile soil resources, we must do it through technological advancements which will involve high-cost mechanization and the development of more extensive systems of farming. Those types of adjustments in an economy which has been developed around cotton and tobacco with very wide ranges in price fluctuations result in financial risks too high for the individual farmer to assume alone.

Mr. Simpson referred this morning to the State and private efforts towards providing types of capital which I would call venture-capital for high-risk agricultural developments. We need venture-capital, it seems to me, to stimulate the technological advancements which must come in the south. Here I must depart from Dr. Young's point, however, in the sense that he has said that price

manipulation or regulation would necessarily mean immobility to the point of slowing down desirable changes. It is my feeling that economic approaches to needed adjustments in resource–population balance and to undesirable forms of tenancy require the elimination of some of our market risks and price fluctuations and by advances of capital, either through government advances or through some new leads, to the money market which have not developed as yet. I believe we must depend upon technological advancements to generate the changes, advance venture-capital to help in bringing them about, and reduce some of the risk elements by smoothing out a part of our price swings.

L. J. NORTON, *University of Illinois, U.S.A.*

We have had to-day some very interesting descriptions of land-tenure systems in various parts of the world, but so far as I am concerned we have not had a satisfactory answer to the topic which the programme makers listed, namely, the flexibility of land, capital, and credit systems to meet various developments. Instead of talking about flexibility we have been discussing inflexibility and how some of these various patterns have tended to freeze. I take it that the people who arranged this programme really wanted to raise the question which might be restated this way: 'Are our tenure and credit systems sufficiently flexible to contribute to certain major objectives of agricultural policy?' It is very late in the discussion to be bringing up an entirely new subject, but I must confess that I have not heard the answer to my question. I assume that at the moment and for many years in the future the real problem before the agriculture of any country will be how to organize its agricultural resources so as to attempt to provide a more adequate diet for the peoples of the world. If there has been any agricultural policy in the United States which has continued over the years, it has been to maximize agricultural production. I certainly think that it will be a continued objective. Sometime I would like to have an answer by competent people in the various countries of the world to this basic question: 'Do our present tenure and credit systems provide for sufficient flexibility to accomplish maximum production?'

In the United States the ownership of land and land tenure in general is essentially a business proposition. We have not yet any regulations which limit the price at which farms can change hands. I might say for the benefit of the non-Americans here that this situation exists in spite of the activities of certain agricultural economists who thought that it would be highly desirable to have such controls. But

our politicians, the men who draft our laws, did not pay attention to these views. In large measure it is possible for anyone who owns land to rent it to anyone he selects under the conditions that he wishes to prescribe. Now that is, of course, a completely different situation from the one outlined by Professor Medici as obtaining in various European countries. So our problem has to be approached from an entirely different point of view than in countries where land tenure is essentially a political question. But the major political question in any country in Europe or in any country in the world from the agricultural standpoint is: Do all the policies—land and otherwise—favour a maximum production of food? If I were a responsible economist (in any country where economists are permitted to speak freely), or a responsible statesman, I would be guided in my views on policies by this simple rule because I would be most likely to hold my job either as a professor or as a politician if the policy added up to a maximum production of food. Such policies will in the long run have a greater political appeal to the people of any country than will some particular scheme which may be promoted to subdivide the land in an uneconomic fashion, as was mentioned for several countries this morning. You may say that that is a very comfortable position for one to take who is 3,000 miles away from the problem, but I think it is something which ought to be kept in mind in any country. In general, our agricultural and economic policies in the United States are now directed towards maximum production.

Just a few words about various systems of tenure from the standpoint of flexibility. To-day we have talked much about the owner-operator and the advantage of the operation of land by the owners. The evidence in the United States as to whether the owner-operator or the rented farms produce the most is quite contradictory. In the mid-west, where we have a great deal of tenancy, we are often comparing two different groups of people. Very often the more active and younger men are on the rented farms, and the older men who are not quite so active are more often on their own farms.

But a system which aims at complete operator-ownership has a basic difficulty in an area where any significant amount of capital is involved in agriculture, namely, the amounts of capital required. What particular good does it do to set a man up as the owner-operator of a farm if he is starved of capital? As Dr. Ackerman has pointed out, in the middle-west we have a very high percentage of rented land. This is due largely to the fact that a young man wishing to start farming, unless he is fortunate enough to have been born into

a landowning family and has a father who is ready to retire, practically has to start as a tenant-operator, simply because of the capital required. I want to throw this point out as a limiting factor to a system of land tenure which would involve having all operators as owners.

I wish to turn briefly to the question of different types of leases. Fundamentally, I think there are two: the cash and the share. I would say, from what little observation I have had of English agriculture, that your system of long-term cash leases over here, which is well established and which, as was pointed out to-day, grew out of your social and economic situation, has resulted in the landlords being forced to abdicate their essential responsibilities as landlords. I checked on the rent on each of the farms I visited. I happen to be a very small-scale landlord in the United States, and if I were renting my land at the rent charged for the farms I visited, I do not see how I could afford to put a dime into capital improvements. I gather that is exactly what is happening here. The upshot of it is, that under your system (which I am not criticizing but rather describing one aspect of it as I see it) you have thrown the complete responsibility for the provision of capital, which is very large under your system of agriculture, on to the tenant. This may be all right, but this is a period when large capital investments are needed, and it seems to me that by this system of rental you have eliminated one large potential source of capital for agriculture. If these men have the capital to own all this land and to carry it with these low rentals, they must have other capital which, if there was sufficient incentive, they might invest in the improvement of their properties.

The American system is largely one of share-rentals, and certainly it is more flexible than the cash system. As President Renne pointed out, it may not be sufficiently flexible, because of customary practices, but it is certainly more flexible than the cash system, because under it, if the productivity of a farm is increased, the landlord benefits immediately. As Professor Heady pointed out, the landlord only gets part of the income and this may deter some landlords from making improvements. However, they have more stimulus than the British landlord who does not get any of the increase. In spite of all its faults the American system of share-rentals, which is pretty general in the mid-west, where the landlord and the tenant share in the income from the crops and, under the more scientific type of leases, in both the crops and livestock, certainly is much more flexible than cash leases. It provides greater incentive to the landlords to invest the capital which may be necessary for the improvement of the land and the development of the property.

I would like to register a note of objection to a very minor point which Renne made, namely, that there is very little flexibility to allow for different conditions under our share-renting system. That is not the case in the state of Illinois. Roughly 50 per cent. of our land is operated by tenants, and in the more productive grain-producing sections, in eastern and central Illinois, the percentage runs up to 70 per cent.—one of the highest percentages of tenant-operated land in the world. We have found by surveys that, as you go from the northern to the southern part of the state, that is from the better lands to the poorer lands, the percentage of the crops which the landlord is getting decreases very definitely. There is some degree of adjustment. The adjustment in share of crop may not be fine enough, but the real adjustments come in the shares of various expense items borne by landlords and tenants. I think that Professor Renne left an erroneous impression when he said there was little flexibility in share-rentals.

Professor Heady made a very good point, the strongest indictment of our share-rental system in accomplishing the objective of achieving the maximum production from a given piece of land in view of resources, cost, and technical knowledge; namely, that since the landlord received only a share of the income he might be discouraged from providing as many improvements as he would if he operated the farm. I submit, however, that if he gets a share of the gross product he will be much more willing to do so if it results in increased production than he would if he were a cash landlord. I know many landlords who are making substantial improvements on their farms. These men either have some understanding of agriculture or hire a manager who understands agriculture. There is an increasing trend in our country on the part of absentee landlords to hire what you in England call estate managers, although with us they may be managing farms for several different people. In such cases, I think, we find increasingly that the landowners are making the type of improvements which tends to increase output.

In respect to co-operative farming, I happen to have a rather intimate knowledge of a farming community where I think there is as much co-operation among farmers in getting jobs done as in any community in the United States. That is extremely important for labour efficiency. Back in the war years we paid a great deal of attention to labour efficiency. Our department searched out, among the records of farms, those which had high man-work units per man. They located these farms and then went out and studied them. Almost without exception these were cases where two, three, or

four farmers, either related or not related, co-operated in doing many farm jobs. By that process they cut down on the amount of equipment they needed and got the jobs done more effectively. In the community which I know intimately, whenever there is a job involving a considerable amount of labour that requires group activity for efficiency, the men simply get together and exchange work. In connexion with operations involving expensive machinery such as combines, threshing machines, or corn pickers, it is almost the universal rule that one machine will be used on more than one farm. That is not co-operative farming, but it is co-operation in getting tasks done where more than one person or expensive machinery is needed for an effective operation. Most of these farms in this particular community, which, incredible as it may seem to most of you with European experience, range in size from 160 to 240 crop-acres, are operated, unless they have more than the usual amount of livestock, by one man. The only way they can get multiple-men jobs done is by this kind of co-operation. I do not know whether this example in any way contributes to the problem or has any value to our friend from Hungary, but I will say that this type of co-operation works under actual farming conditions and operates to permit economies in equipment and labour.

But to revert to my opening point, sometime I would like to see this group or some other group analyse the question as to whether our land tenure and capital systems actually tend to hinder or to help in the big job which the agriculture of the world faces at this time, and will face for several years to come, of getting the most production we can out of the rather limited agricultural resources of the world.

S. C. Lee, *University of Nanking, China.*

Since we have heard so much about the West, may I take a few minutes to say a few words about the East? I am of the opinion that the tenure system as an institution is a common and collective product of the social, political, economic, and technical environment, so any land-tenure system should be adaptable to and should fit into the social, economic, political, and technical environment of that country or nation. The tenure system should be flexible in order to cope with the situation of that country. If an institution becomes fossilized then some kind of reform is called for to make it meet the need of that community. So, speaking generally of the land-tenure system of any nation, it should aim at making the best of men, land, capital, and management, so as, according to

Alfred Marshall, to obtain an ideal proportion between all the factors in agriculture, or indeed any business. Only thus can we attain the highest output of that industry. So it seems to me that the tenure system should be very flexible instead of inflexible. China is an agricultural country because she lacks other natural resources. Her population has to live on agriculture, and we have not developed in the technical and mechanical sciences. So that there is a vicious circle in that we are handicapped in developing scientists who make progress in agriculture.

I would like now to mention some of our tenure problems for your solution, as Professor Ackerman suggested a little while ago. In China before the war cultivating owners were about half of the rural population; 25–6 per cent. were tenant farmers; and the rest were part tenant and part owners. And, of course, during the war farmers, especially the tenants, have profited by the higher prices. So a portion of the farm tenants became owners with the help of the farmers' banks.

Fundamentally, as Mr. Medici said, the tenure system is a political problem. We have been troubled by communistic disciples who started their campaign in rural districts. They proclaimed that they would divide the land equally among the farmers, so during the war in the communistic regions they destroyed all the boundary lines and the plans of the villages and transferred all the workers between the ages of 16 and 45 (as I said yesterday). Now in the rural districts not only are we short of workers, but we have difficulties in recovering the original farms because the Communist Army has destroyed all the boundary lines. We cannot recover all the farms for all the farmers, no matter whether they are owners or tenants or part owners. Several provinces, the northern part of the Kiangsu province, the Shantung province, and at least six provinces altogether, have the same difficulty in recovering their old boundary lines between the farms.

The Government has tried its best to help the farmers to re-establish their old farms. Several methods have been and still are being tried. First, land of absent landlords is sold to the tenants at market price, and the former owners paid a portion in bonds or notes on the farmers' banks. Second, in accordance with the land law that an owner can only operate a size sufficient to provide a living for the family, any excess of land over that amount has to be sold to tenants. The tenant has the right to ask the Government to buy the excess of land from the large landowners. Third, public land is to be appropriated for tenants. Fourth, if a tenant remains on a farm for eight

years, then that tenant will have the right to ask the Government to buy the land from the owner for the tenant. And fifth, heavy taxes are levied on big farms. These are the five steps we are now trying in China, but, of course, the problem will not be solved in the very near future because first we have to re-establish the boundary lines between the farms, and these proposals are just a beginning of an attempt to solve the land-tenure problem in China.

As we look round the world we see land-tenure problems to be different in different countries. But they are different also in time. I suppose forty or fifty years ago land-tenure problems in the United States were quite different from now. As Professor Ackerman said, farms are becoming smaller. The U.S. population forty years ago was only 98 millions; now it is 140 millions. The population pressure forces a division of large farms into small farms. When the population comes to our 470 millions perhaps the farms will become even smaller than we have now. Thus I think the world is really one, and we are passing through the same problem in different stages. As this is the International Conference I would like all of you gentlemen who are looking at this problem from different angles to recognize that we have the same object: to attain the highest efficiency from land, capital, and labour.

THE EFFECTIVENESS OF MARKET MECHANISM FOR ADJUSTING FARMING TO PUBLIC NEED

OPENING ADDRESS

L. J. NORTON
University of Illinois, U.S.A.

MY approach to this subject may be coloured by the experience of having spent much of my adult life in the study of market arrangements in a country with a deep and fundamental respect for free markets and the use of market prices to guide production and consumption. I have seen:

1. Market prices effect fundamental changes in the kind, quantity, and quality of agricultural production in response to the only channel of communication between American farmers and consumers—market prices.
2. Large stocks disappear in response to low prices and consumers adjust consumption to short supplies in response to high prices.
3. Our markets tangled up with government price supports and ceilings.

During the past year the United States swept its wheat bins empty and also shipped large quantities of other foods to feed a hungry world (see Table, p. 114). We would not have shipped these quantities if we had maintained price controls. I read about supplies going through irregular channels in countries which still maintain controls. With this background I admit a bias towards free markets as a mechanism for getting foods produced and distributed. My considered opinion is that in providing adequate food for basic human needs, a free market will operate more effectively than any programme involving planned marketing, price controls, state trading, or any of the devices which planners can conceive in efforts to plan production, distribution, and consumption. For this reason I have the utmost confidence in the final outcome of the present differences of opinion between two great nations who hold fundamentally different points of view on this question.

The pricing process is the heart of the market mechanism. What are the criteria of efficiency in this process? I tell my marketing classes that the pricing mechanism is to be judged by the following tests. It should: (1) develop prices which reflect to producers the

Estimated Food Exports from the United States, by Destination: Fiscal Year 1946–7 (preliminary)[1]

(*In thousands of long tons*)

Destination	*Total foods*	*Wheat and flour (grain equiv.)*[2]	*Other grains (grain equiv.)*[3]	*Fats and oils (product weight)*	*Meat (carcass-weight equiv.)*[4]	*Dairy products*[5]	*Other foods*[6]
Total food exports	18,433	10,520	4,538	233	224	493	2,425
Europe—Total	11,149	6,638	2,572	156	195	322	1,266
U.S. Military-civilian fdg.[7]	3,481	2,251	904	9	9	33	275
France and Fr. N. Afr.	771	312	281	44	12	41	81
Belgium	614	405	79	13	9	8	100
Netherlands	600	466	117	7[8]	1	..[9]	9
Norway	159	146	8	1	..	..	4
United Kingdom	1,652	837	125	17[8]	50	185	438
U.S.S.R.	56	..[9]	..[9]	2	40	5	9
Austria	325	198	102	10	10	..[9]	5
Italy	1,349	812	443	18	18	13	45
Poland	321	175	77	18	19	15	17
Greece	422	274	94	1	9	13	31
Czechoslovakia	151	94	24	7	12	..[9]	14
Other Europe	1,248	668	318	9	6	9	238
Far East—Total	3,508	1,916	1,250	3	15	94	230
U.S. Military-civilian fdg.	1,642	934	578	..	2	9	119
China	238	150	49	..	..[9]	19	20
Philippines	523	191	202	3	3	50	74
India	1,003	571	421	..	..[9]	7	4
Netherlands East Indies	102	70	..[9]	..	10	9	13
Latin American Republics	2,322	1,530	447	58	6	52	229
Other exports	1,454	436	269	16	8	25	700

[1] Excludes shipments to U.S. territories.

[2] Includes approximately 170,000 long tons Canadian wheat milled in bond in the U.S.

[3] Includes corn, cornmeal and grits, rice, oats and oatmeal, barley, malt, rye, and grain sorghums.

[4] Includes 31,000 long tons representing the carcass-weight equivalent of meats included in Army rations and canned-meat products which were used in civilian feeding or transferred to U.N.R.R.A. and not covered in meat allocations.

[5] Includes cheese and condensed, evaporated, and dried milk.

[6] Includes dry beans and peas, fish, eggs, sugar, poultry, potatoes, vegetables, fruits, and nuts, &c.

[7] Includes U.S.–U.K. zone of Germany and Italy and U.S. zone of Austria.

[8] Includes colonies.

[9] Less than 500 long tons.

basic demands of consumers as to kind, quantity, and quality of goods and so guide production; (2) reflect prices which will move existing and forthcoming supplies into consumption; (3) provide a price structure that maintains economically justified stocks both within and between production seasons; (4) treat all parties alike; (5) reflect the quality differences recognized by the trade and consumers; and (6) do these things economically and efficiently.

If a market mechanism meets these tests, it cannot at all times pay producers what they deem to be remunerative prices, nor can it provide consumers with goods at prices which they do not consider too high. If large stocks have to be moved prices may be cheap, temporarily even below real costs. If consumer prices are high it is mainly because consumers have the desire to buy and the purchasing power to take existing supplies off the market at these prices.

The only concept of 'public need', a phrase used in my topic, that the farmer can grasp is the willingness of consumers to buy his products. Go into an American food store and watch the women at the meat counter. They clean out the meat at prices which all parties from producer to consumer know to be very high. Consumers want meat and have the money to pay for it. This is the reason why our livestock now sells at fabulously high prices. No one—the producer, the packer, the retailer—is trying to gouge the consumer. This market is made by a strong desire for red meats backed by money in consumers' pockets.

The same thing has happened in our grain market. On my farm corn is grown for sale. Last fall and early winter I sold a considerable quantity at what I considered a good price. Yet I made a serious mistake. Foreigners entered the market and began to buy corn in considerable quantities at what my friends in the grain trade tell me were not Scotch prices, but rather at what we used to call after the First World War 'silk-shirt' prices. I know that when foreign buyers were in the market prices strengthened; when they dropped out and the market depended on the American processor demand, the market weakened. The only way in which our grain farmers could learn that foreigners had a 'public need' for corn was by being able to sell at prices that many of them considered to be high. I suspect that these were 'state purchases'. If I were an English dairyman and wanted to buy my feed 'worth the money', I would get an experienced trader and not the Government to buy it for me.

It is clear by now, I hope, that the pricing function of the marketing mechanism is the only phase of that mechanism which I consider

to be relevant to my topic and that 'public need' is made known to farmers by demands in the market or reflected in prices.

I am fully aware that other interpretations of public need are possible. Undoubtedly there are many hungry people in the world. You can total up the amounts of food needed to satisfy these needs. But what anybody can do with such information I do not see. Unless somebody could devise, impose, and enforce an international rationing scheme supplies must be allocated by prices. In the United States during the war we rationed some scarce items. It worked fairly well, but with peace the actions of our people forced us to abandon it. For a time the real price of corn was measured not in dollars alone but in dollars plus, in pairs of nylon hose. I have such a schedule in my files: a most interesting document. Public opinion in America sickened of such a farce. You still ration in England. Your people are better disciplined than ours. From what I read actual markets in some European countries where controls exist are mostly 'black or grey'. So an international rationing plan can only be a mere figment of the imagination. Therefore I can grasp no interpretation of public need except that conveyed by the economic term 'demand', or what people are willing to buy at prevailing prices.

I am old-fashioned enough to believe that the best test of any economic policy is: Does a programme contribute to maximum production of things for which there is effective demand? All programmes should be subjected to this test of maximizing production of needed things. To raise the level of food consumption we must increase the level of production of food. Many technical factors are involved, but a consideration of these is not a part of my assignment. On the market side, however, a mechanism of free, open, competitive markets will, in my opinion, maximize production. Most control programmes aim at curtailing or witholding output to sustain market prices. All of these fail the test of maximizing production of goods for which an effective demand exists.

A wise home economist says four things determine what we eat: (1) what we produce; (2) what we can afford; (3) what we are taught to eat; (4) what we are sold.

There is a constant interaction between what is actually produced and what consumers really want. The connecting links are market prices and relative costs, which are also affected by the market prices of cost factors.

I shall give some actual examples of adjustment from American experience. Perhaps the most stable factor in the American economy

is the overall production of farm products for sale or home use. The year-to-year variation is slight. But the make-up of this overall production is always changing and not static.

The two classes of farm products which increased most in output in the United States between the two wars were truck crops (green vegetables) and oil seeds. Index numbers of the production for sale and home use of truck crops (1935–9 = 100) were 32 in 1909–13 and 105 in 1938–9, a more than threefold increase. Similar indexes for oil-bearing crops were 45 in 1909–13 and 123 in 1938–9, not quite three times. Here is evidence of a dynamic rather than of a static condition in production. Many things contributed. Technical developments, such as refrigerator cars for shipment of green vegetables from distant low-cost areas, mass displays of vegetables by retailers, new factories for soy-bean processing, the discovery of proper growing and harvesting methods, and the learning of the necessary 'know-how' by growers. But behind these developments were the market demands of consumers for more green vegetables, of dairymen and stockmen for a better source of protein feed, and a response by consumers to intensive merchandising of foods containing vegetable oils. Farmers learned of these demands when a market developed for these products offering prices which made them more profitable to raise than alternative crops. Less rapidly production of other products increased between these two periods: dairy products by nearly three-fifths, poultry products by two-fifths, fruits and nuts by 80 per cent., and tobacco by slightly more than one-half. At the same time other farm products lagged: food grains (wheat and rye) increased by only 17 per cent., feed grains and hay by less than 5 per cent., the closely related meat animals by about 15 per cent., potatoes and dry beans by less than 20 per cent., and actually cotton decreased by 10 per cent. Between these two periods, 1909–13 and 1938–9, the population of the United States increased by 39 per cent.

Now it is true that in 1938–9 acreages of cotton, tobacco, wheat, and corn were somewhat held down by government acreage allotments. This contributed to the rapid increase in acreages of the oil-seed crops, particularly soy-beans. The basic reason why acreages of these crops were under control was to bolster up a weak price-position. This was a period of low world prices for basic commodities, and the following particular circumstances weakened prices of the commodities which had only modest increases in output between 1909–13 and 1938–9: wheat—reduced exports and domestic consumption because of changing food habits; cotton—reduced exports and competition from synthetic fibres; feed grains and hay—

mechanization and the consequent decline in demands for feeding work-stock; potatoes and beans—changing dietary habits; meat animals—declines in pork and lard exports. Prices were also affected by reduced real costs in producing corn and wheat consequent on mechanization and the adoption of higher-yielding hybrid varieties of corn. This was an added reason why acreage restrictions were imposed on these two crops.

I do not hold that public policy played no part in American price levels; cotton, wheat, and corn prices in 1938–9 were supported by government loans, but outputs of these products lagged rather than increased; prices of other products were higher than they would otherwise have been because of import duties, excise taxes on use of imported products (vegetable oils), and other similar factors; but, except for the government loans, these did not interfere with the operation in normal fashion of our internal markets.

As further evidence that market prices will bring fundamental agricultural adjustments to public needs, I submit the response in our war-time production. Comparing 1943 with 1938–9, meat animals and poultry products were up about 45 per cent.; dairy products, up only 11 per cent. (an example of short-run inelasticity); oil-bearing crops, up 160 per cent.; while food grains—of which, in the war years, we had large stocks—were up only 3 per cent.; cotton, down 3 per cent.; tobacco, down 13 per cent. The increase came in products in greatest need for meeting military and lend-lease demands. The stimulus was relatively high prices reinforced by promises of support prices and actual subsidies for the oil seeds and later on for dairy products.

Market prices will adjust production in line with needs as expressed in market prices, if time is allowed for the lag essential in agricultural processes. The most fundamental change in the agriculture of our corn belt between 1909 and 1939 was a decline in the importance of feed grains and an increase in soy-beans. To effect this small-scale combines had to be developed, thousands of farmers had to learn how to raise a new crop, large industrial plants had to be built. To do these things requires time.

My first test of the pricing functions of a market was: to price goods so as to reflect the basic demands of consumers (as expressed in market price) as to kind, quantity, and quality, and thus guide production. I have shown that very broad changes have occurred in the production pattern of farm commodities in the United States in response to changes in market prices and relative costs. Right now the market tells our farmers to emphasize production and sale of

grain and to curtail the use of grain as feed. We are harvesting our largest wheat crop—good weather was partially responsible but the acreage was also up; high prices for feed grains are curtailing long feeding of cattle and slowing up expansion in hog production. Consumers' needs, as reflected in high grain prices, are operating to increase production and sale of cereals.

My second test was that a marketing mechanism should move existing and forthcoming supplies into consumption. This works two ways: lower prices to expand consumption; higher prices to hold consumption down to the level of actual supply. The latter is illustrated now by the high current level of meat prices in the United States. In the absence of formal rationing there is no other way to distribute a supply which is below the level of effective demand.

An illustration of how lower prices operate to expand consumption is the behaviour of the prices of certain horticultural speciality products which have been low in the United States during the past few months. We harvested a big crop of citrus fruit; the canners carried over large supplies of canned citrus juices; prices broke; the mass-display merchants piled up the canned juice for sale at low prices; people bought it by the case where they had previously bought it by the can. The frozen-fruit people have been faced by a similar situation and certain varieties have recently been sold at very low prices. People bought more and used it.

You may say, here was a misjudgement on the part of the market agencies in accumulating such large stocks of these materials. You would be correct. But mistakes are made—both by government and private trade—and, when they are made, the test of the market is whether it will price the commodities so as to move them. I could cite the case of a U.S. Government corporation which brought Japanese silk into the United States in a volume which could not be sold at the offered prices. I could cite the current rubber situation. In that one the British Government, if I understand it correctly, got out from under a fixed price. These government deals illustrate a point which farmers need to bear in mind. It is easy to support prices on a bull market but difficult to do so on a bear market. Only a very rich government can afford to stay with expensive price-support operations on the latter.

My third test was that the market mechanism should carry stocks that can be economically justified both between and within seasons. I shall draw my illustrations from our greatest American crop—corn, or, as you call it, maize. Corn is typically stored on the farm because it can be held there more cheaply than in market channels. To induce

storage the market price must rise enough during the storage season to cover costs as farmers calculate them. On the average in the marketing season of the 1920–37 crops, the price of corn increased by 11 cents a bushel between November and the following August. The state of Illinois is the largest source of commercial corn. In the three years 1927–8 to 1929–30—before any government storage plan operated—Illinois farmers disposed of (fed or sold) corn as follows: In the first quarter after harvest, 37 per cent.; in the second quarter, 28 per cent.; in the third quarter, 17 per cent.; in the fourth quarter, 14 per cent.; and carried over, 4 per cent. Thus the market operated to cause farmers to hold about 30 per cent. of their crop and carry-over for sale or feeding in the last six months of the marketing season. Bear in mind that the heavy period of farm use is in the winter for feeding hogs and cattle. In addition the market agencies accumulated corn during the winter and sold it out during the summer. When we had flat-price ceilings farmers sold corn early, and twice the Government had to step in during the latter part of the year to allocate supplies between various classes of users.

The chief point of theoretical criticism concerning corn storage has been that the market did not provide for large enough carryovers from one year to the next. The 'ever-normal granary' plan, before it degenerated into a price-support scheme, was intended to encourage such carryovers. Here are some figures as to actual carryovers:

	U.S. crop of corn for grain (millions of bushels)	*Carryover at end of year*	*Percentage carried over*
1925–6	2,382	280	11·8
1930–1	1,757	168	9·6
1932–3	2,579	387	15·0
1936–7	1,259	66	5·2
1939–40 . . .	2,342	688	29·3
1944–5	2,881	308	10·7

Thus before the Government began making loans in 1933 the markets induced farmers to carry over 10–15 per cent. of their previous corn crops. The 10 per cent. at the end of the 1930 crop-marketing year was following a short crop; the 15 per cent. at the end of the 1932 season was near the bottom of the depression with the lowest price in this century.

Government loans in a period of weak demand led to a carryover which in the peak year of 1939–40 was equal to about 30 per cent. of the previous year's crop. Loans were still offered in 1944, but the demand was strong and only about 10 per cent. was carried over.

Whether big carryovers induced by loans above market or use values are more economic than the 10–15 per cent. of the crops which was held over without such loans is a subject which would take longer time to explore than I have available. No one can conceive of carryovers large enough to guard against crop disasters like 1936, but we have had only two of these in the past fifty years. Proponents of this storing scheme argued it would smooth out the hog cycle. The wildest hog cycle we have ever had came in 1942–4 and was caused in part by these heavy Commodity Credit Corporation stocks of corn, which held down corn prices while hog prices rose rapidly.

Open market prices will not induce American farmers to carry over more than 10–15 per cent. of their corn crop. Government loans will induce larger carryovers when above market prices.

My fourth point was that the market mechanism should treat all parties alike. We have no adequate data on this point. We do not know enough about prices paid to individual farmers. Where market prices are widely published it would seem that a system of open market prices should come as near treating all farmers alike as any system will. My tenant and I were discussing the price of oats, and so we looked up the local price in a weekly paper which had just come to his home. Everybody in the community reads this paper, and so this information is available to all who are interested.

My fifth point was that the market should reflect quality differences which the trade or consumer recognizes. I suspect that in this respect the market mechanism is weaker than at other points and that improvements are needed even in countries with well-developed markets. There is too much 'hog-round' buying at country points. This is, of course, merely a local adaptation of f.a.q. prices and is a simple system of operation at country points. Dr. T. R. Hedges in a thesis he prepared for his degree at the University of Illinois found that in Oklahoma the average price paid to farmers for cotton truly reflected the points on or off middling prices in central markets for the cotton of the community but that individual farmers were not paid for the differences in the quality of their particular lots of cotton.

Much basic research needs to be done into practical methods of applying quality differentials to actual farm prices. In some cases a mechanism for moving the commodities through to consumers on a quality basis needs to be developed. We are studying the operations of some egg-grading stations and find that the ordinary Illinois eggs are of a quality which, if paid for on a graded basis, would warrant premiums of 3–5 cents over what we call 'current receipts' prices.

One of these stations, operated by a farmer who has developed a big-scale hatchery, feed, and poultry business, has found special outlets which permit him to pay premiums. A chain-store operation has done likewise. A hatcheryman who is buying eggs on grades has not found good outlets for the special grades and is experiencing difficulties. There must be a completely developed market from producer to consumer before the market can reflect to producers the quality premiums which some consumers will pay. This was the first research project we initiated in anticipation of new research funds recently authorized by our Congress for work in marketing. It illustrates our interest in this basic aspect of the market mechanism.

My sixth point was that the market should carry on the pricing process efficiently and economically. We have few objective data on this point because cost studies do not separate the respective costs of the pricing function and of the various physical functions. It certainly costs a good deal of money to maintain the communication systems involved in disseminating complete market information. Such pricing institutions as an organized grain market like the Chicago Board of Trade involve large costs. We do know, however, that when a complete organized soy-bean market was developed, the spread narrowed between the market values of the products which beans yield and the price paid to farmers for soy-beans, and the seasonal range in prices was reduced. This behaviour was in line with the theoretical views as to the effects of such markets. If the spread narrowed, the producer received a higher share of the processing value of the soy-beans.

For a commodity not adapted to open-market pricing, government intervention may reduce some of the costs involved in the bargaining process. Market milk is an example. Milk cannot be priced in an open market. We gradually evolved a system of bargaining between dealers' and producers' associations. Now and then costly strikes of producers developed which have been eliminated by government pricing orders in our interstate markets. But milk is a special case of a commodity not adapted to ordinary pricing practices; in the milk markets where these official pricing arrangements work best, milk prices are tied to those of basic manufactured products—butter and cheese, priced in organized markets with appropriate premiums for quality, location, evenness of season, of production, and other factors which make market milk more valuable than milk for manufacture.

I have endeavoured to develop some of the advantages inherent in a system of open and competitive markets. I stated at the outset that

'public need' could only be interpreted to the farmer by way of market price. I have shown that over the years our agriculture adapted itself to new demands and produced more of such things as oil seeds, green vegetables, and dairy products and relatively less of such things as starchy foods and animal feedstuffs. These changes reflected farmers' reactions to relative returns and costs as revealed to them by the market. Possibly the same thing could have been accomplished by some all-wise planners. But who would have known in 1920 that Americans were to become a nation of salad eaters? Who would have underwritten the costs of any mistakes that had been made? When I came to Illinois in 1923 a distinguished agronomist who has had much to do with the subsequent development of our great soy-bean industry asked me about its future. I did not know. And I can say truthfully that I do not know what revolutionary changes will come in our agriculture in the next quarter of a century. I do know that these will be determined by relative prices and costs. In soy-beans it took farmers like the Garwood brothers to adapt the combine to harvesting soy-beans, forward-looking businessmen like A. E. Staley to develop processing, plant breeders like Woodworth to develop adapted varieties, and food manufacturers like Wesson, Proctor & Gamble, and Lever Brothers to popularize the use of vegetable shortenings, and animal nutritionists and feed manufacturers to learn how to feed the meal advantageously and to get farmers to use it. To the average farmer all this worked out so that he saw a good market for a crop which he had learned to grow. Public agencies played a large role in the needed developmental and research work, but commercial interests developed the market.

My personal conviction is that the less the government intervenes in the market and the more it devotes its resources to basic research and education, the more likely we are to get the kinds, quantities, and qualities of products which the public wants. It will be a grave tragedy if the control measures which were spawned by the great depression of the 1930s, and which will develop again in the next depression as they have in hard times throughout history, should be used as an excuse for continuing general control measures in the period of expanding economy we now face. The same can be said of the special war-time measures. In the United States we are in the process of getting rid of such programmes and will resist strongly the restoration of any programmes to push our agriculture into any official pattern. As I said earlier, we would not have made available the huge tonnage of food to the rest of the world in 1946–7 (Table,

p. 114) if we had continued our price ceilings. The basic question was: did the world want this food at high prices or did it want controlled prices?

DISCUSSION

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I would like to congratulate Professor Norton on the very refreshing experience which he gave us in allowing the cool wind of honest *laissez-faire* optimism to blow on us in this invigorating fashion from the middle-west. I think, however, that he rather gave his own case away towards the end of his paper, because he more or less told us that when the next depression arrives most of the controls will come back again, and he also admitted that the war had necessitated a great many interventions with the free operation of market mechanisms. Depression and war are after all the two major causes for the departures which this and most or all other European countries have made from *laissez-faire*.

Some of these departures have involved unwise or ineffective attempts at control, and many of us could quote instances of ill-conceived bureaucratic interference. But there was one point in Professor Norton's paper which I did not quite follow, when he referred to the effect of government buying in the corn market in the United States. It does not seem to me remarkable that the price should rise if foreign buying is increasing, whether that buying is conducted by the government or by private individuals. And as far as this country is concerned I do not think it true to say that buying done on behalf of the Ministry of Food is done by inexpert people. Many of those by whom it is carried out bear names well known in the food trades in almost every country in the world.

In this country during the war we were faced with a very big departure from normal economic conditions. In war-time it is almost true to say that in this country the aim of agricultural production was not to maximize the output of consumer satisfaction as it was in peace-time, but to maximize the use of shipping space. If we had not strained every effort to save space, we should have interfered very seriously with the war effort. Now shipping space is not a thing that is properly reflected in market valuations. It happens, for example, that of all the foodstuffs we normally consume in this country potatoes is one in which we are most nearly self-sufficient. It also happens to be the case that potatoes are one of the most effective methods of utilizing land for saving shipping space, owing to their high output of calories per acre. But owing to the fact

that we were not dependent on imports for any large proportion of the supply, the price of potatoes did not experience the immediate stimulus due to scarcity which occurred with other foodstuffs, particularly with grains, on the outbreak of war. It was thus very necessary for the Government to stimulate the production of potatoes, and to do that it had to interfere with market valuations and to take special steps to encourage production by raising their prices.

As this instance shows, however, even if a government is engaged in large-scale intervention in the operation of markets it does not follow that it is going to depart entirely from the use of price mechanisms as its instrument. A lot of the discussion that went on during the war in regard to control of food production was concerned with the question to what extent the aim could best be achieved by suitable adjustments of prices and to what extent it was desirable to use other methods such as giving directions to farmers requiring them to produce stated quantities or to cultivate prescribed acreages of certain crops. Obviously the effectiveness of price changes in producing changes of production varies a good deal according to circumstances. Some readjustments of production are achieved easily; for instance, it is a question of substituting one crop for another in a rotation. There is not very much difficulty about this if the price can be made attractive. If it is a question of encouraging, say, the production of milk rather than the production of meat, again a great deal can be done by seeing that the prices of milk and of fat cattle are kept in such a relation as to give milk the necessary stimulus. But with regard to things like potatoes or other crops, where it is a question of inducing a considerable total expansion in the arable acreage, then the price mechanism is less likely to be effective by itself. Farmers must be induced to plant such crops in areas where they are not normally considered suitable, where the climatic conditions are unfavourable, and under such conditions it was generally thought in this country that price inducements ought to be supplemented by the use of compulsory powers, and so a good many of the crops which it was desired to extend into the western part of this country were made the subject of directions issued on behalf of the Minister.

Of course, a great many factors also intervene besides merely agricultural considerations. Monetary incentives vary in their effectiveness according to the value of money to the individual. If people are making good profits they may ignore an inducement which offers them an increase in their profits at the cost of a troublesome

readjustment of their production. But if their ability to make a living is threatened by depression or by a deliberate lowering of the prices of the things they are accustomed to produce, the response may be much greater. The same thing, of course, applies to the response of consumers to price changes. If consumers are finding it difficult owing to poverty to keep their food expenditure within their incomes a variation of prices which enables them to save by substituting one food for another will be much more effective than in conditions where the majority can make ends meet without difficulty. These facts point to one important limitation of the effectiveness of price inducement under conditions of inflation such as have been experienced during and since the war. Even if inflation of prices is rigidly controlled and kept hidden away by comprehensive price regulation, none the less the inflation of incomes such as now exists in this country very much limits the effectiveness of price adjustments in steering production or consumption from one commodity to another.

Our far-reaching interference with market mechanisms to-day, then, is mainly the result of the magnitude of the change in our economy required during the war. But the post-war world is also very different in many important respects from that we knew before the war, and largely for that reason I doubt if it will be possible for us in the immediate future to make very much progress back towards the *laissez-faire* system. I agree that there is some danger that we shall lose interest in trying to get back to it, and it is important that we should not forget the inherent limitations that Professor Norton pointed out in the operation of government controls. They are very real, and prospective bureaucrats would profit by receiving instruction in them from Professor Norton. But our progress towards restoring the freedom of markets seems to me likely to be limited by purely practical considerations.

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One thing that has impressed me during my short visit here in England and during our delayed journey from America is how frequently we discover that our disagreements are more apparent and superficial than real. I say this now because the following remarks may suggest that my disagreements with Professor Norton are more important than they really are, and because I suspect that an opportunity for more complete discussion would reveal substantial agreement. Certainly I am in accord with many of the points made in his paper.

The question of terminology may lead us into real difficulties. When Professor Norton spoke of the advantages of the free market, I thought he mixed and confused the characteristics of a *perfectly competitive* system with those of a *laissez-faire* economy. In order to clarify my further remarks, let me give brief definitions for these terms: *perfect competition* in its customary sense in economic theory means an economic system operating without lags or frictions, with perfect knowledge on the part of all buyers and sellers, and with the complete absence of elements of monopoly or quasi-monopoly; *laissez-faire* means an economy with all of its imperfections and monopoly elements but where government does not interfere through such devices as tariffs or price and production controls and where the individual is free to follow the dictates of his own self-interest (including the right to exploit any monopolistic position that he has or is able to create). It is unnecessary to stress the fact that these are far different concepts.

My first point is one where almost all of us will find a considerable area of agreement: the *results* of a system of perfect competition are for the most part socially desirable. I would add immediately that every nation has, on one occasion or another, seen fit to modify these results through such things as a graduated income-tax or by establishing minimum wages and working conditions. Nevertheless we visualize the results of the competitive system as a way of allocating and using our resources most efficiently and so of maximizing social satisfactions and the public welfare. We do not try to maximize food production, of course, for food is just one of the many things that we want. And let me stress that I am talking about the *results* of this theoretical system, and not about the peculiar characteristics of the competitive market. My first point, to repeat, is that most of us would agree that the results of the competitive system are efficient and, with minor revisions in line with our ideas of social justice, that they are socially desirable.

If we agree on this, then the next question is: how would a *laissez-faire* or free-market economy differ from the theoretical model of perfect competition? I have already indicated my belief that the differences would be great. To begin with, our economy is not free from elements of monopoly. In a modern industrial economy, technological developments force monopoly and large-scale organization on us. Nor does this require vast aggregations of industrial activity. The low costs associated with scale or size in such activities as agricultural marketing are important enough relative to the small size of the local market to make the alternatives either a considerable

degree of monopoly with relatively low costs, or a limited amount of competition with two or three firms and with duplication, excess capacity, and relatively high costs.

But there are many other ways in which a modern free-market economy would differ from perfect competition. One of the most important has been mentioned—lags. Adjustments do not take place rapidly, and maladjustments may persist for years; the serious problems of the cotton south that Mr. Sayre discussed yesterday are examples of this. In addition any modern economy will have a certain amount of governmental activity. This will consist primarily of the establishing of rules and regulations within which the individual must operate. It seems clear, however, that pressure groups will continue to work for their own ends and that, while government may avoid large interferences with the free market such as the price supports and production controls discussed this morning, it will interfere in many other ways. Examples of this are such things as chain-store taxes, taxes on margarine, and the conflicting regulations that hamper over-the-road trucking. Without developing these ideas in more detail, I think that we must all agree that there are very significant differences between a system of perfect competition and the *laissez-faire* system that would develop if we simply ruled out major government interference.

Following our line of argument, if the results of perfect competition are desirable and if *laissez-faire* differs materially from perfect competition, the next question is: what, if anything, do we want to do about it? And it seems to me that here most of our discussion should focus. If I interpret Professor Norton correctly, then we agree that we should keep our hands off the system in those areas where the market mechanism works reasonably well. Many years ago the United States decided that there were other areas where the free market did not operate to the benefit of society. Therefore, government has taken over the mails and highways. We have regulated public utilities, perhaps not too well, and in other ways interfered where the free operation of the market did not give us the desired results. Between these two—the area where a free economy will operate satisfactorily and the area where the economy is already under government operation or control—there must lie a zone where the free system does not give results that compare well with the results of our theoretical system of perfect competition.

This is the problem zone that should receive more and more attention from our research economists. We need to describe our system in terms of actual inputs and outputs, and to estimate the conditions

that would hold under perfect competition. Comparison of these would serve two purposes: first, to delineate specifically the problem zone; and second, to indicate the direction that adjustments must take if we are to approximate the socially desirable results. Then we must develop suitable methods to make the required adjustments. In this connexion I am willing to agree that we should give the benefit of any reasonable doubt to the uncontrolled system, since government is apt to be 'sticky', it does not adjust things too well sometimes, and it is corrupt on occasion. In spite of this it is my personal belief that there are a number of areas in a modern economy where the results of the economic system can be improved by appropriate government action. In many cases this will take the form of rules and regulations governing the actions of the individual entrepreneur. I have considerable sympathy with the frequently expressed belief that government should avoid fixing prices, although I suspect that price and rate regulation and control may be the only practical approach to some problems in the monopoly field.

This discussion recalls the wide acclaim that greeted Hayek's book *The Road to Serfdom* in the United States. As you may know, this book was regarded by certain groups in our country as a conclusive demonstration that all government activities were bad and could lead only to ruin. I had the opportunity of hearing Professor Hayek lecture at Harvard when he disclaimed this view that had been attributed to him in our Press. As I understood his remarks, his position was not essentially different from that outlined above. He agreed that it was the government's responsibility to establish appropriate rules and regulations, and that there were areas and problems (such as monopoly) where real governmental interference was necessary. I would have differed from him mainly on a point of fact: he seemed to feel that an economy such as ours might operate as 90 per cent. free and 10 per cent. controlled, while I would be inclined to modify these ratios somewhat. But I have already indicated that this whole problem should be the subject of intensive research. If we can agree on the general principles, and follow with good research studies to determine the actual facts, then we should be able to get together on a positive programme to improve the economy. This should do away with much of our useless debate and also with sweeping generalities based on assumptions of completely free or completely controlled economies.

Before closing, I would like to refer specifically to two of the illustrations in Professor Norton's paper. First, I believe that he used the marked increase in hog production in the United States

during the early war years as an example of the effectiveness of the free-market mechanism. We have studied these developments, using the inter-war period to indicate the relationships between hog production and such factors as corn supplies, corn prices, hog prices, and so on. From our studies it seems quite clear that the increase to which Dr. Norton referred was far greater than would have been forecast on the apparent relationships that held during the inter-war years. In other words, there is a real question whether or not this represents a clear-cut example of the effectiveness of the free market and price system. Without attempting to develop this, I will only ask if the government guarantees of future hog prices might not have been the more important explanation. The response of hog growers may well have reflected the fixed and controlled price, and not the uncertain future price associated with an unregulated and uncontrolled market.

Finally, Dr. Norton abandoned his position to the extent of admitting that free-market operations were out of the question for certain commodities, specifically fluid milk, and that governmental regulation and price fixing were required in these situations. He went on to explain how we have developed state and federal pricing mechanisms, which tie fluid milk prices to the prices of certain manufactured dairy products, with price differentials for such factors as quality and location. I would agree that the nature of fluid milk operations, including the day-to-day fluctuations in both production and consumption, make it difficult to see how a free market could operate to the satisfaction of all concerned. In spite of these difficulties I would be inclined to use our milk-pricing experience as an argument against rather than for control. While differentials between fluid milk prices and the prices for milk going into manufacturing uses may have been influenced by location and quality, I doubt if anyone familiar with the industry would claim that these were the dominant factors. Instead, they seem to stem directly from monopoly pricing practices. Fluid milk prices are high because the consumer will pay high prices—because the demand for fluid milk is inelastic, if you prefer. It seems a good example of discriminatory pricing, with prices high and consumption limited in the market with inelastic demand, and prices relatively low in the markets with relatively elastic demands. This example could be presented as a classic illustration of the problem of control, where you begin with regulations to stabilize the industry, then increase prices in response to pressures, and finally attempt to surround your country, your trade zone, or your state with trade barriers based on tariffs and sanitary regulations in order to maintain the preferred position of the local

producers. As such, it would be a very telling argument in favour of Dr. Norton's free market rather than an example of a necessary exception. Perhaps we can conclude by saying that milk marketing and pricing is an example of the problem zone where government action is required, and at the same time an example of the difficulty of gearing government action to socially desired ends rather than to the ends of particular groups within society.

R. W. BARTLETT, *University of Illinois, U.S.A.*

We have one thing at the University of Illinois that goes well with Dr. Norton's thesis of a free and open market. We have free and open discussions. There is no monopoly as far as I know that would be imposed on any of us in agreeing or disagreeing with others in the department or in the world at large. This morning I am not going to attempt to discuss in detail the thesis of Dr. Norton, though I agree in principle with the material which he has presented. Rather, based upon our discussion of the past three or four days, I would like to take a longer-range viewpoint as to what we are striving for, and show some of the impediments towards achieving the improved standards of living which Mr. Elmhirst outlined in his talk on the first day.

One of the facts we face is that a controlled market usually is the result of low consumer-income which goes with mass unemployment or results from war. England had one out of every eight workers out of work during the 1920s and one out of every six workers jobless during the 1930s. With the exception of 1921, the United States had a high level of employment during the 1920s, but during the 1930s one out of six of its workers was jobless. Low farm prices resulted from low industrial production and low urban income in both England and the United States during the 1930s.

As I see it, agricultural economists should give major attention to finding the underlying causes of unemployment and centre our activities in doing what we can to prevent stoppages in the flow of industrial products which cause low urban income, low farm prices, and which, in turn, lay the foundations for strife between nations.

During the past few months I have been putting together material dealing with this problem and will read the first page of this, which summarizes some of my philosophies.

It comes under the chapter heading 'Facing the Problems Ahead of Us':

'World War III can be stopped before it starts if our American leadership does three things: First, we must use the surgeon's knife to remove the

rotten parts of our economy which caused millions of jobless people and a continued depression during the 1930's. Secondly, we must continue to help put nations who want our help back on their feet. And in the third place, we must maintain a strong military force to insure respect from the rest of the world until the growing pains of the United Nations have stopped and this organization is able to assume adult responsibility.

'Few people will question the wisdom of having a strong military force. Nations which survive are those which can protect themselves. Theodore Roosevelt's theme was : "Talk softly and wield a big stick." The United States now finds itself in the role of world leadership. To hold this, we must be respected and be able to defend ourselves against those who have less.

'After World War I, America thought it could isolate itself and let other nations take care of themselves. It didn't work, and we had another World War. What Europe and other nations need from the United States is industrial machinery, railroad equipment, farm implements, food, clothing, medical supplies and other consumer goods. Failure to get these, means starvation, strife and misery. World War III is a certainty unless we help supply the things which will help people in different countries of the world to support themselves, and gradually improve their standard of living.

'The first step in this process is to get our own house in order so that, year after year, we can keep our factories going, our people employed and maintain good markets for our farm and industrial products. Russia is depending upon a business depression to throw us into such a tail spin that we'll pull out of Europe and she can take over. And Russia relies upon the fact that for the decade before the war one wage-earner out of every six in this country was jobless and for a decade we were groping blindly trying to get our people back to work. We had a sick economy all through the 1930's with nearly nine million jobless people as late as 1939.'

Now that brings us to the question of analysis as to where we are going. As I see it, cyclical downward swings in business are a primary cause for governmental control in non-war periods. If farm prices decline, as they are likely to decline, if our industrial prices and wages fail to decline, as they are likely to fail to decline, there will be tremendous pressure upon our government for increasing government relief and governmental controls. If we look at the history of the world between the First World War and the Second World War, we can trace the political upheaval in several countries directly to this cyclical period of unemployment. In Italy mass unemployment and grass growing in the streets of Rome led to the Mussolini régime in 1922. In Germany 6–8 million people unemployed, with about 250,000 suicides in 1932 evidencing their hopelessness of the future, led to the Hitler régime in 1933. In Spain, and I hope my Spanish friend will correct me if my statements do not

appear right to him, chronic unemployment and poverty together with religious and political hatreds led to the devastating fratricidal Civil War from 1936 to 1939.

Let us discuss this question of unemployment a little further and deal with Britain first. Data were obtained on employment and unemployment in Great Britain from 1880 to 1940. These were published in my book which was released last year. I am listing each of the high points of unemployment in Britain during that period as follows:

Year	*Proportion unemployed* %
1886	10·2
1893	7·5
1904	6
1908	7·8
1921	14·8
1932	22

Unemployment data for the United States as reported by the National Industrial Conference Board go back only to 1900. The high points of unemployment were as follows:

Year	*Proportion unemployed* %
1901	6
1908	6·7
1921	12·7
1933	23·3
1938	18·4

As I stated before, in 1939 we had 9 million jobless people, and for the decade of 1930–40 one out of six wage-earners was out of work. Had farmers been eliminated from the total, the proportion of unemployed would have been much higher.

Now take the second point which seems to me to be a vital issue—the question of farm prices. Farm prices in the United States will fall within a few years if history repeats itself. Let us briefly review the history of prices during four major wars. Following the war of 1812, prices of farm products were highest in 1816, two years after the war ended. By 1821, five years later, prices had fallen to about half those received in 1816. Following the Civil War, prices of farm products in 1864 were nearly double those received before

the war. By 1871, seven years later, prices had fallen to about five-eighths of those received in 1864. Following the First World War, prices of farm products in 1919 were about 2¼ times those received before the war. By 1921, two years later, prices had fallen to about three-fifths of those received in 1919. Now, in the aftermath of the Second World War, prices of farm products in 1947 were about 2½ times those received before the war. So we have before us two plain facts. During wars farm prices rise. After wars they fall. Hence we can expect sharp declines in farm prices in the United States within a few years.

Comparing the Second World War with the First World War, we have another set of facts that are basically different. At the end of the First World War we had a national debt of 26 billion compared with 260 billion dollars at the end of the Second World War. Our present budget for expenses of government is now over 35 billion dollars annually compared with around 6 billion after the First World War. Both of these facts make the present position of the United States far less stable than after the First World War.

Now let us take a look at our present industrial production in the United States. We are now producing 185 tons of goods for every 100 tons produced from 1935 to 1939. This large volume of production has been absorbed up to now because of accumulated deficits—both at home and abroad. But what about the future? At home we find that the purchasing power of the American people has been declining since August 1945. Increased incomes for the people as a whole have not offset increased costs of living. Along with this we find that many savings accumulated during the war have been spent. Then abroad we find that since most countries have been importing so much more than they have exported to us they have a dollar shortage. Hence in the future a greater proportion of our industrial production must be absorbed at home.

As I see it, the number one problem of the world to-day, both for Americans and others, is to keep production in the United States at a high level so that it can assume its responsibility of helping to put other nations on their feet and help to make the Western World a going concern. While our country is not as generous as many of you would like to have us be, with 60 million people employed and an industrial production at its highest level of peace-time history, I am convinced that our people will assume the responsibility both of providing relief and making productive loans for reconstruction.

If, however, we should have the mass unemployment which we had in the 1930s, and which Britain had for two decades between

1920 and 1940, the reaction in our country might well be for us to retreat into our shells and let the world 'stew in its own juice'. I believe you will agree with me that this would be the most damaging thing which could take place.

Now we get to this question: What was the underlying cause of mass unemployment in Britain from 1920 to 1939, and in the United States from 1930 to 1939? As I see it, the same underlying cause can be found in both countries—namely, a creeping paralysis of monopoly which has destroyed the resiliency still characteristic of agriculture and parts of urban industry in the United States. May I point out that our depression of the 1930s was not caused by agriculture? In 1932 American farmers produced 99 tons for every 100 tons of products grown in 1929. Our farmers continued to produce in spite of monetary, fiscal, and tax policies which were pulling down our economic structure.

Professor Ashby has pointed out the monopolies which have existed in Britain's agriculture, including the nitrate and potash monopoly, the superphosphate monopoly, the monopoly in feeds, and the monopoly in farm machinery. Facts disclosed at the Paris Conference show wide differences in efficiency in industrial production. A coal miner in the United States in one year mines four times as much coal as a British miner—25 carloads as compared with $6\frac{1}{4}$ carloads. A steelworker in the United States turns out about four times as much steel as a steelworker in Great Britain; an auto worker in the United States produces about four times as much as a British auto worker; and a textile worker in the United States turns out about $2\frac{1}{2}$ times as much as a worker in Britain. Part of these differences can be explained. For example, some coal is mined in Britain three miles below the earth's surface. In these cases costs for mining coal would be higher with the most modern equipment.

But in my opinion the underlying cause of the differences in the use of industrial labour in the United States and Britain has resulted from monopoly control of Britain's important industries, in some cases extending back for 100 years or more. Monopoly control in turn has tended to stifle competition, prevent reinvestment of needed capital, and prevent the introduction of low-cost methods of production.

Professor Nash has pointed out that prior to the First World War Britain had capital invested in many other countries and, for the most part, reinvested the income from it. Then between 1919 and 1939 most of the income from these investments was not reinvested but used to pay current expenses. Liquidation of most of Britain's

foreign investments during the Second World War, as pointed out by Professor Nash, has left the country dependent upon its current production. Continued mass unemployment in the United States during the 1930s resulted from the same cause which has led to a decline in Britain's industries—namely, monopoly control which has tended to stifle competition. Fortunately for our country we are still in the early stages of monopoly control and hence our industries have not suffered as much as those in Britain from this type of control.

Let us trace the development of the steel industry. Steel is one of the most important of our industries. We have had in the steel industry during the present century a growing concentration of control. Six companies now control 83 per cent. of our whole steel production, while one company controls over one-third of all steel produced. Back in its earlier history we had a high degree of competition. For example, during our depression of the 1890s, prices of steel were reduced from 2·04 cents a pound in 1890 to 1·14 cents in 1894. During this period the steel industry adjusted itself to a depression by lowering prices. Then steel production fell only 20 per cent., so that for every 100 tons produced in 1890 there were 80 tons produced in 1894.

In contrast, during the depression of the 1930s the steel industry lacked the competitive force that it had in the 1890s. This period disclosed the clumsiness resulting from its high degree of centralization of power. Steel prices were reduced only 15 per cent. and 1932 production fell 76 per cent. Expressed otherwise, for every 100 tons of steel produced in 1929 only 24 tons were produced in 1932. Low production and low payrolls resulted in economic paralysis in every part of the country where steel was mined or manufactured. Loss in payrolls, in turn, destroyed the markets for food. Hence farmers as well as wage-earners in the industry suffered from the monopoly prices exacted by the steel industry.

Looking ahead I believe that the key to whether or not we are to have another big depression with continued mass unemployment rests in the policies of six or eight of our large manufacturing industries. A short depression appears almost inevitable. A long depression can be avoided. Government ownership and control of basic mass production industries is probable if these industries permit another relapse similar to the 1930s. Concerning this, Fowler McCormick, chairman of the board of the International Harvester Company, recently said:

'It is apparent that we are now expressing a full turn of the wheel....

More than other groups, American management has the opportunity to improve the economic status of all the people. If it does not rise to this opportunity, it will be failing in its human relations, and the people may well turn to another system . . .'.

The United States has 6 per cent. of the world's population and produces 50 per cent. of the world's industrial goods. Our country is in a key position to assist other nations in increasing their production. Every country needs to see a little 'blue sky' ahead to hold up its courage during these troublesome times. The United States is in a key position to provide this ray of hope by quickening reconstruction and production within these countries. Personally I would like to see more attention at this Conference centred upon basic questions of how to remove causes of low production, and perhaps less attention on how to live happily on a little, through use of quotas, controlled prices, and other methods now in use which stifle production and perpetuate low living standards.

L. SAMUEL, *Tel-Aviv, Palestine.*

Price formation in Palestine was determined during the war by the fact that the country is a 'demand' country. Production in mixed farming had to be stepped up in order to reduce dependence on imports. Before the war the Arab community had to import about one-third of its requirements in essential food, the Jewish community almost two-thirds.

The price policy resulted in a doubling of the output in intensive Jewish farming, but only in an increase of some 20 per cent. of Arab extensive farming. Dependence on imports has consequently decreased until to-day it is only slight with regard to the Arab community. The Jewish deficiency decreased from 65 per cent. to 45 per cent.

In price fixing, entirely different methods have been used for milk, the most important product of intensive farming, and for wheat, the main cash crop in Arab farming. Maximum prices for milk were and still are based on costs of production, plus a profit, which was substantial until 1944–5. Milk production doubled from 1938–9 until that year. Production is still increasing but much more slowly. For wheat, the Government in 1942 fixed a purchasing price three times as large as before the war, and really got at least a substantial share of the actual 'surplus'. But this purchasing price was never changed, and was already in 1943 lower than the price on the free market. As a result hardly any surplus was offered to the Government and it virtually ceased to be available in 1944. Very high prices

are ruling on the cereal market since the official decontrol of Transjordan wheat in the autumn of 1945. In spite of this high price level, production increased by barely 30 per cent. in extensive farming, if bread and fodder cereals are considered together. High prices do not always result in higher production. Arab farming is not very elastic, and only the more progressive circles of Arab farmers succeeded in expanding production on a substantial scale.

Concerning long-term price policy, a combination between guaranteed prices for a few key products, milk, wheat, olives, and a completely free price formation for all other farm products has been suggested. The goal is to assure farmers of a substantial part of their income, but to stimulate their initiative in order to get the remainder. For milk, the establishment of a Board along the lines of the English Milk Marketing Board has been envisaged. Such a Board would have in Palestine one additional task to those prevailing in England. The Board would have to regulate a market with an increasing *per capita* turnover for a long period. In an immigration country, not only will an increased total be needed, but consumption per head of locally produced milk and milk products will have to be stimulated in order to enable an optimum colonization of the land.

J. H. Kirk, *Ministry of Agriculture, London, England.*

Those of us who are concerned with deliberate price fixation for farm produce must necessarily regard Professor Norton's opening remarks as a challenge, for our countries have abolished, or are in process of abolishing, many of those market mechanisms on which he relies for the mutual adjustment of supply and demand, and the expression of consumers' preferences. Professor Nash has presented part of the case in answer to Professor Norton's arguments, and I am in agreement with that answer. Professor Nash has, however, attempted to justify deliberate price fixing only in two sets of circumstances—war and depression.

Several countries, including the United Kingdom, wish to go farther than that. In the United Kingdom, for example, price fixing for farm products, representing three-quarters of total output, has been written into our permanent legislation, and the opposition parties have not dissented from that general principle. In respect of farm prices—in which term I include subsidies—the objectives are to guarantee farmers an income higher than between the wars, and to free them from marketing worries and problems so that they can devote all their attention to the primary job of production. In respect of retail prices and consumer subsidies the Government's aims are

less well defined, but may include the use of price and subsidy variations to promote a higher level of nutrition.

At the present time these objectives have been pursued to such a point that not only are ordinary market mechanisms in abeyance, but we have a complete divorce between farm and retail prices. An example has already been mentioned—the retail price of eggs is only half the farm price.

Professor Norton's remarks have made me ponder over the likely conditions for success for such policies, bearing in mind the ordinary —but highly important—role of supply and demand which those policies would suppress. Three points have occurred to me.

First, the process of price fixing must be highly efficient if it is to succeed, and there are two implications of this: first as to the quality of the Civil Service in any country attempting complete price fixation of farm produce, and secondly, as to the quantity and accuracy of the statistical data at the disposal of those fixing the prices.

But these are matters of machinery: more important still is the spirit in which the machinery is worked. The spirit must be one of objectivity—a desire to reach a fair and reasonable price, free from the machinations of lobbies and pressure groups. No country is likely to be able to guarantee that such influences will be completely suppressed, but I can speak from experience in saying that they can be kept within bounds. Our chief worry in this direction is a rather misplaced insistence by the farming community on strict equity and even equality among the several branches of the industry. With each commodity interest wishing to maintain its position *vis-à-vis* the others, it becomes more difficult to use changes of price emphasis as means of adjusting the proportions of commodity output to national needs. But we are hopeful that the need for changes in price emphasis will become better understood year by year.

The third condition for success in price-fixing policy to which I would allude is that the country concerned should be a substantial exporter or importer of farm produce—preferably a substantial importer. This provides an essential safety valve. When mistakes in price fixing are made—and obviously they will be made—their effect is much diminished if the produce affected is only a part of the whole supply. In the case of the United Kingdom the effect of such mistakes is on the average more or less halved.

Two further reflections I would offer which make us feel rather more comfortable about being able to carry out successfully these policies of price regulation. First, we have had seven years' experience of operating them. It is true that most of those seven years have been

war-time, when the consumer's preference had not to be studied closely, and he could be thankful for whatever he got. But, on the other hand, war conditions were extremely difficult for assembling the necessary statistical data, and as we were new to the game we had to improvise all the time.

Secondly, we have to remember that the alternative of relying on supply and demand is not altogether a bed of roses. Professor Bressler has mentioned a number of imperfections in ordinary market mechanisms, and many of us could think of others. So we feel that we can, to put the claim no higher, afford a certain number of mistakes and errors without necessarily producing any worse result than Professor Norton's apparently attractive alternative.

W. E. HEATH, *University College of Nottingham, England.*

We have heard a number of very interesting general observations on the subject under discussion to-day. Professor Norton opened the discussion by delivering a slashing attack on the controlled market mechanism. Professor Nash has defined in some detail what we mean by control of the market mechanism, and he then went on to support the use of such control during war. He was not, however, so happy about its value in peace. Mr. Kirk, on the other hand, has told us that fairly strict control of the market mechanism is to be regarded as a feature of our permanent agricultural policy in this country. I want to bring the subject down from the high level at which it has been discussed so far and consider one particular aspect of interference with the free-market mechanism. The particular point I want to mention is the price-fixing policy adopted in this country in recent years in relation to what I conceive to be the objectives of price fixing.

One of the primary objectives of price fixing is indicated by the title of this morning's discussion, that is the adjustment of farming production to public needs. In a free economy this adjustment is achieved by the free play of supply and demand, and whatever its deficiencies every individual consumer has the opportunity of adding his or her mite as a factor in determining the final position. But when price fixing is not left to the free play of supply and demand the prices have to be fixed by a government department or some other body, and under such conditions the people saddled with taking price decisions are faced with considerable difficulties. In the first place they must rely on having at their disposal an adequate body of economic data. In this country we have made great efforts in recent years to improve and widen our economic data about farming, but

I do not think we have got anything like enough. In the second place, when the prices are fixed by a special body, and not by the consumer's demand in relation to supply, many other considerations must creep in. If prices are adjusted by government departments, then political considerations creep in. Often the needs of the producer receive over-emphasis, and the result is not always one which will achieve the objective of adjusting farming production to domestic and public needs. In my view the volume of economic data which would be necessary to portray the needs of the buyer to the consumer is so great that any attempt to collect it would be a failure. I do not see any possibility of collecting sufficient economic data to do this. For example, in the case of many commodities, particularly perishable commodities, there are not two or three prices in the free market, there are hundreds of prices, varying seasonally, varying according to the quality of the produce, and varying even from one day to another, depending on whether the purchase is being made on Monday morning or late on Saturday night before the week-end.

A second and somewhat narrower objective of price-fixing policy is to provide the producer with a certain degree of stability and security. And here again I feel that two criticisms can be made of a policy depending mainly on fixing prices. In the first place there is the difficulty of the average. Prices are fixed partly on the basis of economic data and partly on other considerations. But in so far as they are fixed on the basis of economic data they are normally related to some sort of average cost of production, and this seems to me to be a major obstacle because, if one could imagine a level distribution of costs, a price fixed in relation to the average would give 50 per cent. of the producers too much money, and it would put the other 50 per cent. out of business. This leads, I think, to a second criticism of price fixing. From the point of view of providing the producer with stability and security it is necessary to fix the prices at something a good bit over the average cost of production. This tends to stabilize existing and sometimes inefficient systems of production.

A third objective of price fixing is to provide the Government with a method of influencing production and guiding it by price incentives into the channels it desires. Such a weapon is, I think, undoubtedly required in times of emergency such as we have passed through during the war and such as we are facing just now, but I doubt very much whether a weapon of that kind should be used when we arrive at times of abundance. When goods are in full supply

then I would suggest that production would be best guided by the needs of the consumer as expressed by the market price.

A fourth, and the last objective that I shall mention, is the suggestion that the controlling of prices, again in times like this, provides the Government with a weapon with which to control inflation, the suggestion being that by means of strict price control it is possible to prevent prices moving upwards. We have found, however, that that does not work altogether too well. Wages have not chased prices, but we have in this country experienced a condition in which prices have chased wages. That, I feel, is another argument against price fixing.

I do not want to suggest by these remarks that I am against a controlled market mechanism of some kind or other. I realize fully the advantages of a controlled market mechanism in providing the country with the general stability and the decrease in unemployment which we all want. What I am concerned about is not so much the direction in which we are going, but rather the vehicle in which we are travelling. I feel that there is scope for a lot more thought on this question of providing the producer with the stability and security that he needs and at the same time meeting consumer demand. Before we commit ourselves for ever to a policy of fixing prices and abandoning the advantages of the free market we need to think a long time. What the alternatives are I do not know, but I feel that we ought, if possible, to try and obtain, if it can be done, the best of both worlds.

W. ADAIR, *Editor, 'Farming News', Scotland.*

I hesitate as a journalist to take part in this discussion among professional economists, but I have made a fairly close study of world food-supplies for at least thirty years and I think that some of the experiences that have occurred during that period throw light upon the issue which has now been put before us so vigorously and efficiently by Professor Norton. Professor Norton argued that probably the most rapid and satisfactory adjustment of prices is bound to arise under free conditions rather than control conditions. I can think of one or two fairly big experiences which the world has passed through, and I would like to put forward one or two of these points to test that assertion of Professor Norton.

One I remember very well was in 1924, the only time I ever visited Canada, when I crossed to Vancouver and had an opportunity of studying the wheat position in the Prairie Provinces. The year 1923 saw a record crop at that time for Canada, and I think I am right in

saying that there was a record yield per acre. It was known as a bumper crop. That bumper crop in 1923 brought more ruin to the wheat farmers of Canada than any other experience they had had in the west. The complete collapse of prices led to the abandonment of many of the farms; we who travelled through Canada in 1924 saw these abandoned farms. Now, if free trade in the markets then caused that serious disturbance leading to the abandonment of farms over very wide areas and a complete collapse in the confidence of the producer, it is quite obvious that you are not going to get any speedy adjustment in prices in favour of public needs as a result of such a system. The very high prices which were reached even in July before the crop was reaped in 1924 in Canada would certainly encourage production, but not in that year. That year was about the shortest crop I should think that Canada ever had, having regard to the area sown. In other words, the Canadian farmers were being rewarded in 1924 for the sudden collapse in prices due to the bumper crop in 1923, but none of them had wheat to sell in order to reap that reward. The wheat was not there, and it took a good many years before wheat was produced on a scale to ease the general world price-situation. We in Great Britain are very much dependent on Canada for wheat (far more dependent on Canada than would seem from recent years, because the U.S.A. has exported wheat on a far bigger scale in the latter years of the war than before the war), and from memory I would say that our bread prices in Great Britain shot up as a result of the very short crop of 1924 and the abandonment of all those farms in the west. They remained up almost till the big collapse in America in 1929, when the general economic crisis took place.

When you are thinking of these collapses in prices and the very sharp rises that follow them, you have got to consider who suffers when a depression occurs. If you examine the bread-price structure in Great Britain you will find that before the Ministry of Food took control, the bakers of the country, very largely on the suggestion of a voluntary food council which existed in Britain in peace-time, regulated their bread prices on the basis of flour prices. It all depended on the price of flour how the price of bread went, and I want you to bear in mind that that arrangement meant that every time the price of bread had to go down through economic forces there was only one party squeezed and that party was the grower who produced the wheat. No other party in the whole bread structure gave way on a single item, because every other party taking part in the production of bread had his own services on a costed basis and

saw to it that he obtained the price related to that costing basis. The only man who suffered was the grower. If you are going to say that free play is a good thing, then I say it may be a good thing for every other trader who is taking part in the food service of the world but it is not going to be a good thing for the grower.

We in this country (taking it into the British sphere for the moment) have fixed prices, as you know, for fat stock along with other classes of produce. It was only during the war that we could have fixed prices for fat stock. Before the war all fat stock was sold under the most rigorous example of the free play of the market—that is, the livestock auction bidding—and I should say that from the experience in the war, whatever happens later, the farmer will never go back to auction sale of his fat stock. I mention this example because Professor Norton suggested that in a free-play market the publicity given to market prices ensured the producer a reasonable price; he knew the price that was ruling in the market and he saw that he got that price. Now as regards publicity, I am going to suggest as an expert (and I can claim to be an expert here, even if I am not a professional economist, because it has been my profession all along) that we never had a fair price for cattle published in the newspapers of the country. Fair prices simply could not have been published. In nearly every large market town in Great Britain there were two firms, rival auctioneers, and the reports that were published in the Press of the prices obtained for cattle were supplied by the auctioneers to the daily Press. There was no other way of getting the prices. They could never have been published so rapidly next morning in the daily Press if they had not been got direct from the auctioneers, and it was only human nature on the part of the auctioneer to suggest in the reports to the Press that the cattle were fetching a little more than they really were. They quoted that cattle of such-and-such a weight, say 12–13 cwt., were getting up to such-and-such a price per head, and so on for the other weights, and invariably the range quoted was higher than the actual transactions. The temptation on the part of the auctioneer to take that course was due to the fact that he imagined that if the farmers read in the daily or weekly papers the price at which cattle had sold at his market according to the figures he quoted, they would transfer a good deal of their custom to his market rather than to the other market. And the result was that there was competition between the auctioneers as to how far they could really exaggerate the prices that were being paid for stock. Under these circumstances the farmer had no guidance whatever as to the level of the market, and moreover, as you know, we imported about half

of our meat supplies from abroad and the large importers could make or mar the whole market by sending out wires to the local buyers of home-produced stock. All the very big importers had stances in Smithfield and sold home-killed meat, and it depended very largely on the telegrams which they sent out to the dealers throughout the country how the level of home prices would react.

Professor Norton admitted that he made one exception in his arguments in favour of free play, that was milk, and I was not at all surprised that he made that an exception. Other speakers have agreed with it, and I think it is absolutely impossible, from the point of view of continuity of production, for fluid milk to be sold free of some control—not high prices for producers but continuity of production—there is no other way than by controlling the price in some way or other. We in the west of Scotland were the first people to attempt the pooling of milk by producers in this country. The pooling of milk, as you know, is now part of the whole structure of milk marketing, but we had an experimental pool run by farmers themselves, and that pool was created because farmers began to realize that, even though they tried to negotiate as a union with the distributors' union, they could never tell when there was a surplus of milk in the country. When a farmer said to a distributor 'I want a milk contract', the distributor probably replied: 'I can't take your milk, the market's flooded.' There was no means of testing that statement by any distributor. There was only one way of getting all the information necessary to give producers confidence, namely, by the creation of the Marketing Board which we have to-day, a controlled form of marketing quite away from free play.

I hesitate here to make any criticism of America's decontrol of her prices, because we do not know America's circumstances and it is not for us to offer any criticism. But I do think that it is very probable that America hardly appreciated how harsh was her action in stopping Lend-Lease so suddenly and also in decontrolling prices. I merely intend to give, in a very few sentences, the tremendous effect these actions had on the British market. You have got to remember that before the war Great Britain drew her food supplies from every possible source in the world and drew them at the cheapest possible rates. But immediately war broke out, as we have learned from Professor Nash, the first consideration was economy in shipping. Economy in shipping meant that, right throughout the war and right up till now, Britain had to concentrate very, very strongly on the North Atlantic route. She had to concentrate on that route in order to economize in shipping, and not

for any other considerations. That meant that Great Britain had become—and Europe too, for that matter—far more dependent on the North American continent, on the U.S.A. and Canada, for her main food supplies than she had ever been hitherto. She had become far more dependent than she would ever have done under any voluntary circumstances because it would have been very dangerous to throw herself so much on one or two markets as her main source of supplies. That tremendous concentration, which was done from the point of view of war exigencies, in relying on the U.S.A. and Canada for both meat and cereals in such a large measure, meant that when these pipelines—that is the best word we can use to define the position—suddenly ceased, or suddenly were screwed down to a very short supply, or the prices relating to the supply coming through these pipelines jumped through decontrol in America, it threw this country into a very serious economic position, apart altogether from dollar exchange. Professor Bartlett in his contribution emphasized that history has shown that prices have always tended to rise during war and have fallen after war. I do not think there is any doubt about it that even the Labour Cabinet, no matter what their views may be on price control generally, were banking on this experience repeating itself. I do not think there is any doubt whatever that Mr. Strachey, in any number of replies which he made in Parliament regarding the very heavily swollen subsidy bill which is now attached to our food supplies, was banking on a fall in prices this autumn. How far that hope has failed is quite obvious now from the increased prices which the Labour Government has announced in order to stimulate production in this country. I do not know how far I have answered Professor Norton's very able exposition of the free trade market. I do think, however, that the Canadian wheat position which I quoted does show that, if continuity of production is going to be a real public need—and I think all economists will agree that continuity of production *is* a real public need—such disturbances have the very opposite effect of what is claimed for them.

EARL O. HEADY, *Iowa State College, U.S.A.*

Our discussion has thus far focused largely, although not entirely, on short-run or emergency adjustments in the use of farm resources. Obviously, free market prices are not the most effective means of allocating resources during war-time. There are too many conflicting ends: the consumer's desire to maximize personal satisfactions conflicts with national interests in the use of resources. The competitive

bidding for resources between the consumer and the nation may well establish a pattern of incomes which is in direct conflict with given concepts of equity in the personal distribution of war costs. Numerous resource-allocation or income-distribution problems which grow out of war do not cease with the shooting. This fact is only too evident to many of the nations represented at this conference.

I propose to lift the problem of resource allocation as related to pricing out of the short-run setting and view it in terms of the long-run. Only then can we talk on a common basis. This is not a plea for government manipulation of prices. Rather, I propose that the following procedure is appropriate for an objective analysis of the problem: first, we need to determine the extent to which the allocation of resources in a free market does or does not approximate the optimum. Second, we need to determine the reasons for any divergence which may exist. Lastly, we need to analyse the situation to determine whether government price-policy (with due consideration to the political setting within which it must function) will result in a more or less desirable allocation of resources than holds under the free market mechanism at any point where the latter is imperfect.

This analysis can best be made in terms of a given pattern of income distribution. It is necessary, however, that we recognize the dual function of commodity prices. They not only serve as a mechanism for allocating resources but also determine the distribution of personal incomes. This is true, since resource prices are derived from commodity prices. A great many of the problems revolving around government price-policy stem from this very fact.

Government price-policy has not always related to commodity prices alone. Actually, in the United States some very important policy has been directed at resource prices. An example here is the disposal of public lands. The Government's decision to place a very nominal price on land for settlers who exercised their pre-emption rights, and finally to give land to homesteaders, definitely involved interference with the free market price. Price policy in respect to public lands in the United States was mainly a consideration of 'personal income distribution'. Our farm-credit system in the United States is a price policy as related to resources. The Government's decision to establish a Federal Land Bank with certain established interest rates interfered with the free market mechanism. In a sense, our agriculture experiment stations and agricultural extension service represent government price-policy in respect to resources. Our society furnishes certain services free to agriculture.

These same services could be obtained at a price were they not subsidized by the federal or state governments. We simply decided that the market-pricing mechanism was an imperfect means of providing these resources. I call attention to these facts in order to indicate (1) that price policy is, after all, not a recent innovation even in the United States, (2) that it need not be restricted to commodities alone, and (3) that a great deal of confusion arises because we do not always differentiate between the income distribution and resource allocation aspects of the problem.

In analysing the extent to which the free market results in the most efficient allocation of resources it is useful to establish some optimum or ideal type as a benchmark for comparison. With a given pattern of personal income distribution an optimum use of resources will exist if (1) the pattern of production is such that the shifting of one unit of land, labour, or capital between two commodities results in a smaller total utility to consumers, or (2) a different combination of resources in the production of a given quantity of commodity results in a smaller total consumer satisfaction. There are numerous areas in which the free market mechanism does not result in an allocation of farm resources identical with this optimum. In some instances the divergence may be small; in other cases it is sizeable. In outlining these areas I do not intend to imply that government control of prices should necessarily be substituted for the free market mechanism. The end in question is the most efficient use of resources. The alternative means are government price-policy and free market prices. Which of the two is the most efficient means to the given end?

The following discussion briefly specifies the areas in which the use of resources is imperfect under the free market mechanism as compared to the optimum outlined previously. It also touches upon the reasons for these divergences.

1. A major inefficiency grows out of false price expectations on the part of producers. This is expressed in the production cycle for individual commodities such as hogs, cattle, or even potatoes and orchards. The production period in agriculture requires a considerable time span. Input of resources in hog production, for example, must begin ten to twelve months before the finished product is ready to market. The producer must estimate future prices at the time his production plan is initiated. Obviously, his expectations deviate rather widely from prices actually realized. Wide swings in the year-to-year production and price of (say) pork thus result. Consequently, society has a greater quantity of resources invested in pork production than would be necessary were the 'average' production forth-

coming each year. The same holds true, of course, for the individual producer.

2. Production instability growing out of fluctuations in weather and consequently crop yields also results in a use of farm resources somewhat short of the optimum. Obviously price policy cannot eliminate these variations in yield. Yet it is true that the free market price does not always result in the best use of resources given these vagaries of weather. Commodities such as wheat which are consumed directly as food are on the market in large supplies in years of large crops and in small supplies in years of poor yields. There is some basis for reasoning that the total utility to consumers is less under fluctuating than under stable supplies. In terms of the classical concept of the consumption function, the marginal utility of a plus 100 million bushels in a year of high yields is less than of a minus 100 million bushels in unfavourable years. (It is possible to imagine cases in which this condition need not hold true.) For products which are used as livestock feeds, fluctuating yields may result in facilities for livestock production nearly great enough to fit the supplies of good years. Again an over-investment in the quantity of resources necessary for a given amount of livestock products results. Output may swing from x to $3x$ with an average of $2x$. However, the quantity of resources employed is geared to the output of $3x$. The solution lies in carrying the surplus supplies from years of good yields over to the years of poor yields. Our futures market tends to even out this flow of products between years. It is not perfect, however, especially when several good years and several bad years are clustered together.

3. Uncertainty of market prices may often result in a scale of farming operations which is inconsistent with the optimum use of resources. It is well known that even in the United States large numbers of farms are not of a size such that the economies of scale have been fully realized. Many farmers simply do not own the necessary funds to expand to this limit. Yet they are also restricted in borrowing funds (for expansion) either by lending institutions or by their own refusal to do so. A portion of the inability or unwillingness of the farm operator to borrow additional funds grows out of the uncertainty of the market. Lending institutions normally apply a rule-of-thumb procedure based on the operator's equity as a means of eliminating the possibility of loss in case the market turns unfavourable. Similarly, the operator may refuse to borrow even though additional funds are available and returns otherwise appear favourable.

4. Agriculture is sluggish in adjusting to major changes in price relationships which call for a transfer of human resources either into or out of the industry. This imperfection is well illustrated in the cotton producing and similar areas of the United States and largely revolves around institutional factors which are also market considerations. Imperfect knowledge of future prices and alternative returns on resources is also important.

5. The pricing system does not always result in the most efficient combination of resources for a given amount of product even in terms of simple farm practices. Supposedly, the pricing mechanism should bring about the optimum rations for livestock, liming and fertilization of land, crop rotations, and other practices through the profit incentive. Yet we are all well aware of the gap which exists between this optimum (in terms of maximum returns and on the basis of known techniques) and the actual on a very great number of farms.

6. Costs and returns for the individual farmer as expressed in the market are not always identical with those for society. Consequently, the actions of the operator in utilization of his resources may be in conflict with certain social objectives. Numerous examples can be cited here. Quite often the tenant farmer in the United States refuses to lime his land or adopt the most productive rotation (in terms of economics) for this very reason: although society benefits fully from the future product forthcoming, the tenant does not, should he move before long-term resources are entirely exhausted. Similarly, it may be in the interest of society that erosion of soils beyond a given level does not take place. Yet the individual farmer may allow rain waters to continue running from his farm over adjoining farms where valuable crop lands are washed away. The individual does not share the cost with society as the waste occurs. Conversely, he would not benefit to the same degree as society were he to invest in practices which prevent the flow of erosive water on to lands other than his own. The pricing mechanism has not rewarded the individual and society identically in these cases.

The academic answers to each of these cases are already fairly well known. In the order presented above they are: (1) Forward prices established to equate supply and demand at the equilibrium level (in contrast to the actual pattern in which prices continually fluctuate around the equilibrium level in the sense of the cobweb theorem). (2) An ever-normal granary by means of government purchases and sales or by commodity loans to farmers at a level which facilitates carrying surplus stocks over into deficit years. (3) Long-range

guarantees for farm prices to reduce uncertainty, and government underwriting of certain economic risks. (4) An investment in the human resource to develop alternative skills and abilities and a national employment service to underwrite or otherwise facilitate the movement of people into or out of agriculture. (5) Incentive and practice payments (or, conversely, penalties in terms of fines or otherwise) to focus direct attention on the premiums on efficient use of resources. (6) Compensation laws for unexhausted resources and direct payments to equalize returns to the individual and society.

Now were it possible to administer these price and supplemental policies in a perfect manner, increased efficiency in the use of farm resources would certainly result. There are, however, two reasons why administration might be something less than perfect. One of these rests on the possibility that the administering body may make mistakes in establishing the level of forward prices or stocks to be carried into the future. But assuming that this obstacle can be hurdled, there still exists the possibility that administered prices might give a use of resources less efficient than those of a free price system because of political pressures. It is here that the dual function of prices has important ramifications. Price policy should be looked upon as a means to the end of more efficient resource use. It should not be looked upon as an end in itself. For example, producers may look upon it as an end in the sense of redistributing personal income. There are, however, more desirable methods of redistributing incomes, should this be the problem. Yet at any time an administrative body attempts to change the level of prices to effect a more efficient use of resources, it will likely alter the pattern of personal incomes. Accordingly, there may be continual pressure on the part of producers to alter the price level in their favour. To the extent that this comes about, use of resources may be less efficient under administered prices than under free market prices. The crux of the problem is in determining whether a price policy which must be administered within a setting of political pressure from individual producers can result in a more efficient use of farm resources than exists within an imperfect free market.

J. R. RAEBURN, *Agricultural Economics Research Institute, Oxford, England.*

I think it was Voltaire who said: 'Marriage sometimes turns out to be not good, but celibacy is always bad.' We seem to have been coming to the conclusion that in both marriage and celibacy there are at times, and in certain circumstances, both advantages and

disadvantages, and that the same is true of the free price mechanism as compared with the controlled.

We can, I would suggest, now most usefully approach this wide subject from the demand side. In such an approach the old distinction between total real utilities and marginal utilities has special significance. Text-books contrast the marginal utilities of bread and cigars with their real utilities, but our line of thought can perhaps most usefully be restricted to food- and feeding-stuffs and ignore non-food items. In a freely working price mechanism it is, of course, the marginal utilities (expressed in terms of cash) to the marginal consumers, and not total real utilities, that are equated by prices. Changes at the margin are the main determinants of prices on the demand side.

Now the conditions under which governments have in the past paid attention to real total utilities and tried, in greater or less degree, to modify control of consumption (and related production, distribution, and time preferences) by marginal utilities can most usefully be listed under four main headings:

(*a*) Circumstances in which there were substantial reductions in the overall resources and supplies of a community below accustomed levels: e.g. the reduction of the total tonnage of food- and feeding-stuffs that the United Kingdom could import during war-time to one-half the normal tonnage: or the loss of much United Kingdom overseas capital during the last ten years: or the great droughts occasionally experienced in parts of India and China.

(*b*) When a substantial diversion of resources for special national ends was desired and comprehensive national planning was necessary to bring about such diversion: e.g. German and Russian planning before 1939, for military purposes, these being adjudged as of high national utility.

(*c*) Where and when sudden and substantial changes occurred in the total monetary value of consumer spending power, or in its distribution, or there were fears of such changes: e.g. unemployment in industrial populations and depressed farm-prices before the war, and inflation in war-time. These changed the levels and distributions of cash incomes and caused fears of further changes.

(*d*) Conditions under which there was an awakening of social conscience over malnutrition as related to income distribution; e.g. the malnutrition of the depressed industrial areas of this country before the war, and, on a wider scale, the malnu-

trition of the peasants of Russia and India, have raised many problems.

These four sets of conditions are sometimes closely related and, of course, wars and fears of war bring them about more quickly and effectively than any other changes. Autocratic systems based on privilege tend to create the fourth set of conditions.

Once these conditions have arisen, governments may or may not act wisely. But in conditions of scarcity or inflation they always act on the basis of two expectations, viz.:

(i) That although scarcity of goods will lead to inflation and redistribution of incomes, there will remain a body of spending power amongst certain classes of the population sufficient to keep prices, and production, of certain foodstuffs too high in relation to the adjudged real needs of all classes. In this country, for example, it was clear early in the war that we would have to reduce the grain used for egg production in order that we might have enough bread.

(ii) That inflation will upset the social structure unduly and, in some fixed-interest receiving countries, that inflation will adversely affect the balance of international payments expressed in terms of real values.

These expectations are as much fears as knowledge, because there can be no really reliable forecast of the extent of the inflation and redistribution of incomes that will take place or of the effects of this redistribution on the food consumption habits of different classes. But often it is precisely because the changes cannot be reliably forecast in quantitative terms that governments take over controls. Governments feel the need of a certain degree of predictability and assurance in economic affairs, and during periods of great changes they do not leave the driving of the economic machine to such complex and apparently unpredictable factors as marginal utilities and elasticities.

But whether governments, having taken over the driver's seat, drive well is another matter. The road may be bumpy and narrow and, although they have a licence—for a while at least—they may not have learnt the rudiments of the job of driving. They are often upset by front-seat passengers, or confused by back-seat drivers. I am not going into all that. Confucius summed it all up by saying that: 'Truth that takes no account of man isn't truth.' What was true of the Chinese twenty-four centuries ago is, it seems to me, true of the Americans to-day, and of the British too.

Even so, looking round the world at the present time, we may well

conclude that, on the whole, the conditions listed have determined the pricing systems adopted, and not the pricing systems the conditions. In some countries in recent years the price mechanism may have affected basic conditions somewhat, but, in general, the basic conditions have been the determining factors.

On the other hand, these basic conditions, in so far as they are more than temporary and in so far as they occur more than seldom, need to be met by flexibility in the employment of resources and in the adjustments of consumption. Full regard should be paid to questions of marginality and all the smaller as well as the larger economic alternatives—national and international, industrial and agricultural. In the great majority of countries use of the free price mechanism is the only practicable way to bring this about satisfactorily. The choices are too many and too complex for most of the drivers of planned pricing mechanisms—or the back-seat drivers—to know where they should go, or, indeed, where they are going. But transition from planned to free pricing is difficult to carry out, and economic theories and analyses provide few useful guides as to timing, which, in government, is of the greatest importance. Such transition will generally entail substantial changes in monetary and taxation policies and, in the international field, if it is fully to bear fruit, it will entail also very substantial changes in most policies affecting import and export trades.

I would submit that Mr. Kirk's suggestion that planned systems require safety-valves clearly illustrates the desirability, from the international standpoint, of returning to reasonably flexible pricing systems. In the past the United Kingdom and certain countries in western Europe acted as stabilizers of the shorter-term changes in world markets in that we purchased more grain when crops in the major exporting countries were large, and less when they were small. Also our flexible prices led us to consume more livestock products when they were relatively cheap and less when they were relatively dear, so that we helped to counteract, for instance, cattle and sheep cycles and other conditions affecting livestock production in Argentina, Australia, and New Zealand. The types of price rigidity which we will have for some years to come will result not only in our losing the advantages of short-term flexibilities of consumption but also in rather seriously increasing short-time instabilities in some international markets.

In this connexion I should also like to submit that, while difficulties in balancing international payments may continue for many years to justify an expanded agriculture in the United Kingdom, the system

of fixing agricultural prices, which Mr. Kirk has suggested is a permanent feature of United Kingdom policy, has been accepted by the general public here in reaction to the cheap food of the inter-war period without sufficient distinction of what I would call the three types of cheapness in food, viz. cheapness resulting from general monetary deflation, cheapness that reflects comparative economic advantages in conditions of production (e.g. those of Argentina as compared with the United Kingdom), and short-term cheapness which arises in years of good harvests or in certain phases of livestock cycles. It will be interesting to see, as the years go by, whether the long-term policy now accepted will continue to have support in changing circumstances. At the present time the high cost of food is not evident to a large section of the public because retail prices are kept low by subsidies.

This leads on, therefore, to consideration of how far 'two-handed' price systems, such as we have in this country, should be continued as a means of controlling the distribution of real incomes. Before the war such surveys as were made of food consumption in Great Britain suggested that 8 million people did not spend enough on food to enable them to buy reasonably adequate diets even if their food expenditures had been wisely made. Between 12 and 22 millions spent sufficient on food but not so wisely that they bought adequate diets. It has been calculated that, through arrangements for school meals, cheap milk, vitamin supplements, and in other ways benefiting particularly the 'vulnerable groups', we could achieve adequate nutrition for all classes at a direct annual subsidy cost of £100 million, at current basic prices for home-grown and imported foodstuffs. On the other hand, to correct the type of income distribution which we had during the mid-1930s, by making food as a whole so cheap that all groups were adequately nourished, would cost £600 million annually at current prices. Our annual government revenue from all taxes is currently £3,130 million. The main purpose of our 'two-handed' price system so far has been to help to control inflation, and we would be wrong to try to continue it for long mainly as a means of securing a certain type of income distribution. As Professor Heady has suggested, control of income distribution can better be achieved by other means.

Another reason why reasonably flexible prices are in the long run desirable becomes clear as soon as we consider quality variations and quality preferences, to which Professor Norton referred this morning. The range of economic alternatives in the use of production resources for consumer satisfaction in quality is often so complex that appropriate

fixed premiums and discounts for specified grades are difficult to devise. In war-time many countries have rightly aimed to produce quantity rather than quality, but obviously we should try to return in due course to quality production for fuller consumer satisfaction. In the actual workings of free price mechanisms in peace-time there is, however, much that can be criticized. Such objective studies as I have seen suggest:

(*a*) that consumers have not had sufficient practical opportunities to learn what quality is and therefore cannot fully express their real quality preferences;

(*b*) that legal grades have been defined and used in practice with too little regard to what consumers' effective demands and preferences were or would be;

(*c*) that where there was fairly explicit expression by consumers and grading systems of quality preferences, net prices to farmers did not reflect such preferences nearly so well as retail prices did.

One final point seems worthy of emphasis at the present time. Neither flexible nor inflexible pricing mechanisms will in the long run be satisfactory and acceptable unless, over a large part of the world, monetary and financial policies are directed towards maintenance of a reasonably stable general price level for basic foodstuffs and raw materials *as a group*. But the international economic organizations so far established do not have achievement of such stability among their stated and specific responsibilities.

K. U. PIHKALA, *Department of Statistics, Helsinki, Finland.*

It is not my intention to express any opinions on the opening paper, although I am not myself convinced of the advantages of the free market mechanism when compared with price fixing by the government. It is unsuited especially to the circumstances where there is short production (because of the low elasticity of supply) and it is unsuitable in circumstances of excess production (because of the low elasticity of demand).

Instead I would like to raise the question of the special kind of price policy which may be called discrimination or the multiple price system, which means having two or more price levels for the same product at the same time.

During the summer of 1946 the Finnish Cabinet decided in principle that, after the obligatory deliveries to the State had been fulfilled, any excess production could be sold on a free market at free prices for certain products. This decision has not yet been carried

out because the detailed plan for its fulfilment prepared by a state committee was not approved in the Diet. Instead of this some products were released from price control, which I do not think was wise because, for one reason, it tended to provoke inflation.

The proposed multiple system might be said to be a legalizing of the black market. A similar system was in existence in Russia at least during the first five-year plan and during the Second World War. It would be interesting to know if it has been practised in any other country. It is evident that such a system is bound to cause great inequalities in the distribution of income among farmers and to raise very great difficulties in control. But it does make consumption a little more flexible without raising the cost of living to the poorest of the population. It would greatly stimulate production at least on the efficient farms and discourage wasteful consumption on these farms. It is evident also that the system would lose force when production had increased sufficiently to bring the prices of the excess supplies down, which is what actually happened in Russia after 1935. We can envisage a reverse system operating in a time when there is more production than the market can absorb. In fact a double price system was in use, for instance, in Denmark, where farmers had to sell unregistered pigs for prices which were only about half the price of the registered animals.

These and other experiments with multiple price systems should, in my view, be carefully studied as to their effects on production, consumption, and distribution of income.

J. Coke, *Department of Agriculture, Ottawa, Canada.*

There are just one or two comments I would like to make. Mr. Adair was partly right in what he said about our production of wheat in Canada. We had a big crop in 1923 and the price was relatively low. We have produced larger crops, particularly in 1928, when we got up to 544 million bushels, and in 1942 we again got up to 529 million bushels. The interesting thing to notice is that the crop of 1932 and the crop of 1923 were about equal in total production; but the price in 1923 was 65 cents a bushel and in 1932 was down to 34 cents a bushel. I am speaking of prices in the Prairie Provinces. I think that perhaps Mr. Adair would agree with me that the abandonment of farms in western Canada was not entirely due to the unfortunate price of wheat received for the 1923 crop. If you go back over the price series you will find that the index numbers of prices indicated that the fall began in 1921 and it continued until 1924, and then from 1924 to 1929 it was on a much higher level, so

that there were many factors to be taken into consideration. That was a period of depression not only in western Canada but in many other parts of the world. It was the result of readjustments from war-time production policies that had been in vogue from 1914 to 1918.

In part, I think, Mr. Raeburn covered the other thing that I wanted to speak about. I was interested in what Mr. Adair said with regard to the auction system of selling livestock and the source of market information arising solely from reports obtained from auctioneers. In the United States, and Canada, too, the Government has stepped in and has made available information on prices in different markets at very frequent intervals. In our own case we have representatives of the Production Service in the Dominion Department of Agriculture located in each of the large central markets, and they obtain prices each day and report them to the Dominion Department of Agriculture, and each day those prices are broadcast through the Canadian Broadcasting Commission, so that farmers in the United States and Canada are assisted in obtaining information regarding prices, but it does indicate that governments have had to step in and perform certain services which were not likely to be performed by private enterprise and by the private purchasers. On this matter of quality of products, to which Mr. Raeburn referred, I think that the experience we gathered in the war when we had to blend grades was that there was very definite evidence that quality was not the important thing. We were interested in quantities of food rather than in qualities of food. In Canada we have developed quite an extensive system of grading agricultural products, and it has resulted, we think, in improvements in quality, but the exigencies of war forced us into the position that other grades had to be established in order to meet the administrative purposes of the Wartime Prices and Trade Board, so that I think there is no doubt that the interjection of the controlled system has had up to the present time the effect of offsetting to some extent the progress that had been made before these controls were introduced. Of course, so far as Canada is concerned, we have had very limited experience with fixed prices. In some measure we have fixed prices—the marketing of wheat under the Canadian Wheat Board—but when the war broke out we had to begin from scratch and undertake many things in the way of price fixation with which very few of us actually agreed. In fact, one of the chief administrators of the Wartime Prices and Trade Board in introducing the system of controlled prices said that it was something in which he did not personally believe, and that I think was general. We—with some

reservations—tend to agree pretty largely with the policies that are developed in the United States. In this new country where individualism is still strong (and I am only expressing my own opinion about this) I cannot find any clear indication that in Canada we shall continue to control prices beyond a period of stability if and when that period arrives. I shall have something more to say about price supports, but it is certain just at this moment that the price support legislation that we have is confined to the transition period, whatever that may be. Any of the discussions that have followed the immediate post-war period have clearly indicated that dependence is to be placed upon free enterprise, which means that the price mechanism is to continue to indicate the requirements of the public.

It seems to me that in a contolled system it is very difficult to determine the requirements of the public. Personally I do not know how we can allow for developments, improvements, and the raising of the standard of living of all groups of people including perhaps new goods which satisfy wants which we may not even know about at the present time. I think that is a rather important point. Under a system of control the administrators would not be (nor are they likely to be) in a position to forecast the consumers' requirements, at least not under our conditions. I think that perhaps we ought to emphasize the fact that in some countries at any rate we have a good deal to learn, and we need a great deal more economic analysis as the basis for determining prices than most have had up to the present time. I think that it is essential if we are to have fixed prices that we should have more complete analysis of price and production and consumption data.

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If there are sides to the controversy in this session on the market mechanism I am afraid I am a free lance. My personal position is something like this: I spent a great part of my time in the ten years between 1923 and 1933 collecting evidence on the inefficiencies of the market mechanism, and putting up the best case I could for rational economic control of prices and markets. I was a member of the Linlithgow Committee on Agricultural Prices in 1923, which work I think everybody would agree initiated what has developed into a fairly comprehensive system of control of prices and markets in this country. I was also a member of the Commission which drew up the Milk Marketing Scheme for England and Wales in 1933, and if my economic training had had no other results than that of enabling

me to assist in formulating that scheme it would have been fully justified. But at the present moment I feel that probably I ought to spend a good part of the next five years collecting the evidence of the inefficiency of price regulation. I would feel more like that if I did not remember a very old statute in this country which gave the judges instructions about evidence in criminal cases, the preamble of which said that the devil himself could not judge the mind of man. The minds of civil servants and politicians are particularly difficult to judge, and for the moment they control most of the important information.

When considering this subject of the market mechanism we have to approach it from the point of view that economic analysis and applied economics are two different things. In the process of economic analysis it is necessary to rule out moral and political considerations in order to get measurements of economic tendencies, economic reasoning, and economic conclusions clear and definite, but in the field of applied economics moral and political considerations certainly cannot be ruled out. Add to that one or two other issues. First, there is always duality in economic phenomena. What is cost to one person is always income to another party. There is also, the very great complexity of any economic system, particularly perhaps this modern system under which we live, and when we have unravelled the complexities there is the wholeness, the complete working together, of the economic system.

When we are thinking of the market mechanism we have to go with Professor Heady and say very definitely that the market mechanism deals not only with prices of commodities but with prices of labour, or wages, and prices or rent of land, and also, of course, the nature of other forms of income. In this country, and I think elsewhere, behind the attempt of at least modifying the effects of the market mechanism on prices and incomes, we had the purpose of developing social security. Ever since 1911 or thereabouts we have been trying to put bridges over social chasms; we have been trying to secure to every member and group in the community at least a minimum standard of life. And not least among those groups has been, and perhaps will be, the agricultural community. For my part I would say that in this century the market mechanism has not given the agricultural communities of the world, and particularly the progressive agricultural communities of the commercial world, anything like social equity or social justice. There are reasons for it that I could not possibly begin to discuss, but obviously Bressler this morning had something like it in mind when he said that we had

to view the market mechanism both from the point of view of efficiency and from that of social justice.

I would like to say just a word or two about the opening paper in this session. Prices do, of course, control production, but there is behind that perhaps a suggestion that free or uncontrolled prices do control or have controlled production. But you know, if you are looking at the facts and not at the assumptions of economists, you will very quickly realize that it is a very long time since uncontrolled prices controlled or directed production. Unless I misunderstood the opening paper, it said that the steps taken to deal with agricultural prices in America had not really affected the working of the market mechanism. That came rather as a surprise to me. There have been rumours reaching this side of a high tariff, of an Agricultural Adjustment Administration, and parity and such things! We are often in danger of proceeding on the basis that what is customary, what is conventional, in economic devices is legitimate, and what is new is entirely illegitimate. We have to avoid that danger. If we are looking at actual conditions in this country, or I think in almost any country, we have to realize that right through recorded history all the economic groups which were close enough together in the area of settlement, or which could arrange adequate communication, have always been endeavouring to control methods of market operation, and to obtain whatever control was possible of their economic returns. That would be true of workers in guilds and trade unions, of industrial production groups in their trade associations and cartels, and true in this country in such bodies as the Proprietary Articles Association, which fixes wholesale and retail prices and margins. It is true almost throughout the economic system. But in this country in particular we have to remember that if we are looking not at farmers' prices but at their costs, there are to a very large extent controlled markets operating. We have a very close control of minimum wage-rates; our nitrogen supply is subject to a practically complete monopoly; our potash supply is subject to a complete monopoly; our superphosphate supply in the last seven years has been subject to an almost complete monopoly; and I would be inclined to say that there were close agreements between the manufacturers of proprietary compound feeding-stuffs. I would add that for many years there has also been close control of agricultural machinery supplies and prices by the Agricultural Engineers' Association. The main supplies which before the war were subject to free market conditions were grain feeding-stuffs or feeding-stuffs of grain origin. I know that as soon as one begins to admit that there is this sort of imperfect competition

in the world, that there is regulation of prices on one side which become costs on the other side, it makes economic thinking much more difficult. At the same time we have to recognize the fact and we cannot afford to leave the agricultural producers with their enormous spread and variety of geographical conditions, and variety of economic and social conditions, to the mercy of the many groups on the other side of the markets who are able to regulate the conditions of sale and prices of their goods or services. That is important. Thinking back, I believe that was very largely my own starting-point in the work I have done in this field in the last twenty years.

If we are thinking of the *purposes* of market mechanism, I believe Professor Norton said this morning its object was the maximizing of the *production of goods* for which effective demand exists. But if you are thinking of the practical operation of a free-working market mechanism, its function is that of maximizing the production in which the *highest rates of profit* or the highest total amounts of profit are obtainable. Quite a different thing. Free market economics are entrepreneur economics, adventurers' economics. Perhaps the great, grave defect of a regulated market system is that it controls one set of adventurers without stimulating any others. The general objective of the economic system, which the market mechanism was supposed to regulate, is (or if it is not, it should be) that of maximizing the production of goods for human welfare. And here we are, perhaps, at the heart of our problem. We can leave consumers with free choice. To a certain extent we can put up with the inequalities of income and the inequalities of consuming power that came through the working of the market mechanism. We may maximize satisfactions, taking them in the total, but we may be leaving certain groups of people without even a minimum of real satisfactions. It is, perhaps, easy to say that the economic system should be adjusted or directed, as I think I have heard the terms to-day, to ensure supplies to meet public and domestic needs. But this is the heart of politics as well as of economics. When it is said that the economic system should be directed to the supply of public needs, that is a political statement.

We are all conversant with the pre-war slogan 'guns or butter'. We do not so easily recognize that in the administration of the economic system by public authorities similar choices are being made all the time, and that it is one of the easiest things in the world to confuse the aims and the needs of that super-personality, the State, with the real needs of its citizens. States grow like fighting-cocks and strut about the world crowing and quarrelling, and we, their

citizens, serve their ends. But apart from that, nearly every State develops ideas, aims, and objects—of prestige, of power, of missions, or of destinies—which have little relationship to the fundamental human needs or the fundamental welfare of its citizens. If we could be sure that their regulation or operation of economic systems would be concerned fully, or even mainly, with the supply of goods and services which their citizens need for health and optimum efficiency, and then for the development of human capacities and their appropriate and desirable expression, then we might feel happy about the direction of economic systems by political states. And I think it is appropriate to say that those of us who have been concerned to help develop the control of market mechanisms and economic systems must watch very carefully the objects for which the controls are used. I say that at any rate for myself. And I am afraid that at this moment there is an element of undesirable objective in our new agricultural policy. I have not had time to study the prices carefully, but if the new prices represent real costs of production of the total products they are to cover, with only a fair margin of profit, it is extremely doubtful whether the new policy will add anything to national wealth. It may be that the people who chose this policy were choosing between two or more evils, and the alternative policies which might have been adopted would have had greater effects in restricting national production. But there is always a tendency when a particular group gets higher prices or higher earnings to regard that as a contribution to general or total wealth and total well-being. I very much doubt whether we are yet in a position in respect of techniques or organization to get the postulated increases in production on the basis of such costs as would make that increase in production a real addition to national wealth. But, as I say, the promoters of that policy may have been choosing between two or more evils, and they may have chosen the lesser.

There are just one or two little things in the statements of to-day to which I would like to refer. I thought I noticed a little merriment when Mr. Kirk mentioned imports and exports as the safety-valves to our price-regulation system. I would remind you that the export market has been used as a safety-valve for lots of other price-regulation systems. Many monopolies and cartels or near-monopolies have used or tried to use export markets for that very same purpose. Even farmers have complained of 'dumping'. Some other people, who have been concerned with imports, have used them as a safety-valve also.

Then I was rather shocked when Professor Nash told us that our government buying was safe because it was being done by commercial

experts. It certainly is done by experts, but they are experts in the forms of commercial operation which existed before 1939. If they are experts in the new systems of public buying, they have learned by trial and error, and by some quite serious errors if I am any judge. They certainly knew one thing about the operation of a controlled price system; how to make things easy for their fellow commercial operators. We used to have a phrase in this country that the United States 'paid farmers not to produce pigs'. Since 1939 we have been paying livestock auctioneers not to sell livestock, and I do not know how much longer we will continue to do so. At any rate, consideration of such positions leads up to this general statement: that it is very much easier to transform a relatively free market into a controlled market if you more or less fix and freeze the positions of the various operators in that market. But, of course, that is not the way to get economic or social efficiency, nor is that the way in which to get the optimum results out of market controls. Indeed, one of the real questions about our system of price control, if we take it through from the farmer to the consumer, is how much more we are now paying for middleman services than we ought to be paying on any basis of necessary service. I am not able to tell you, because up to the present the full information has not been available, but I could illustrate. We have a fixed price to farmers for milk; we have a fixed price to consumers for milk; we have a fixed retailer's margin; we have fixed margins for collecting depots, for wholesale depots, for processing like pasteurizing and so forth. It was quite well known that one of the operators in the milk market in the south of England was able to collect the margin at the collection depots, to send either the invoices or the milk to its country wholesale depot and collect another margin, then send the milk into the town wholesale depot and get another margin, and get the pasteurizing allowances on top of that. It is an interesting story, and if the consumer's price did not cover these margins then the Treasury paid them. Those are some of the things we suffer. About five years ago I would have told you they were teething troubles, but I am not so sure at this stage.

Then Mr. Kirk said this morning that our system sets farmers free for production; it relieves them of the worry of finding markets and bargaining for prices. It does. It also sets them on the job of farming subsidies, and some of them are active and very successful in that line. I think if one were looking at the history of the fat cattle subsidy, in Scotland in particular, one of its effects was to make the Scottish farmers 'farm the subsidies', a good deal to the detriment of the really efficient system of beef production in Scotland. We do

have to watch the cases in which farmers began not to farm land but to farm subsidies.

Now, as to the future, it seems to me that in the public systems of determining prices we do need the best data which we can get, as Mr. Kirk and Mr. Coke have said, but I am afraid that the data which we will get for price-fixing purposes are to some extent conventionalized. They are examined, I have no doubt, by both the Ministry of Food and the Ministry of Agriculture. But there are changes in the cost of production, or changes in the structure of the costs of the different commodities, and I wonder whether they are ever examined from the point of view of discovering the trends of farming efficiency, and from the point of view of developing and stimulating those trends. That is merely saying in another connexion what I said a moment ago: that there is a very great danger on the whole of freezing the existing systems.

Unless we can find ways and means of discovering trends in production efficiency on one side, and trends in consumers' demands and appreciations on the other side, we can never make this system fully effective. How will Planners know the trends of future demands? But before you try to give the answer to that: how did individuals or the collective trading groups operating the more free market mechanisms know what were the trends of future demands? Looking at the facts, it seems that under the relatively unregulated market the process of discovering the trends of consumers' demands was a slow and a clumsy one. It was one of trial and error, and in its complete working out it imposed considerable suffering on those people who were latest in discovering the trends of demand or who were less able to adapt themselves to new conditions. I could not attempt to give you an immediate answer to the question: How will Planners know or follow the trend of future demands? But I would say this, that if in this country over a number of years, when we have got through this immediate crisis, we are going to work for optimum nutrition on a low-cost basis, that is, largely on cereals and potatoes and milk, we are going to upset the world's agriculture very considerably, and we are going to reduce the real satisfactions of consumers. Man does not live by bread alone or even by optimum nutrition. The secondary, even the aesthetic, satisfactions of eating are important. A good meal should satisfy one, not only in respect of hunger and essential nutritive qualities, but in its colours, its flavours, and its aromas. The aesthetic satisfaction of eating is quite as justifiable as that of listening to one of Beethoven's sonatas and, what is much more important, is capable of a far wider appreciation.

There have been great experiments in this country. We have been making them under very difficult conditions. We had to improvise a lot of the machinery, a lot of the devices, and I think I would be justified in saying that the discovery of some of the devices for dealing with economic returns to farming has given us real economic knowledge which we can use on other occasions or for other purposes. Our danger is that we may freeze and fix existing systems of farming and, moreover, freeze and fix existing systems of distribution.

During the war period we were obliged to pay special attention to short-term needs and ways of meeting them. Now, while we still have to pay some attention to short-term needs, we ought also to consider conditions of long-run efficiency at the lowest practical physical costs and seek to foster the trends in those directions.

THE PLACE OF STATE BUYING AND SELLING IN FREE WORLD TRADING

OPENING ADDRESS

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I SHOULD start with an apology because from the summary of this talk which has been circulated you will see that I am not going to stick strictly to the title of to-day's subject. My only excuse for speaking here is that over the last four months I have been working in Geneva in connexion with the Trade and Employment Conference which, it is hoped, will lead to the formation of the International Trade Organization. The section of the I.T.O. Draft Charter with which I have been specially concerned is that dealing with inter-governmental commodity agreements, which are, after all, a form of state action within a framework of free world trading. I should also emphasize at the outset that I am expressing my own personal views, and am not speaking as an official of the United Nations.

By the term 'Free World Trading' I take it to be meant trade carried on in a predominantly private enterprise framework—the sort of trading system which is envisaged in the I.T.O. charter. At present that system hardly exists. State trading and state controls are in the ascendant, and private enterprise trading is hampered by a multitude of controls and restrictions. Those restrictions will only be got rid of if present balance of payment problems are solved, and if international purchasing power flows freely and in adequate volume. Accentuated by the war, there is at present an acute lack of balance, both financial and productive, between, broadly speaking, the United States and the rest of the world. The United States is in a position to lend abroad on an unprecedented scale. The trouble at the moment is that they are trying to eat their cake whole and give away or lend a substantial portion of it at the same time, with the result that there is excessive demand and prices are going up. The danger is that later on, when they are attacked by indigestion, they may reduce not only their own eating, but may also cut down their giving and lending, with the result that there will be a sharp fall in total demand, the flow of international purchasing power will be checked, and we shall be faced with a depression, perhaps not as

severe as in the nineteen-thirties, but something on the lines of 1921. There will, of course, be other sources of international purchasing power, notably the International Bank and the International Monetary Fund. But their resources are very limited. The Bank, for instance, has a total lending power of 10 billion dollars. This would barely cover two years' export surplus from the United States at its current level. The Fund's powers are even more limited, and are not intended to cope with the acute balance of payments difficulties that exist at the present time. If, however, in the next few years the United States and the Bank and the Fund can together pump enough international purchasing power into circulation, if the United States in those years practises the abstemiousness which is necessary to a great lender, if the borrowing countries use the credits which they obtain to improve their productive power, and if eventually the United States accepts an import surplus in payment of the service on the loans that it makes, then present barriers, commercial and financial, may be broken down, and there may emerge this free enterprise system of trading which is envisaged in the I.T.O. charter. If those conditions are not fulfilled, then the approach to I.T.O. principles will be so slow as to conform with what a conservative once described as his conception of the ideal rate of progress—'so gradual as to be imperceptible'; the barriers will stay, the rest of the world will have to adapt itself to a lower level of imports from the United States, and we may in due course have the spectacle of surpluses and unemployment in the United States existing simultaneously with shortages in many other countries.

The original proposals for the I.T.O., which you may remember emerged from America at the time of the British loan, were implicitly based on the assumption that the conditions outlined above could and would exist. In face of hard facts, and in the course of two meetings of the Preparatory Committee on this trade and employment project, a number of escape clauses have been introduced into the Draft Charter which, it may be argued, weaken it. On the other hand they do make it a more realistic document in face of present conditions. If they were not introduced, the Charter would be a highly theoretical document with very little application to facts as they are. As it is, these escape clauses make the Draft Charter adaptable to present difficulties. Moreover, in their application the proposed International Trade Organization will generally act as arbiter. In this, at first, it will undoubtedly have to be liberal. Later on, as conditions become easier, it should be able to take a firmer line. And in that way I think it is possible that the basic principles

of the Charter may be gradually introduced. There can be no question of their full and immediate introduction.

Although the Charter is mainly designed to encourage and facilitate private enterprise trading, it recognizes that primary products are subject to special difficulties, which do not apply in the same degree to manufactured goods, and which call for governmental action. To this audience it is not necessary to elaborate the nature of those special difficulties. It is enough to say that they arise from natural causes and from inelasticities of supply and demand, and take the form of extreme instability of prices accompanied in some cases by excessive production and in others by acute shortages. In acknowledging the need for special measures to deal with these problems, the Charter provides certain general safeguards against misuse. In the first place, action must be taken by governments and not by private firms. Before action is taken there must be adequate study and discussion, and this, like any subsequent action, must be open to all members of the International Trade Organization. In any action which is taken there must be adequate representation of both importing and exporting countries. That will be a new feature in inter-governmental commodity agreements. Most of the agreements of the inter-war years were between producers; consumers, if represented at all, were generally brought in only in a consultative capacity. Admittedly the principle of consumer representation may add to the difficulties in reaching an agreement—obviously it is easier for the producing interests to get together and reach an agreement than for both producers and consumers to do so—but at least it meets the main objections levelled against pre-war agreements, that they were agreements to exploit consumers.

At all stages of inter-governmental consultation and action there must be full publicity. Action is to be undertaken within the framework of various types of multilateral inter-governmental agreements, but it is recognized that every commodity has its own special characteristics and there can be no standardized agreement for all. Although no particular methods are mentioned in the Charter, it is understood that all types, buffer stocks, price controls, trade controls, and production controls, can be used if it is considered necessary.

The type of agreement against whose possible misuse this section of the Charter is particularly directed is termed 'a commodity control agreement'. This is an agreement which involves control of production or trade which might have restrictive effects or regulation of prices. It is laid down that commodity control agreements may only be used in either of two sets of circumstances: on the one hand, if a

burdensome surplus of the commodity exists or is expected to arise which would cause serious hardship to producers, including small producers accounting for a substantial part of the total output; on the other hand, if widespread unemployment or under-employment exists or is expected to develop which would cause serious hardship. A commodity control agreement is the subject of special safeguards in addition to the general safeguards already mentioned. Its duration must not exceed five years, and it may only be renewed if the special circumstances in which it was introduced still exist. Importing and exporting countries must have equal voting power, and countries which are substantial producers and consumers of the commodity, but which do not import it or export it on a large scale, are to have what is called an 'appropriate voice'. The agreements must be designed to ensure adequate supplies to meet world needs at any time. So far as practicable they must aim at increased consumption and also at shifts of production in favour of the most economic and effective sources of supply. There will be an obligation on participating countries to introduce programmes of internal economic adjustment towards solution of the difficulties in question. Each control agreement is to be administered by a Commodity Council on which all participating countries must be represented.

Provision is made to facilitate agreements to expand world production of a commodity and to ensure that these are not hampered by the safeguards attaching to potentially restrictive agreements. It is recognized that, in order to be effective, expansionist agreements may involve control of production or trade and may also have to provide for a possible application of minimum prices. It would only be when the minimum price provisions became operative, however, that such agreements could be regarded as restrictive. It is therefore provided that they should not be classed as control agreements until their minimum price provisions became operative. Only then would they become subject to the special safeguards attaching to control agreements.

This section of the Draft Charter also lays down procedure for inter-governmental consultation and action on existing or threatened commodity difficulties. In the first place there is to be a study group, consisting of substantially interested countries, to examine the situation regarding production, consumption, and trade in the commodity. If inter-governmental action is considered necessary, there shall then be a commodity conference which may result in the establishment of an inter-governmental agreement. Both at the study group and conference stages it is regarded as particularly important

that all members of the I.T.O. shall be free to attend if they consider themselves substantially interested in the commodity, although it is expected that more countries will wish to attend the conference stage than the study group. Any agreement must be open at all times to any member of the I.T.O. Non-members may be invited to participate at any stage. Where commodity agreements already exist or are under negotiation, study groups and commodity conferences may be dispensed with, but it is intended that such agreements and negotiations should be brought into line with the provisions of the Charter.

A recent development is the establishment of a number of inter-governmental study groups, not necessarily having the purpose of leading on to commodity conferences and agreements, but as standing bodies for the collection and exchange of information on particular commodities. That type of group is not specifically provided for in the Charter, but obviously it is quite in harmony with the principles.

It is regarded as desirable that there should be close co-operation with other inter-governmental organizations, such as the F.A.O., which are specially concerned with commodity problems. It is therefore provided that these organizations may appoint representatives to study groups and conferences, ask the I.T.O. to undertake special commodity studies, submit studies themselves, and recommend either further study or the summoning of a commodity conference. These provisions have been developed at Geneva particularly with an eye on relations with F.A.O. But the extremely difficult question of relations between the F.A.O. and the I.T.O., when it comes into being, has not really been settled yet, and I shall say another word on it in a few minutes.

To sum up these provisions of the Charter, they may be said to lay down five fundamental principles regarding commodity agreements. Firstly, they must be concluded between governments. Secondly, both producers and consumers must be adequately represented. Thirdly, they must be open to all. Fourthly, if they are actually or potentially restrictive, their use must be subject to special conditions and safeguards. Finally, whenever practicable, they must aim at increased consumption.

If control agreements fail to achieve their purpose, it is provided in the Charter that export subsidies may be brought into use by individual countries. This is an exception to the general rule against export subsidies which result in a lower price being charged abroad than at home. But even in this case it will be subject to permission

by the International Trade Organization. A country will not be able to introduce export subsidies of this kind without going first to the Organization, stating its case, and satisfying the Organization that the use of an export subsidy will not seriously injure other member countries. And I think it is worth noting in connexion with subsidies that there is special provision in the Charter for the type of domestic price-stabilization scheme, which I believe is used in Australia for wheat, by which the producer is assured of a stable price and the Government takes the profit or stands the loss on export sales.

State trading, which is another stabilizing influence, is also provided for in the Charter on condition that it is non-discriminatory. I will not elaborate on that, but it is obvious that the non-discriminatory application of state trading is likely to present complications and difficulties. State trading is permitted either within the framework of inter-governmental commodity agreements or outside, and, of course, it is not confined to primary commodities. The main advantage as I see it of state trading is that it assures stable markets and prices for producers over a long period, and stable sources of supply for consumers. Its main disadvantage, I think, lies in the fact that it brings trade more directly into the field of politics. Economically, too, there is a danger that it may weaken the trading position of smaller countries. For example, if a small state-trading country arranges that, say, 10 or 15 per cent. of its total exports are to be sold over the next five years to a powerful state-trading neighbour, its economy will become very closely integrated with that of the latter, and at the end of the five years the more powerful country may be able, if it wishes, to drive a hard bargain in renewing the arrangement. To risk a generalization, it seems to me that the stronger the country, the more it stands to gain from inter-state trading; the smaller the country, the more it stands to lose—or, at least, the greater risks it incurs. If state trading is to be extended, it will call for a considerable degree of restraint on the part of the great powers.

To revert to the Charter, I think it may be said that two main advances were made at Geneva in connexion with the chapter on commodity agreements. Firstly, it is now recognized that one of the objectives of a commodity agreement may be the attainment of reasonably stable prices. At the London meeting of the Preparatory Committee, the term 'stability of prices' aroused a great deal of discussion and there was opposition to its use on the ground that to establish stability of prices as an objective was, in fact, to run the risk of promoting the maintenance of the *status quo* and of discouraging improvements in production. With the clear recognition

of reasonable stability of prices as an objective of commodity agreements, primary producers will regard the Draft Charter as a more realistic document than hitherto.

The second question on which progress has been made regards relations with the F.A.O. The London text of the Draft Charter was mainly concerned with the restrictive aspects of commodity agreements and with limiting the circumstances in which such agreements could be used. There was nothing explicit regarding agreements to *expand* production and consumption as planned by the F.A.O. The idea of expansionist agreements is something rather new, first arising in the early F.A.O. discussions, and fundamental to the aims of the F.A.O. It is now explicitly recognized in the Draft Charter of the I.T.O. that, if effective agreement is to be reached to expand production of a commodity, it may be necessary to provide both for trade and production controls and for the assurance of minimum prices. Obviously producers will not want to expand their production substantially if they cannot be sure that in the long run such action will not lead to a disastrous fall in prices. Without this assurance they are not likely to co-operate in plans to expand production and consumption. Now that the Draft Charter opens the way to such an assurance, a great advance has been made in establishing unity of purpose between the F.A.O. and the proposed I.T.O.

This is not to say that difficulties do not still exist. The F.A.O. and the I.T.O. may be said to differ slightly in their approach to commodity agreements. The F.A.O., I think it is fair to say, would regard some agreements as desirable as a permanent feature in international trade. In the I.T.O. Draft Charter they tend to be regarded as emergency measures to deal with special difficulties, their aim being to remove the difficulties if possible, and then to go out of existence. It is not for me to say which is the more realistic approach. Another and probably greater difficulty is one to which I have already referred, namely, the fields of competence of the two organizations. It is provided in the constitutions of both that there shall be working agreements with other inter-governmental organizations, and in due course, when the I.T.O. comes into being, a working agreement will presumably be made with the F.A.O. In theory, the F.A.O. is primarily concerned with the production, consumption, and national distribution of food and agricultural products, while the I.T.O. is concerned with trade. This is a rather artificial distinction which is likely to cause difficulties in co-ordinating the activities of the two organizations.

In fairness to the organizations one should say that such differences

as exist reflect not only differences between countries—one country may favour the I.T.O. approach more than the F.A.O. or vice versa —but also differences between government departments in one and the same country. The two unfortunate organizations suffer in consequence.

Finally, I would like to draw attention to three outstanding problems which I think could usefully be discussed at this gathering. The first is this principle of commodity control agreements, that they shall provide if possible for shifts of production to the most efficient sources of supply. That kind of provision, if one studies the agreements of the inter-war years, has been conspicuous by its absence. Obviously it is desirable that, in the long run, there shall be shifts of production to the most efficient sources of supply. But in practice I think there is a danger that the objective will remain something on paper and no more. It is a job, I think, for economists to consider how to define these desirable shifts of production, and how to put them into practice. If the principle remains only a vague aspiration, there is a real danger that commodity agreements may justify the worst fears of their critics, and may tend to support uneconomic production.

The second question concerns the terms of trade. Even in the inter-war agreements it was generally specified that the agreements should aim at prices which were fair both to efficient producers and to consumers. Here again this is a phrase which is easily put on paper, but extremely difficult to define and to translate into practical terms. In the past, on balance I think it is undoubtedly true that primary producers have suffered more than consumers from the violent fluctuations in prices. It follows, therefore, that if future commodity agreements are going to achieve their purpose, consumer countries must reconcile themselves to some deterioration in their terms of trade. If prices are to be stabilized at a reasonable level, consumer countries are likely to have to pay on the average rather higher prices. I think it would be short-sighted for them to fight against this tendency. The terms of trade in the past seem to me to have reflected a false sense of values as between primary and industrial production. That situation is now being corrected by force of circumstances, and if the plans being made to assure some stability of prices in future are successful, then it will be corrected permanently. But it will not be entirely disadvantageous to the consumer countries, the industrial exporting countries. On the one hand it will mean a more stable demand for their exports to the primary producing countries. On the other hand—and I think this is a factor which is

sometimes overlooked—if the primary producing countries are assured of stable prices there will be less inducement for them to encourage high-cost infant industries, competing with the exports of the industrial countries under an umbrella of high protection.

The third point to which I would like to draw attention concerns the plans of the F.A.O. for disposing of primary commodity surpluses by sales at special prices for nutritional purposes. You are no doubt familiar with these plans as set out in the F.A.O. Preparatory Commission's Report on World Food Proposals. The idea is that, if surpluses exist, they shall, instead of being destroyed, be earmarked for sale at special low prices to countries where malnutrition exists. As a project for emergency application that seems to me wholly admirable. It is when the F.A.O. planners start talking, as they do in this Report, about the planned disposal of surpluses over a number of years that I feel difficulties arise. A planned surplus seems something of a contradiction. It makes one ask the question: when is a surplus not a surplus? I think there are two distinct propositions here. First, it is desirable not to waste surpluses, and second, it is desirable to provide food at low prices for nutritional programmes. In the short term you can tie up these two propositions, but in the long run, genuine surpluses must obviously be undesirable. It is a case where, in the long run, it is impossible to reconcile the undesirable with the desirable. I think the trouble arises from the fact that the F.A.O. in this case is trying to disguise its idealism in a rather ill-fitting cloak of expediency. It might be better advised to drop the cloak and stand forth naked and unashamed for a permanent two-price system to increase consumption in the underfed countries. I realize that this would raise burning political issues. But if the idealistic concept of Lend-Lease was possible in war, I see no fundamental reason why the idealism of F.A.O. should not be practicable in peace. What the technicians can do is to formulate solutions to these problems, based on facts and a sound system of values, and then persuade the politicians to act on them.

DISCUSSION

O. B. JESNESS, *University of Minnesota, U.S.A.*

Will Rogers once told a story about President Coolidge that comes to mind. You remember the reticence of President Coolidge. On this particular occasion the President had gone, in the words of Will Rogers, 'out to Chicago to talk to the farmers', and this was his speech, according to Rogers: 'Men, you are in a hole. I can't get you

out but I'll get in with you.' The world is in a dilemma—and the best definition of a dilemma that I have ever heard is that you have no place to go and you cannot stay where you are.

I think Mr. Gilpin has done an excellent job in outlining some of the aspects of the dilemma which we are in and setting up a good picture of some of the roadways that are being constructed to take us out of that dilemma. The question that bothers me is whether the world, including ourselves, has the willingness, the judgement, and the foresight to follow those roadways which are being constructed, such as I.T.O. and similar international organizations that deal with other questions.

Frankly, when I saw the title for this discussion this morning, 'The Place of State Buying and Selling in Free World Trading', I had a great deal of difficulty in getting away from the contradiction implied. I am glad Mr. Gilpin has found a way out of that difficulty by defining free world trading as a situation in which trade is carried on predominantly by free enterprise and pointing to the present state of rather extensive governmental participation in buying and selling as of an emergency nature. I hope that characterization of direct participation in trading by the State is correct, because if it is not, then I am very fearful of the sort of world in which we are likely to find ourselves. While it is of no particular concern to anyone else than myself, maybe as an aid in interpreting what I have to say I should confess that I belong to the classification of an 'un-reconstructed liberal'. I object very strenuously to some of the people who belong to the category of radicals and believe very strongly in controls from the left, taking unto themselves the privilege of thus describing themselves as liberal. My observation has been that it does not matter whether you are shot by the left or the right, you are just as dead in either event. I prefer very greatly to devote my efforts and give support to the sort of programme that Mr. Gilpin has so effectively outlined for us as in the process of being worked out in international conferences, because I think that only by following such a programme can we provide for the most effective satisfaction of human wants.

I was struck the other day by the rapidity with which several people applied the term *laissez-faire* to the discussion of Mr. Norton. Like the old grey mare, *laissez-faire* is not what she used to be and never was. Economists have got pretty well past repeating parrot-like the expressions supply and demand and have turned over that privilege to the man in the street, the business man. We had better relegate the term *laissez-faire*, as it is commonly interpreted, to the

same limbo of forgotten things. It does not describe the situation in economic affairs, and I do not think any reasonable man contemplates that sort of a situation, any more than I think any reasonable individual expects that all of a sudden they are going to be able to shift over to any complete freedom of trade. The primary problem we are concerned with to-day is how we can establish a reasonable amount of freedom and how we can define more specifically the functions of government and widen my classification. As an 'unreconstructed liberal' I would not for a moment think of taking government out of the realm of trade. I would, however, like to see governmental activity directed primarily to laying down and enforcing the rules of the game, instead of being an active participant in the game itself, because when it enters the game, who is left to enforce the rules? The development of international trade organization along the lines suggested by Mr. Gilpin is in that field of laying down and enforcing the rules of the game that should permit more effective and larger performance by free enterprise. Because of the appearance of this state buying and selling in the subject of this discussion it may be in order to turn aside for a moment to note several classifications of this type of activity. We have state trading most fully developed in the case of a completely socialized economy. The U.S.S.R. is the outstanding illustration of a complete monopoly of trade on the part of the State. The Nazi régime in Germany was a type of state trading that was employed not primarily for economic aims or the satisfaction of human wants but for the purpose of gaining political and military ends. In the case of Great Britain to-day is found another type of problem where state trading becomes important in an adjustment to an abnormal foreign exchange situation. You have still another category in the case of the United States where the State has had to participate in trading in the extension of foreign relief and assistance. This obviously calls for governmental rather than private action. And then there is danger that we may have more or less state trading (I am fearful that it may be more in the future) growing out of various domestic programmes. I am certain within my own country that our people do not see adequately the fact that domestic trade and international trade are merely different facets of the same thing. We seem to believe rather extensively in my country that we can undertake almost any sort of a programme we may want to at home for the purpose of maintaining certain price structures and that it is nobody else's business. I have a sneaking suspicion that we do not have a monopoly of that frame of mind. The world is now physically so small that no nation is free to carry

on domestic activities without concern for their effect on its international relations and the international structure. I for one hope very fervently that these international agreements and arrangements provided under the I.T.O. and the Charter as it is now being discussed can be carried through only at high level. I am greatly in fear, however, that we will find many excuses for not using these agreements to the end and in the manner which the present proponents have in mind. I have heard over and over again during this past week, as you hear at every conference concerned with economic problems of the day, that this is a short-run programme to solve problems we are up against. We have got to be realistic and face the fact that, in the longer run, permanent policy evolves from short-run actions. If we persist in operating on a basis of dealing with the expediency from day to day, that becomes our long-run policy. The provisions which have been worked out in I.T.O. and other international arrangements and conferences contemplate that we are not going to handle them as matters of temporary expediency but from the standpoint of a longer run service to the nations of the world. How the world functions in the light of the development of these programmes depends upon the degree of enlightenment which exists in the world. It depends in a larger measure upon the understanding of the world. I accept entirely the statement by Mr. Gilpin with respect to the responsibility of the U.S.A. in the present situation. It is no use, however, to view the responsibilities of the U.S.A. solely from the standpoint of altruism. My observation has been that internationally nations are highly selfish, and the only way in which the U.S.A. can be led to assume its responsibilities in the world to-day is that the proposition can be sold to Americans on the basis of the benefits which the U.S.A. will obtain from assuming those responsibilities. As a citizen of the U.S.A. and as an individual I may have a strong voice physically but it is a rather weak voice in the sense of its effects. I am trying to raise that feeble voice on every occasion in the interest of getting my fellow Americans to assume our responsibilities with respect to the rest of the world. I ask the rest of you not to make the job too difficult for us. I ask of you that you likewise recognize the fact that every nation has responsibility for conducting its affairs in such a way that other nations will be encouraged to do their part. I may be an incurable optimist but I think the U.S.A. can be induced to change its policy so as to become a very important factor in international financing, in providing capital, and in revising its trade relationships with the rest of the world over the longer period of time so that it will operate as a creditor nation needs to operate. I have hope of

selling that idea to the United States. If we can make that clear to our people, you do not have to worry too much about the politicians. They will go along. One of the ways of making this clear to our people and to the rest of the world is that we never forget that trade is after all only an aspect of living together in the world. There was a time when some nations in the world at least were so located that it made some sense for them to say that they could live by themselves. In a day when a man all alone in a plane can fly round the world in seventy-three hours any idea of physical isolation is just a dream of a world gone by. We need to deal with these matters of trade in relation to this larger problem of international co-operation for the maintenance of peace in the world, bearing in mind always that the failure to make a success of international co-operation, including international trade, inevitably means another world war. With man's progress in self-destruction it is a reasonable guess that a third world war will come mighty close to destroying civilization as we know it. It is with that sort of a price that you and I have to reckon, and you and I as professional economists who have the sense of trying to study and understand these involved problems do have a very grave responsibility for enlarging our mental horizons so that these things are seen in the proper perspective with their longer-run implications. Then we have the second responsibility of not keeping to ourselves the results of those studies but of helping people generally to understand. Only as understanding is gained is there hope of working out a solution.

H. M. CONACHER, *late of Department of Agriculture for Scotland.*

To begin with I should like to give our American friends, as we are so often thinking of the economic relations of the two countries, a kind of yardstick to measure the differences. Prior to the last U.S.A. census the population of Great Britain and Northern Ireland was equal to that of the states of Massachusetts, New York, Pennsylvania, Ohio, and Michigan. If you took these five out of the U.S.A. it would leave a rather big hole. You would still have Illinois, Texas, and California, of course. Another fact is that we are not a small island; we are a big island. If you went up to John o' Groat's you would see on the signpost '800 miles to Land's End'. Of course, that is an exaggeration, but apart from Australia and places like that there are only four islands in the world greater than Great Britain. We are greater than the main island of Japan, and we know what the population of Japan is. There is just one other preliminary remark. In the old days you ended up a war with the distinction between

victors and vanquished. That is quite obsolete. To-day the distinction is between creditors and debtors, and the creditors and debtors do not necessarily coincide with victors and vanquished. In fact the debtors may exist among the victors.

To come now nearer to the actual economic position, it has long been with me axiomatic that low prices in agriculture equal unemployment in industry, and in this connexion I would like to say a word to our American friends such as Professor Jesness and Professor Norton, who call themselves liberals. What I propose to do is to try and show quite shortly how it comes about that in this country to-day there is a socialist government which involves things offensive to liberalism and how it also comes about that the primary producing countries of the world are also moving away from old-fashioned liberalism.

Why, then, have we a socialist government in this country to-day? The reason I would give is that in the inter-war years we got through in this country solely by the misery, hardships, and humiliation of the 2 million unemployed and their dependants. Why was there that state of things? It came about for various reasons, but not least because the governments between the two wars uniformly followed a policy of deflation, in 1921 and 1931, and worst of all in going back on to gold with an over-valued pound, which, of course, ruined our mining industry as an exporter straight away. At the general election in 1945, the potential unemployed, if I may so call them, made quite sure that we were not going to have a return of the policies that were pursued between the wars. They were not going to have any policy dictated by the city; full employment was the thing insisted on. In my humble opinion that as a bit of historical analysis is the reason why we have a socialist government to-day in which, of course, the old liberal traditions are swept away.

Then turn to the case of the primary producing countries. These countries also had a miserable time, equivalent to the unemployment in Great Britain, through the low prices of their products. We all remember the severe stringency through which Australia passed between the wars; and as Professor Scott-Watson has said the prairies of Canada suffered equally, and I believe that great stretches of the grain-growing belts in the United States also suffered. Those communities, equally with what I have called the potential unemployed in this country, are equally determined that that shall not happen again. The causes of low prices that prevailed very largely round 1929–30 and the following years were the much-talked-of disequilibrium, but I would also like to suggest that there was a com-

plicating condition that we in this country have rather overlooked. We have been told from the British point of view in this Conference, in the newspapers and everywhere else, that one of the things by which we did secure our balance of payments was our foreign investments, which were made from the 90s onwards for the purpose of developing the new countries. We have always plumed ourselves on those. But again look at the reverse of that. It meant that not merely were the semi-developed countries selling us their grain and other raw materials in an only apparently free market, but they were also at the same time paying us a kind of tribute in respect of our foreign investments. They will not continue to do that because one way and another most of our foreign investments have gone and also because through scarcity they are in a much stronger bargaining position. This means that the former debtor countries that were primary producers are using the same kind of political technique that our electors used in 1945. The technique will be used to keep prices up, and I was very glad to hear Mr. Gilpin point that out. But that again implies a reversal of the old liberal tradition in this country, which simply gloated over making the most of its consumers' market monopoly.

Those are two factual reasons why I think that through one cause or another the old nineteenth-century free-trading régime is hit rather badly on the head. As I have mentioned our foreign investments with reference to the reactions coming from them, I should also like to say at this moment that I think in all the discussions on the balance of payments we have rather overworked our foreign investments. I mean that we have overworked their effect as an argument. I believe our national income at the moment is supposed to be somewhere around £7,000 million. Our foreign investments between the wars were still supposed to be £4,000 million. Suppose that this brought us a revenue of £200 million, that £200 million would not enable us to pull the two ends together to-day. Far from it. There is an £800 million disparity at the moment. Equally, if our national income is £7,000 million it does not matter a terrible lot whether we have lost that £200 million or not. Surely we can afford to buy in some way or other, and, that being so, the breakdown is really a kind of currency breakdown. That is partly by the way, but one might mention here that we have also our other sources of invisible income. The city earned £60 million by means of these mysterious international financial transactions it carried on, and perhaps we got as much by being a general overseas carrier.

What, then, is to come out of all this? I should like to read a few

lines from an article printed in the *Manchester Guardian Weekly* for August 28, and I should advise all our American friends if they can get hold of it to read the whole of this article. The little bit I propose to read is this:

'In a sense the signing of the [International Trade] Charter is an attempt that is being made to rebuild the World Trading System more or less as it existed before the war. Then the United States sold to Britain and Continental Europe five times as much as it bought from there. Britain and Europe paid for their excess imports by over-exporting heavily to the less developed regions of Latin America, Africa and Asia which in turn had large export surpluses with the United States. To put it in a formula, trade flowed from West to East and dollars flowed from East to West. Sterling was the exchange medium which made this system work. British trade kept the world round; to restore the system even with some gaps was our best hope of regaining markets and prosperity. It could not be done without removing the obstacles to the free convertibility of the pound. Those who have always said that the effort was bound to fail can now say, if it gives them satisfaction, that they told us so. The effort failed largely because it was not backed up by a reasonable recovery of production and exports. It failed also because everything else that could go wrong went wrong. We made too little of our opportunities and had no luck at all. In the attempt to restore the sterling mechanism the Treasury has been far too liberal with releases from wartime balances, and grants of convertible sterling funds, for all sorts of odd purposes. The mistake of the Washington lawyers in imposing a fixed date on which we had to make sterling fully convertible, left us too little time to test the system and to create confidence in it. Thus the Treasury's expectation that a large part of convertible sterling would not be converted turned out to be false. In the end the link had to be snapped.'

That last observation, of course, is by the way, but the miscalculation of the Treasury is to my mind something almost incredible, and, at the risk of introducing politics, I cannot help thinking that it was not the permanent officials. I know the permanent officials are sometimes wrong, but look at the kind of Barnaby Rudge Chancellor of the Exchequer we have at the present time.

There are two alternatives before us. The one alternative is to try to get back to the old triangular trade, and I confess as an old impenitent liberal that, to my mind, is the superior way. But at the moment it does not seem to be the way that our Government proposes to tread. Our Government has said lately by one of its spokesmen that we are going to stick to imperial preference trading with the Empire or trading with any country with whom we come to a deal. And I should like to tell our American friends that if they are

interested in this problem at all, a political situation thus confronts us in this country in which the Socialist Government has taken up a policy that was primarily the policy of the Conservative Government under the Chamberlain family, and that it is an extraordinary thing to find the two big parties to-day agreeing on a policy of this kind. But there it is and a fact for our American friends, if they attach any importance to our future trading relations. From many points of view it is an ugly fact, because on the whole it will be a second best. Though we may have to do the best with it, imperial preference does tend to cramp the possibilities of getting back to a volume of world trade that we really want. Only please make no mistake, my American friends, you will not get us to give it up by doing anything that takes advantage of your overwhelming financial strength. That will only make us put our hackles up.

I do not welcome the prospect of the kind of external trades which we in this country will have to practise in the next few years. Sir John Anderson, when he was Chancellor of the Exchequer, warned his own party as much as anybody else that a policy of bilateral barter would only restrict international trade. Of course the Conservative press passed that very uncomfortable remark over in complete silence, but it remains true that bilateral barter not merely cramps trade by being bilateral, but also by being barter, and that is the second bad thing about it. It really sweeps away the whole money mechanism. Just consider for a moment how it works out if we go back to the Russians and try to get some of the surplus Ukrainian grain for this country. If we do trade with the Russians we shall not be able to work with any of the ordinary concepts derived from prices settled in a market. It will simply be a kind of dog-fight as to who can beat the other fellow down best, and how many bushels of Ukrainian grain is worth whatever the Russians are going to get from us. It is turning the world back to a medieval system of things. I certainly admit that I have taken the worse case in regard to Russia, but still something like that will happen in all our trading, even with our own Dominions. Each particular transaction will have to be done inside a kind of closed market. The situation will have no relation to a world market. The trading will be based on bilateral barter, and therefore so far as we are concerned, the prospect, I think, for this country is a very poor one. If you look back on the times between the wars, the countries that had a very bad run of experiences were the debtor countries, and we are a debtor country to-day. We had really better set our imaginations to work and read up the history of those years and see what that means. And if

anybody imagines that a short-term policy is a policy that will be good enough to tide us over three years, I should like to present my British friends now with a suggestion. We to-day are in very much the position that the United States was in at the end of the Civil War. You know it was not until 1879 that there happened what was called in the queer jargon of those days the resumption of specie payments, and the United States felt the full effect of being a debtor country for fifteen or perhaps twenty years. But there was a possibility for the United States of a great economic development. It was in the years after the war that the Homestead Law was passed. Enormous areas of land in the United States were brought under cultivation during those years, and that was when we began to have the great exports of grain from the United States which brought down the prices of wheat and grain in our country. I have often thought that that particular phenomenon is in its way one of the best instances that any economist could have to show how currency forces can operate with ordinary economic forces. It was because the United States was working on a depreciated currency that, as it so often happened after the First World War, there was a stimulus to their exports, and we had the imports. The United States had their great areas of public domain which they allowed to be exploited, overriding the views of the Treasury of the day. And I have always regarded that operation as an enormous grant of credit that the United States as a government—a bit of state trading—gave to these great masses of prospective farmers. The recovery did not end there. The United States then followed with its great industrial development. And, therefore, it did pull out and become the biggest and most prosperous and strongest country in the world. But we have not got those assets, and therefore I am sorry to say that I do think the future of this country is really rather bleak. I can only hope that we have got enough brains in this country to produce a new technique and some new inventions that will carry us through.

G. A. Holmes, *London Office of the New Zealand Government.*

Some of you may have expected, as I come from the little Dominion of New Zealand, that I would immediately rise after the papers this morning in an impassioned defence of state trading, overlapping on the subject with which we dealt on Monday, namely, the interference, particularly by the State, with the market mechanism. But that, of course, would perhaps be merely allowing my emotions to run away with my reason, and would be a wholly unscientific approach to the subject.

First of all let me say how much I appreciated Mr. Gilpin's paper and the thought-provoking way in which he introduced this discussion. If I differ from him on two points which I noted I hope that he will treat it merely as the difference of opinion from which there often emerges something valuable. He did, I think, say that in the past agreements among producers had been always aimed at exploitation of the consumers. That may have applied in some of the cartels, perhaps in tin, perhaps in rubber, perhaps in sugar, but we have always felt that the price we got for our exports was dictated in London. London is very similar to a medieval town where there is a group of astute traders while the rest of the Commonwealth resembles a group of producers round that town. Did you ever know of those traders not achieving a much higher standard of living than the producers who sent the goods in?

Another statement which Mr. Gilpin made was that large countries lent themselves better to state trading than could small countries. That, I think, would depend on the sort of commodities which a country produces. Small countries with a very diverse production have little scope for state trading, but a small country with just one or two exports is very much inclined to seek security behind some form of state-protected trading. We in New Zealand can claim certain distinctions; we are one of the smallest Dominions—next to Newfoundland, I think, the smallest; we are the most distant, so that we have to send our produce farther than any other country; but we have the distinction of being by a very considerable amount the largest exporters per head in the whole world, the largest exporters to-day of butter, outstepping our good friends in Denmark, and the largest exporters of lamb and cross-bred wool, that is, of course, distinct from the fine merino wool of Australia and South Africa. Our philosophy has always been expansionist. The land was taken up, and still is bought, not on the basis of what it produces, not static farms, but on the basis of what it can produce, what livestock it can be made to carry. And so it was a very rude shock to us in 1930 and 1931 to find that the great market which seemed to have no upper limit had suddenly contracted, and our farmers were thrown into a state of despair. In 1932 we tried a device, very common throughout history, of de-valuing our currency by altering the exchange rate so that we made our pound 25 per cent. in value below sterling. That was intended as a temporary palliative but, of course, it became established, and lots of undesirable effects followed. We still have that depreciation, although the reason for it has long since gone, and we now have an all-time record of sterling funds lying in London.

In 1935 there was a political change in New Zealand from a Conservative to a Labour government. This is not the place, of course, to air any political views whatsoever, but that Labour government went into power largely on the votes of the dairy farmer. There had been in New Zealand the land-owning class and the working-farmer class, both strongly Conservative in temperament. There were also the wage-earners in the towns with strong Labour sympathies. The Labour people of that day saw that if they could split the much larger class of voters into two, namely, the wealthier farmers, mainly sheep men, away from the hard-working dairy farmers and win the dairy farmer section, they would have a good chance of success at the poll. They offered as a bait what was called the Guaranteed Price, and that was our first big venture into the state control of exports. Now the fact that the dairy farmers embraced that state offer might be looked upon as a departure from the energetic, enterprising, and expansionist ideal. They have, as it were, bartered their freedom for security. In the search for security they have given up something to the State, namely, such control as they had of the marketing of their own produce.

In the first year of the guaranteed price the Government actually agreed to a price which was higher than the produce realized in the London dairy market, so that the State had to contribute something over £1,500,000, or about 5 per cent. of the realized value. That led to the impression in other countries that New Zealand was subsidizing her exports, on the same basis as the Paterson plan, which was the Australian device of selling butter in the home market at 1*s.* 8*d.* and exporting it at 1*s.* 3*d.* I do not know, of course, looking at it in another light, that that sort of thing is altogether bad. I am sure we would be very pleased to-day if the United States Government would maintain wheat at the present Chicago price of $2·45 and export it to this country at $1·55. In other words, we should not confuse goods with money, which you all know is one of the commonest delusions of the average man.

Prices rose in 1937 and the Consolidated Fund no longer needed to subsidize the dairy industry. Then the tide began definitely to set in, and our main danger at the moment, of course, is that that tide of inflation is going gradually to carry us off our feet. Nowadays the farmer actually gets less than the produce realizes. He gets an agreed figure, say of 19 point something pence per lb. for butter fat, about 25 per cent. above the 1938–9 level; the extra which Britain generously pays us is put into a stabilization fund.

Our farmers in New Zealand are not illiterate by any means; many

of them are quite practical economists, and their bargain with the State when it was suggested that the State would pay a guaranteed price was: 'Well, if you are going to fix our return, you must also fix our costs.' This became more and more complicated in trying to nail down other parts of this complicated machine, which Professor Norton, speaking I think as Farmer Norton on Monday, preferred to leave entirely free. We had, for example, in New Zealand to peg the price of superphosphate, and that was a heavy cost because phosphate rock which we used to get from Nauru Island, landed at our shores at 30*s.* a ton, had to be brought from Florida at a cost of over £8 a ton. So you can imagine the amount of state subsidy which had to be used to keep down superphosphate.

One point I wish to bring out, which is of very great interest to us, is that the producer of a single commodity is always in a very vulnerable position. Your peasant in India can be self-sufficient, not so much affected by what he sells as by what he is actually able to eat, but when you come to a farm which is 'highly geared', where the expenditure on purchasing machinery, fertilizers, and the like is high in producing one single product, then you are particularly vulnerable to speculative fluctuations in the price of that one product. You have all read of and many of you have seen the results of the collapse of wheat prices, when farms in western Canada producing the one commodity were abandoned. On the dairy farms of New Zealand our very specialization reduces us to producing almost one crop. That crop is grass. We market the essence of that grass as butter, and therefore those farmers feel that they are so closely dependent upon one commodity that they must strive in some measure to attain security.

As to the future I think perhaps later this evening Mr. Ojala will have something to say about a recent change, and he may make some forecast of the future. I hesitate to do that. I do feel, however, that there is a growing cynicism out there about state control. We feel, too, that economic considerations are not the only ones. Many of you will remember Kipling's verses, the 'Ballad of the *Bolivar*'. Perhaps it is better known in the United States to-day than in England. It is about an old tramp steamer setting out to cross down the Bay of Biscay, and one of the crew describes her as 'leaking like a lobster-pot and steering like a dray'. We feel that Britain is a bit like that; she wants a good deal of overhauling; she wants new oil burners because she is very short of coal. But old John Bull—his figure is familiar even in Continental papers—is still on the bridge, and, as his officers and crew, we must stand by him. We often wonder what sort of a chart he is using for navigation. Sometimes we wonder if

he has any chart at all! But this old steamer recently weathered a terrific storm, and by comparison the present crisis is just a few adverse currents. If a storm blows up again we hope to get this old steamer safe into harbour.

R. W. BARTLETT, *University of Illinois, U.S.A.*

This introduction that we have had by Dr. Gilpin impresses me as being one of the high points of our Conference in its realism, and I certainly want to congratulate him for his presentation of such a clear-cut exposition of what is facing us. I was particularly impressed by his reference to the probability of another depression and the effect of unemployment in the United States upon surpluses and the problems of the International Trade Organization.

I think there are one or two facts that the people in the European continent and other places do not understand about the American economy. One of these is that 70 per cent. of America's imports, which provide dollars to other nations, go into our industrial production. The second fact is that 90 per cent. or over of American industrial production normally is used within the United States. Normally our exports are 10 per cent. or less of our total domestic production. So while we are vitally interested in international trade, we are a much more self-contained nation than are the nations whose very existence depends upon foreign trade.

Another fact in regard to our urban production. During 1932 our urban production was only 53 tons for every 100 tons that we produced in 1929, while our agricultural production in 1932 was maintained very nearly as high as that of 1929. Reduction of industrial production accompanied by reduction in payrolls was a primary cause for low farm-prices. Going farther, I believe that the decline of industrial production in the United States was responsible, in part, for continued depression in other countries.

An understanding of other facts, it seems to me, is necessary in a programme of maintaining a high level of production in our country during the next decade or two. These facts were summarized in a report to the Senate in 1935 by Dr. Gardiner Means. Two industries which were shown to be the worst offenders in the 1932 depression were motor vehicles and iron and steel. Prices of motor vehicles in early 1933 were only 16 per cent. less than in 1929, while production dropped 80 per cent. The study showed that iron and steel prices were reduced only 20 per cent., while production in early 1933 dropped to 17 per cent. of the 1929 production, or a total decline of 83 per cent. In these segments of our urban industry the bottom

literally dropped out of production, and we had economic paralysis in every city where these industries were located. This caused the bottom to drop out of farm prices along with the drop in payrolls and production.

Now let us refer to two industries, petroleum and leather, in which an opposite policy was followed. Petroleum prices in early 1933 declined 56 per cent. from the 1929 level, and production in the petroleum industry was maintained at 80 per cent. of the 1929 level. Leather prices were decreased by half, and production was maintained also at 80 per cent. of the 1929 level. One of my earlier studies showed that from 1930 to 1939 one out of each six wage-earners in the United States was jobless. This study also showed that had farmers reduced their production in 1932 to the same extent as did urban industry, we would have had mass starvation in most of our largest cities. Furthermore, the study showed that if prices and wages of those in urban industry during this period had been reduced to the same extent as those in agriculture, factory production and living standards of labourers, urban employers, and agriculture would have been maintained at a high level and there would have been no big urban unemployment problem.

Looking to the future, it seems to me that the United States has a major responsibility during the next two decades in regularizing production. The standard of living of a people depends upon the sum total of agricultural production and urban production. Our low payrolls in the thirties resulted in low farm-prices in the United States. Lack of purchasing power, namely, reduction of our dollars to all the countries from which we obtained goods for our industrial production, was caused by our failure to maintain a high level of industrial production. Our country can continue with its competitive system of free enterprise only by maintaining a high level of industrial production, year in and year out. If urban business fails to regularize production, it is simply giving an open invitation for Government to come in and take over. Then we would be likely to have state buying and state selling for most of our important products.

E. F. NASH, *University College of Wales, Aberystwyth, Wales.*

I think this discussion is profiting very considerably from the fact that we have a liberal chairman. If he had insisted on anything like a literal interpretation of our terms of reference I do not think we should have been able to spend very much time on the question, because it seems to me that, in the ordinary significance of the words, there is very little place for state trading in a system of free world

trade. I am not proposing to defend state trading; I think there are circumstances in which it is unavoidable, but it is better perhaps to regard it as a necessary evil than as anything valuable in its own right. But perhaps I might say to Professor Jesness that if he discerns elements of nationalism or illiberalism in some of the things that are being done in this country at the present time, it is not on those grounds that any of us would seek to defend them. I think most of us approach these problems not in any spirit of self-assurance but in one of considerable perplexity. The opportune contribution to which we have just listened from the New Zealand representative may serve to dispel any impression that these necessary evils or elements of illiberalism, as the American economists may view them, are simply the products of the out-of-date European economies, for they also exist in the young and vigorous southern British Dominions, which have always been a kind of laboratory of social experiment.

Mr. Gilpin gave us a most interesting account of some of the features of the proposed principles of international trade to be embodied in the Charter of the International Trade Organization. His address was particularly interesting to me because though I have read the statement of principles that was issued by the British and American Governments at the time of the Washington loan, and various articles which have appeared in the Press since that time, the revised version of the Charter itself has not I think been published in this country—which does place one under some difficulty in discussing it. There is, however, a good deal of information on the specific points which Mr. Gilpin was discussing in the report of the Preparatory Commission of the Food and Agricultural Organization dealing with price stabilization. Mr. Gilpin pointed out early in his address that the situation of disequilibrium which has now come to exist betwen the United States on the one hand and the rest of the world on the other is of a magnitude with which the provisions embodied in the set-up of the International Monetary Fund and the International Bank are quite incapable of dealing. It seems to me that is perhaps a pointer to a general criticism which it is legitimate to direct against the international discussions on post-war economic and financial regulation. The difficulties of world economic recovery have been seriously underestimated. We are witnessing an attempt, for which the world owes a debt to the initiative taken by the United States, to set up a series of international institutions in the economic sphere. After the First World War post-war international planning largely confined itself to the creation of a political organization. This time, I think, we are getting much nearer to grips with

real problems of the world in directing a big share of the reconstruction effort to the creation of economic institutions. It was very necessary that attempts should be made to lay down rules of conduct in the sphere of economic and financial policy. But it is not a very easy matter, all the same, and the monetary provisions in regard to stability of currencies and convertibility and so on have obviously taken too little account of the present difficulties of the world.

The elaborate attempts to frame rules of conduct to be observed by governments in setting up commodity agreements seem to me to be open to a similar criticism. They may not unfairly be said to be directed rather against the problems of the past than against those of the present. Those who have drawn them up have had their eyes fixed on the difficulties which the world experienced during the 1930s. It is very desirable that due attention should be paid to those difficulties, but it is also very necessary that a proper appreciation should be paid to the present situation of the world and to the changes which have resulted from the war. The two outstanding problems of to-day in the sphere of affairs with which we are concerned are, I suppose, first that of general food shortage, and second that of serious monetary disequilibrium. In conditions of general food shortage it is not altogether helpful, perhaps, that so much time should be spent at international discussions in considering what steps it will be necessary to take when there is too much food in the world. There is some danger in this wrong emphasis, particularly to importing countries such as this, because premature attempts at price stabilization by commodity agreements may do serious damage.

The other immediate problem is that of general disequilibrium, of which not the least element arises from the change in the international position of Great Britain. Of the long-term elements in Great Britain's position which have been seriously changed by the war, there is first the loss of overseas investments, and second, the accumulation of a mountainous total of new liabilities to other countries, the net result of which is that Great Britain has now become a debtor country. This country has long enjoyed a considerable income from overseas investments. Up to 1914 that income was very largely balanced by fresh investment overseas, which meant, of course, that if we had had under those conditions to face a sudden change in our position such as we have now experienced, the adjustment would have been very much easier. The loss of income from overseas investments could have been very largely met simply by a cessation of new lending, without any very serious change in the total of exports relative to imports. After 1920 overseas investment

on a considerable scale by this country was resumed for some years, but that phase of history ended with the depression beginning in 1929. During the 1930s, as a result of the difficulties which this country along with many others was meeting in export markets, we were not on balance doing very much lending abroad. Indeed, the indication is that on balance we were slowly liquidating our overseas investments. But we were, of course, still in receipt of a considerable income from them, and the change compared with 1914 meant that the income from the overseas investments had now become an important means of paying for our current imports. That is one reason why the adjustment is very much more difficult now than it would have been under conditions as they existed before 1914.

The magnitude of the readjustment called for in this country may be indicated by the fact that the official export target as laid down by the Government calls for an increase of 75 per cent. in the volume of exports as compared with 1938. In 1938 we already exported more manufactured goods than any other country in the world. About three-quarters of our total exports consisted of manufactured goods, so that the achievement of the export target is roughly equivalent to the doubling of our exports of manufactured goods. These exports represented, I think, about one-eighth of our national income, that is to say we must now face the necessity of sending abroad goods equivalent to an eighth of our pre-war national income, goods we will no longer be able to consume ourselves. But an even more frightening way of putting it is to say that in order to achieve the export target we shall be required to find export markets for a volume of manufactured commodities exceeding the total pre-war exports of manufactured goods from the United States or Germany.

Now a change of this kind cannot fail to have a profound effect on the whole structure of international trade. The pre-war network of trade has been very ably analysed, as you will all be aware, by the statisticians of the League of Nations, particularly in the volume entitled *The Network of World Trade*, where by analysing the trading balances of different countries they showed that the pre-war structure of multilateral trade was closely connected with the transfer to this country of the earnings of British overseas investments. The purchasing power resulting from those earnings was to a large extent not exercised in buying directly from the countries who owed us the money. We incurred import surpluses particularly from European countries and the United States, which we were able to finance because the countries of which we were creditors had export surpluses with Europe and the United States, and we financed our

import surpluses by the earnings of our overseas investments. Now that those earnings are gone it is clear that that kind of structure will have to be very considerably modified in the future. Another thing that it will mean to us in this country is that our economy will be more vulnerable in the future to economic fluctuations overseas, since these fluctuations will affect the demand for a larger proportion of our total production. This in turn will affect our ability to carry on the stabilizing function which I think it is fair to say this country has exercised in the past. British imports consisted to a large extent of consumable goods, foodstuffs, and necessary commodities for the life of the people. The demand for those commodities is relatively stable even under conditions of depression, and with the backing of our overseas wealth we were able in the past to neglect temporary fluctuations in our balance of payments. Our capacity to maintain imports of essential commodities was not seriously threatened even by the crisis of 1931, for although we ran out of ready money we still had a great amount of wealth scattered around the world which enabled us to sustain an adverse balance of payments during the pre-war years.

I have made these points in an attempt to indicate something of the background that is necessarily present in our minds when we approach these questions of future international trade. The proposals of the International Trade Charter aim at drawing up a code of behaviour in matters of commercial policy to which governments would pledge themselves to adhere. The need for such a code of behaviour is obvious, and perhaps this country itself has suffered as much as any from the lack of such a code in the past. Governments have a tendency to adopt unilateral policies in the attempt to meet their domestic difficulties, and to ignore the fact that their policies only aggravate the difficulties faced by other countries. Protective tariffs are an obvious illustration of that kind of policy, and they are, of course, open in addition to the objection that they tend to prevent that use of the world's resources which is calculated to maximize its production of commodities. The provisions of the International Trade Charter, apart from the commodity agreement side of the matter, are designed to minimize the use of these types of policy. They provide for a general lowering of tariffs. But at the same time they speak of the *elimination* of preferential tariffs. One detects here a certain disproportionate emphasis in these provisions, as between protective tariffs and preferences. Both of these things are open to the objections that I have outlined; they both interfere with the territorial division of labour, and both of them may be instanced as

types of action which assist one country only by causing difficulties to others. It seems to me, however, that they are essentially on the same footing. It does not seem to me that it is inherently more immoral to have a tariff combined with preferential arrangements than it is to have a purely protective tariff for the assistance of domestic producers. At any rate my personal feeling is that the acceptance by this country of the general principle of non-discrimination, as embodied in these proposed agreements, does rest on certain rather big assumptions. A great deal will depend on the extent of the general tariff reductions that are made. On that matter prolonged discussion has been going on, we are told, but it is impossible yet to judge its outcome. It may be that very considerable reductions of tariffs will be made which would make it well worth while to swallow the whole pill of non-discrimination. But they would have to be fairly big, I think, in order to offer any assurance that this country would be able to accept the policy without running itself into difficulties. The other big uncertainty is whether or not some solution will be found to the very pronounced condition of monetary disequilibrium which now exists. What is really required, it seems to me, in order to make these new principles practicable and free from risk, is a substantial and permanent change in the structure of the United States balance of payments. Whether that is likely to occur or not I cannot judge, but I should be most interested in anything that any of our American colleagues might have to say on it.

L. J. NORTON, *University of Illinois, U.S.A.*

I was very much interested this morning in Mr. Gilpin's discussion of the developments in connexion with the world trade charter. Mr. Conacher showed me a copy of the *Manchester Guardian*. In it I found this comment, which represents one point of view on the charter. Under the heading 'A World Trade Charter for Later Use' it says, in part:

'But final or not, the charter is a great achievement. It is certainly one in a physical sense for it runs to 193 pages and weighs a pound and a quarter. From one view the charter may seem a solid monument of economic liberalism, and from another it is like a fisherman's net, through whose skilfully designed meshes almost every illiberal, protectionist practice is deliberately permitted to slip. Even if to satisfy American susceptibility the Charter pronounces against preferences, it leaves loopholes for every practice of American and British agricultural protectionism. It makes the best of both worlds with a vengeance, and the American farm lobby can now be content.'

That is a British opinion on the I.T.O. Someone said that this paper has a certain bias which the Englishmen here will understand perhaps better than I do.

I was much impressed with Mr. Conacher's statement this morning that we were in for some difficult times, and what we were going to do was to make a choice, taking the least of several evils. Where does that leave us? I gather that many people would like to buy goods from the United States but have difficulty in finding the exchange with which to pay. And, of course, the United States has some surplus products which we would like to sell abroad, products which serve very useful purposes in connexion with nutritional and other requirements. These include wheat, lard, vegetable oils, cotton, tobacco, dried and fresh fruits, and canned milk. This list pretty nearly covers the agricultural products we would like to sell abroad in normal times.

I was impressed by a remark that Mr. Duckham, the present British agricultural attaché in America, made at a meeting in Chicago last winter. Someone asked him if he thought the United States would continue to export agricultural products. His answer was that when he came to Washington he was convinced, on the basis of studies of the historical trends in our exports, that we were going to drop out of the foreign markets, but that since he had been in the United States he had discovered that we had effected certain economies in real costs in some branches of our agriculture. So we would export, or be in a position to export, much larger quantities of agricultural products than in the period just before the war. American manufacturers also make various kinds of machinery and various other industrial products that the world seems to like to buy.

Now the basic question is: what can the United States take in exchange for these goods? It is a question either of taking goods or services or making loans if we continue to sell and the rest of the world continues to buy our goods. There is in the United States an organization known as the American Country Life Association. Dr. Ackerman, who is here, was president of that organization during the past year, which in June held a meeting at Dubuque, Iowa. He appointed a small committee to report on the interests of American farmers in world trade. This group drew up a very good statement. When the proceedings of that association are printed you will profit from reading it. Mr. Duncan Wall was secretary of the group; he was from our Department of Agriculture and is now Secretary of the F.A.O. Conference at Geneva. He proposed a classification of things which the United States would continue to import in considerable

volume. I am speaking now from memory, but at the top of the list he placed minerals, of which the United States is becoming increasingly short. We used up our minerals at a tremendous rate during the war. Why are we now in the Mid-Eastern oil business? I think it is because we recognize that we are not so far from the end of our own oil supplies. So there is a big market in the United States for almost any kind of minerals. Second he listed tropical and semi-tropical goods of a non-competitive character, including such things as bananas, coffee, tea, cocoa, silk. Then he listed tropical goods of a complementary or supplementary character, such as sugar, vegetable oils, and rubber. The latter, of course, we will take probably in smaller quantities than before the war because of the development of our synthetic rubber industry. Then he listed luxury and high-class goods of a great variety of sorts, which require the use of particular skills—for example, Scotch whisky and certain other liquors, high-grade pottery, many sorts of style goods, Dutch bulbs, special types of cheeses, and so forth. Although any one of these items may seem small, it may add up to a sizable amount in the American market with its big consuming population. He finally listed the directly competitive goods of which our supplies are inadequate, such as wool and hides. Those are some of the categories of goods which American people will buy from abroad in large quantities at this time, and for dollars. Of course, the volume which we will take will depend upon the state of trade in the United States. At the moment this is very active, and therefore we are excellent customers.

I should like also to point out that, while we have not had a general change in our Tariff Act since 1930, two things have happened to reduce its burden. First, under the Trade Agreement programme we have scaled down a certain number of duties, and second, for duties stated at a fixed rate per unit, the higher price level now makes the burden lower.

There have been developments in America in recent years which will reduce our imports for two specific products, silk and rubber. Silk was, of course, basic to the trade between Japan and the United States before the war; the development of synthetic nylon will undoubtedly reduce the quantity of silk we import. The same situation applies to rubber. But I personally believe that the various types of goods which we will import do add up, and will continue to add up, to very substantial sums of money.

I wish to comment briefly on the matter of loans. These fundamentally mean goods. Loans or capital investments may be of two

kinds. They may be made by governments, as loans, or they may be made by private industry, as capital investments. Anyone who surveys the magnitude of the capital problem involved in the rehabilitation of the world will, I think, rapidly come to the conclusion that it cannot be done solely by the loans which our Government can be induced to make, however large they may be. There must be some use of private capital as well. When I was in Denmark I talked with the manager of a bacon factory. The first question he asked me was: 'What about the Marshall plan?' I said that the Marshall plan depends primarily upon Europe. I cannot speak and do not pretend to speak for our Congress, I am merely an individual citizen, but my own judgement is that our Congress will continue to make appropriations for loans for two purposes: First, for direct relief. The American people are sufficiently sympathetic to authorize some appropriations for direct relief. The second is loans for genuine rehabilitation, the proceeds of which will largely go into building up capital equipment. And I think that central to the thinking of many Americans in that respect is the capital necessary to get the mines in the Ruhr in western Germany actually functioning so that Europe can begin to produce its own coal requirements. In connexion with private capital investments there is a question of political conditions. The basic question is: where are American businessmen going to invest capital in foreign countries in view of the high degree of political uncertainty?

Going back to our imports, I think the secular trend will be upwards, but the volume will vary with the state of our trade. We are in a period of inflation in the United States. Inflation is like a drink of whisky: 'It tastes better going down than it does coming up.' The American people seem to prefer to conduct their business on the basis of whisky rather than of tea, and so we have inflation. When this bubble bursts we shall have a depression. I am an optimist on this question. I do not believe that the readjustment, when it comes, will lead to a serious protracted depression in the United States. After the readjustment I think that we shall see a fairly long period of pretty stable business conditions in the United States. Deflation and depression are not in the picture in the immediate future. You had better not take my word for this, because I have a reputation of being an optimist, and I am sure that some of the other Americans here violently disagree.

In conclusion, instead of talking about long-run plans for the future, we need to get right down to cases, and analyse the specific products and situations where trade can be done and investment can

be made. If we do this intelligently and patiently and then lay out a course of practical action which lies within the limits of the realities of the situation we shall make progress.

J. F. DUNCAN, *late of the Scottish Farm Servants' Union.*

I feel it necessary to make an apology for coming to the rostrum to speak just now, because I propose to speak on the subject which was put down for to-day! The other apology I am going to make is that I am not a prophet, or the son of a prophet, and therefore I am not able to tell you what is going to happen either in this country or in any other country a week ahead. I think it better to make that qualification so that you may just understand the grounds on which I am speaking to you. And as this seems to have been the impenitents' form of the Conference, perhaps I had better make it clear to begin with that I am an impenitent Socialist. That in spite of the fact that we have a Socialist Government which has done some peculiar things which I can defend neither as a Socialist nor as an agriculturist.

The thing that always strikes me as strange at the Conference of Agricultural Economists is that we are prepared to discuss anything except economics. This question of the place of state buying and selling in free world trading is one that we might discuss from the point of view of economics. I said I was an impenitent Socialist. That means that I have never seen the value, or the virtue, of what is called the free market. No agriculturists ever have. Another very large section of the population never submitted to the free market—the people whom our American friends, with that quaint use of English they have, refer to as the under-privileged people, the working-class. Wage-earners never accepted the free market. They fought against it all along. They insisted on their market being regulated, and they had it regulated in every country in the world, perhaps later in the United States than elsewhere. Even there the position has been reached where it is recognized that the wages of workers should not be left to the decision of the free market. Collective bargaining is allowed, and even supplemented, by measures of the state to insist on putting a floor under wages to safeguard a large part of the population.

But what is the situation to-day in agriculture? I do not know of a single country in the world which is acting on the basis of a free market as far as agriculture is concerned. Every country has had to take measures of one kind or another to protect its agriculture from the free market. I do not recognize any essential difference between the methods adopted in the different countries, whether it is a tariff

with or without a preference, whether it is a quota system, whether it is subsidies to agriculture, whether it is price regulation, or whatever it may be: at any and every point these are interferences with the free market.

The subject we are discussing to-night is simply one of the methods which have been proposed for protecting agriculture from the impact of the market system. I happen to be rather interested in it because I was a member of the first committee which issued the proposal away back twenty-four years ago, and it was received then with great hilarity by the agriculturists of the time. It has become so respectable now that even our Conservative party have adopted it and turned it round to serve their ends. But what was the proposal of state buying? We were looking at it from the point of view of an importing country. We proposed that instead of leaving our agriculture open to all the forces that might bear upon it from the world, we should take steps to organize our buying so that we could produce some stability in agricultural prices. To prevent the booms and the slumps and the movement in prices, which affected us very severely. Remember the position we were in as a country. We were the largest market for agricultural produce. If in any part of the world there were surpluses which were seeking a market, it was our market that was open to them, as at that time we were working with an entirely free import market. The result was that there was no stability in the price, and I have yet to hear an economist who can suggest how you can farm on an unstable price. The difficulty that we are in is that ours is an exceedingly stable production, and any attempt to run an industry with stable production and without a stable price is heading for trouble the whole time. That is why so many various methods of protection are applied to agriculture. You heard how New Zealand looks at it from the point of view of state selling. In other countries efforts are being made to build up commodity schemes and international agreements which in their essence are agreements for stabilizing prices.

I think we all agree—if we do not agree, I do not know what we are doing with all our agricultural policies—that one of the objectives of an agricultural policy is to produce some stability in the price, and in that way give the farming community a basis upon which they can organize their business. That is an advantage. I think the opener in his paper stated that it is one of the advantages of a system of state buying and presumably of state selling too.

What are the economic dangers? Political dangers there are. There is the political danger that if a country is buying through some

national body it does become involved in political considerations, and political forces may operate to annul the economic objectives you are working towards. But is a tariff free from politics? Is a quota system free from politics? Is a subsidy system free from politics? Is state assistance for credit free from politics? Is there any single agricultural policy that we are trying out anywhere in the world that does not run the risk of political interferences? I do not see any more danger in state buying. It depends upon the system on which the state is working. If a state does use the buying of agricultural produce for political ends, is that an innate defect of state buying? Tariffs, subsidies, quotas, may be used in exactly the same way for political purposes. On the whole I think it is less dangerous than many of the systems of subsidies and quotas. It could be operated in a way that keeps it fairly clear of the political implications. We are accustomed in this country now to certain methods of state action in internal affairs under which we give the power, as for instance in our Mining Board, in the proposed organization for the transport industry, in electricity, and so on, to a public corporation, and the actual business is done, not by the politicians, but by the corporations set up by the state. On the whole we can claim that so far where that method is working in our country it has done so without state interference, and I see no reason why we could not have a public corporation doing the buying of our agricultural produce in the same way.

I was very interested this morning in Mr. Gilpin's discussion of the difficulties of international economic agreements. What is our difficulty in making international agreements? Time and again I have heard in this Conference and on other occasions that policies which are being adopted by certain countries may have awkward international repercussions. Now is that the fault of the policies or of the nations? Is it not due to this fact, that in any international economic plans we may make, whether under the F.A.O. or under the I.T.O., we are going to be dogged for a very considerable time to come by the inflated sense of the national sovereignty from which we all suffer? As long as that inflated sense of national sovereignty continues we shall have a continuance of the difficulty of arranging international policies, economically as well as politically, and we must just go on with our work under these circumstances. As far as the economist is concerned, he has got to adjust himself to that prevailing milieu. But surely if we have, as Mr. Gilpin pointed out to-day, the nations coming together to discuss the rules of trading you are again getting away from the free market. If the

states are going to lay down the rules it is not the market that is going to make the decisions. It is the states in conference. I suggest it is rather a contradictory position if you are prepared to allow the states to make rules, but you are not going to allow them to do the actual job. There is safety in the very fact of getting people together to discuss what they are proposing to do. We shall find it exceedingly difficult to come to any agreement which trespasses on that inflated sense of national sovereignty that we are all suffering from at the present time. We may get to the stage of agreeing to state what our national policies are going to be and how we propose to operate them. If we are realists we understand that we have to try to adjust the various difficulties in our international relations. I see less danger in the future if the nations are to meet to discuss the economic methods they are to pursue in any particular part of their affairs even though they cannot come to an agreement. I think it is a tremendous step in advance. How we have been acting up to the present is that each country has pursued its own ends. If it decided to put on a tariff, a quota, a subsidy, it did so entirely without discussion on the matter with other people who might be affected. Even if there is no agreement, there is something gained by making an attempt to come to a standard and there is something gained by getting the peoples to come together and lay down their proposals and discuss their policies in an international body of that kind. And there is greater safety for agriculture than under the free market system.

C. SAMUEL, *Tel-Aviv, Palestine.*

I do not propose to speak here on the principle of state buying in contrast to free trade. What I want to do is only to give you certain information on state buying in Palestine. I have two reasons for doing this. The first is that this information is not easily available, and the second that state buying in Palestine has always been connected with overseas allocations of food, the size of which has been determined by the peculiar conception of the Middle East as one single unit.

This conception was adopted in 1941 by the Middle East Supply Centre. The purpose was to cut down to the very minimum overseas shipments of food to the Middle East. This was then absolutely necessary because of the shortage of shipping space and the eventual losses of ships through enemy action.

The conception was built on the assumption that the demand countries in the Middle East area, among them Palestine and the Lebanon, would get the surpluses of the surrounding export countries. This was indeed the case as far as the surpluses were not needed for

the army or for some third countries dependent on them. But in a demand country like Palestine prices of food increased rapidly and by far more than prices of food brought from overseas.

To-day family expenditure on food is four times as large as in 1937–9, although the level of supplies is smaller by 5 per cent. if calculated in calories, and in spite of certain changes to cheaper foodstuffs: from butter to margarine, from meat to soft white cheese and other low-priced dairy produce.

No doubt the method of allocation of overseas food was fully justified during the war. But, at least with regard to Palestine, the maintenance of this system until now has prevented the otherwise possible reduction of food prices. This must have a serious effect on the further development of the country, unless a change is introduced soon.

I should like to explain this briefly. Palestine is allotted by the Emergency Food Council in Washington bread, cereals, oil-seeds, sugar, rice, and, on a very limited scale, certain dairy products. In the main, and notably with regard to cereals, the conception still prevails that only the 'deficiency' is being granted. This 'deficiency' is calculated after taking into account locally available supplies, i.e. supplies from Palestine and the Middle East countries. I shall illustrate this scheme with regard to bread supplies.

Until two years ago, in the autumn of 1945, Government alone purchased cereals for bread, which then consisted of overseas wheat, Middle East wheat, and Middle East barley, millet, or maize as an admixture. Standard flour and standard bread were rigidly controlled with regard to milling rates, percentage of admixture, and prices. The high cost of the flour was reduced by substantial subsidies. But nearly all the time the quality of the bread was rather low.

Since the autumn of 1945 Transjordan wheat and virtually all Palestine wheat has been decontrolled and could be used for the manufacture of white bread, rolls, and cakes. Prices of these uncontrolled foodstuffs have been far higher than that of the standard bread which since then has been an admixture of overseas wheat and Middle East fodder cereals. This standard bread has remained subsidized, but as a result of its low quality the consumption of bread and bread cereals has been based in a steadily increasing degree on the high-quality and high-priced uncontrolled bread.

It could be argued that this method might be considered as quite reasonable, because the poorer classes of the population could always purchase a cheap bread, whereas the other classes were quite free to buy what they liked. Neither standard bread nor any other bread

rolls are rationed. But in reality the whole scheme is linked with certain results, which are bound to be of a definite disadvantage to the Palestine economy as a whole.

The price-level prevailing on the free market for wheat determines the level also of the fodder cereals and all other feeding-stuffs. Feeding-stuffs form a heavy item in costs of production on intensive farms, so that prices of milk, dairy products, and eggs tend to be high. As long as bread prices are high—they are about double the prices of overseas wheat—there is no way of getting food prices reduced without a major crisis.

As food prices largely determine the level of wages and of all other forms of income, the prevailing allocation scheme delays the reduction of all price-levels in Palestine, and it must be considered as a serious obstacle in the re-incorporation of the country in the future world trade.

Oversea allocations should therefore be increased to such an extent that they control Middle East prices of food.

There remains one final issue. As long as food prices cannot be reduced, all investments in Palestine, as also in adjoining countries, will cost much more than otherwise.

I shall mention here only three major investment schemes, all of which would presumably be based on long-term dollar loans:

1. The Jordan Valley Authority.
2. The Iraq Irrigation Scheme.
3. The plan for a new oil pipe-line by American oil companies.

Eventually the purchasing power of the dollar in the Middle East will increase with lower food prices and wages, thus greatly facilitating investments.

EDGAR THOMAS, *University of Reading, England.*

The two points which I wish to make are by way of addition to what was stated this morning by Professor Nash and Mr. Holmes.

Professor Nash dealt fully with the factors which have been responsible for the changed position of this country and for our present dilemma. He emphasized particularly the influence of monetary factors, the loss of our overseas investments, and the upset caused by the two world wars. But there is one further factor which he did not mention and which I think is very important not only in explaining our short-term dilemma, but even more so in understanding the general trend of world trade as it affects this country as well as other industrialized countries. The factor I am referring to has been discussed already in a previous session of this

Conference. It is the general process of industrialization which is going on all over the world. Perhaps economists have been too ready to take the view that the industrialization of new countries is likely to increase the trade of the already industrialized countries. But the facts do not seem to bear out this point. Indeed, recent official and semi-official estimates show that the contrary has so far happened. The relevant facts are roughly as follows: Between 1913 and 1937 world production of manufactured goods increased by about 50 per cent., but world trade in manufactured goods did not increase at all. I think that is a very important point to bear in mind. It suggests that the general industrialization of the world which is in process is going to make it increasingly difficult for the older industrialized countries to find a world market for their manufactured products.

My second point arises from what Mr. Holmes said. I thought Mr. Holmes put up a very fair statement of the reasons which had led a producing country like New Zealand to adopt the method of state selling. So far in this discussion state selling has been considered mainly in terms of the advantages of stable prices. But I think it can be considered from another point of view. State trading is an attempt to project into world trade a business practice which is in very common use within all countries whether they are working the free-price system or not. It is the practice of producing to contract. There is no need here to elaborate the advantages of production to contract. But it does seem to me that if countries which are especially concerned with producing primary products for export are going to enjoy the benefits of production to contract, then some form of state buying and state selling is inevitable.

E. M. OJALA, *New Zealand Department of Agriculture.*

I want to give you a short account of some recent changes in the New Zealand state marketing system for dairy products. These changes have been proposed quite recently, have been accepted by the dairy industry in New Zealand, and are now, I understand, being made the subject of legislation. They are very interesting, I think. But before I deal with them I would like to give you a short outline of the New Zealand state marketing system for dairy products as it has existed up to the present time.

Mr. Holmes this morning reviewed the circumstances under which this system was developed, and mentioned the free competitive marketing which the New Zealand dairy farmers felt, rightly or wrongly, was prejudicial to the price which they received for their product in the London market. As early as 1926–7 the New Zealand

dairy producers made an experiment in the centralized marketing control of their produce in London. However, after a short experience they found themselves unable to make it really effective, so they relinquished that endeavour. But the idea of controlled marketing was clearly not new in 1935. In 1931, as you know, there was a price fall which occasioned a lot of distress among the New Zealand dairy farmers, and the instability of dairy prices was revealed as a major source of instability in the whole economy. So we had already then two advantages which in the minds of the producers of New Zealand—and not only the producers but also the leaders of the country—might possibly be gained from some control of marketing: first of all, marketing economies, and secondly, stability of the whole economy. In 1935, as was mentioned this morning, we obtained a Labour Government which was committed to a special interest in standards of living, and it added to these other two factors the question of standards of living of dairy farmers.

The result was in 1936 the passage of the Primary Products Marketing Act in New Zealand, which established the scheme of state marketing. A Marketing Department was set up in the Government to carry out this programme. I want to give you just one or two features of this set-up. The preamble to the Act began from this point, that 'it is essential in the public interest that producers of primary products should as far as possible be protected from the effects of fluctuations in market prices', and then the Government proposed to give this protection by acquiring the ownership of dairy produce for export, at prices to be fixed from time to time. The first part of the Act empowered the Government to do that. Then followed statements about prices. For the first year the price was to be related to the market realizations of the previous eight to ten years. In later years certain factors were to be taken into account as well as that market realization, and these factors included cost of production—'the cost involved in the efficient production of dairy produce', as the Act stated—and also the general standard of living of persons engaged in the dairy industry, in comparison with the general standard of living throughout New Zealand; other factors too. Then it said in the Act, due regard having been paid to these matters, the prices fixed for dairy produce . . . would be such that 'any efficient dairy producer under usual conditions, and in normal circumstances should be assured of a sufficient net return from his business to enable him to maintain himself and his family in a reasonable state of comfort'. There was the definition to guide those who would be engaged in recommending

the price. The Government proposed to set up guaranteed price committees from year to year, which would recommend the price in each season. They were not to fix it. That was in the hands of the Minister of Marketing. They were to recommend the price in accordance with these terms of reference. With regard to the cost of production, the working and maintenance expenses on dairy farms were arrived at by various methods including surveys. It was well recognized, of course, that there was a wide range in cost of production, and standards of labour efficiency were laid down from the beginning. It is not necessary for me to go into these, I think, except to say that the standard for butterfat production was set at 6,000 lb. of butterfat per adult male labour unit. So it was possible to work out the labour cost with this standard of efficiency. Certain rules were adopted to find the capitalization charge. In this way we finally arrived at the average cost of producing butterfat on the farm. Information was available as to the cost of manufacturing butter and cheese, and so it was possible to work out a price which the Government would pay f.o.b. New Zealand for produce for export.

The Government set up also a dairy industry account in the Central Bank and the idea was this, that despite fluctuations in the market realizations of the produce, the guaranteed price paid to dairy farmers in New Zealand would be stable. In periods when the market price was above the guaranteed price in New Zealand, credits would be built up in the dairy industry account which would be used when market realizations were below the guaranteed price to maintain the latter price. So we see the plan for stability that was inherent in the Act. The Government purchased the produce when it went into store in New Zealand for shipment and then sold the produce to licensed agents in London who were merchants normally engaged in dairy produce importing.

What were the developments? Market realizations were slightly below the guaranteed price for a while. Then they began to rise and a small surplus accumulated in the dairy industry account. Thus the farmers were able to say very shortly after the operation of this scheme that they were not receiving the full value for their produce and that far from the Government protecting their standards of living they were in fact suffering. So that after some time some of these surpluses were paid to the farmers at the end of the season in the form of a bonus. That rather weakened the stability aspect of the scheme.

During war-time the scheme merged very easily into the intergovernmental arrangements for the disposal of New Zealand produce. The stabilization policy in New Zealand was applied in

1942–3 to the guaranteed price for dairy produce which was stabilized at the current level for several years. Later on allowances were made because of increases in production and processing costs and also for rises in wages. Since the war we have operated under a United Kingdom guarantee to purchase the whole exportable surplus of New Zealand dairy produce until 1951 at prices to be fixed annually.

The present proposals make one or two very interesting and I think important changes. First of all there is a proposal to set up a New Zealand Dairy Commission consisting of seven members, three appointed by the Government and three others appointed by the Government from six representatives nominated by the dairy industry, and a chairman appointed by the Government. The functions of this Dairy Commission will be twofold: (*a*) to determine the guaranteed price. That is quite a marked change in policy because the price has been fixed in the past by the Government, by the Minister of Marketing. He has had prices recommended to him, but he has been free to accept them or not and he has in fact fixed the price. Now we have a Dairy Commission which determines the guaranteed price. (*b*) The second function is to administer the marketing of the dairy produce. The purchase of the produce in New Zealand, its handling, pooling, transport, storage, shipment, insurance, and sale, locally and overseas, will be responsibilities of the proposed new Commission.

I should like to summarize the important features of this proposed change. First of all I emphasize again that the Commission is understood to fix the price, with no arbitration. The Commission's decision will be final, and further than that the Commission's price will be guaranteed by the Government. Also there is a new item appearing in the terms of reference in fixing the price, namely, the general economic stability of New Zealand. This is to be considered by the Dairy Commission. The Dairy Industry Account is to be transferred to the custody of the Commission, also the Stabilization Account, which includes some dairy surpluses. The Commission will make an annual report to Parliament.

Government control has not been entirely relinquished, and it remains in several respects. Thus, as I have already mentioned, the Government appoints its three members of the Commission; it also has the final appointment from the six nominees made by the industry, and has the casting vote of the chairman. Further, it is proposed that if the Dairy Industry Account is in debit—that is to say, that more has been paid to the farmers in New Zealand than their produce has realized—or if there is a prospect of a deficit

developing in the ensuing season, then the Commission must consult the Minister before fixing a price. A third point: it is proposed that in the exercise of its functions, except in relation to the fixing of the price, the Commission shall comply with the general trade policy of the Government and with any general and specific direction issued by the Minister.

The industry has accepted these proposals, and in published statements industry leaders have said that they regard this not as a fifty-fifty arrangement but as a full joint effort between the industry and the Government. I am not a prophet and I do not propose to say exactly what the future will be, but these changes do seem to meet certain wishes which the dairy farmers have voiced for some considerable time. It now seems unlikely that a change of government would result in any basic changes in the new programme. So it appears that New Zealand will continue to have national selling if not state selling of her butter and cheese exports.

I should just like to comment very briefly on one aspect of state trading which can be illustrated from the United Kingdom dairy imports. Mr. Holmes mentioned this morning the differential prices which are paid by the United Kingdom for her supplies, and it seems to me that this multiple price-level is likely to be a feature of a good deal of state trading. Suppose, for instance, that freedom of individual importers was restored in the butter market of the United Kingdom, where would the price stabilize? If the whole of the production is required, then the price would stabilize nearer to the Danish level than to the New Zealand level. This illustrates the advantage to the United Kingdom consumer of the system of state purchase with multiple prices. The other side to this, as Mr. Holmes also mentioned this morning, is that the New Zealand dairy producer is not receiving the price for his produce which other producers are getting. However, I would like to ask a question in relation to this. Is it really economically a bad thing for New Zealand to be revealed as a low-cost producer? The fact that New Zealand can undersell other producers is an index of her efficiency in this kind of production. Also the New Zealand producer has the advantage that his market is assured—he has already sold his 1951 production. This degree of economic security is of great importance.

J. R. RAEBURN, *Agricultural Economics Research Institute, Oxford, England.*

I just want to make two points very briefly.

A few months ago I had occasion to try to obtain index numbers

of prices received by farmers in certain countries. The most comparable figures available were as follows:

Prices of Farm Products in Terms of English Sterling Currency, Spring 1947

	1926–8 = 100
U.S.A.	228
United Kingdom . .	189
Denmark. . . .	166
Canada	138

For Australia and New Zealand the indices might be about 110, if full allowance were made for various subsidy schemes. These figures clearly suggest that disparity of farm price-levels has developed under state trading and control. Directly and indirectly this disparity seriously affects international economic relations. If we are to have again that 'round' world to which Mr. Conacher referred this morning, this disparity must be corrected.

The second point is this. There is too much expectation in the Western World that prices to farmers can be kept high and stable if, under some World Food Board or various inter-government commodity agreements, large quantities of produce are put on to Asiatic markets. But Asiatic governments would probably not for long accept such produce because there is every likelihood that, in practice, the tonnages would be so irregular from year to year as to cause serious instabilities in the cash farm incomes of the more accessible parts of countries such as India and China. And this would be at a stage in their development when their industrialization will require a reasonably stable economic environment.

W. HARWOOD LONG, *University of Leeds, England.*

I feel particularly diffident in joining in the discussion of this paper because it is one on which I cannot speak with authority, and there is always the danger that in such circumstances one is only successful in exposing one's ignorance. At the same time there are one or two points which, it seems to me, are germane to this general subject and which have not been touched upon in the discussion. I would like to mention them in the hope that someone more qualified to speak on them than I am may later on discuss them more thoroughly.

It seems to me that any discussion of state buying and selling should take into consideration other different lines of set-up of producers' or consumers' buying and selling agencies. I have in mind

that an organization already exists of a World Federation of Agricultural Producers. It seems to me that if such a federation were to become really effective, any state buying and selling schemes would have to take such an agency very carefully into consideration. Moreover I think that in such a commodity as foodstuffs, of which there is so much inelasticity both in supply and demand, the possible effect on supplies and prices might be very great indeed.

One other point I would like to mention is that a state in buying or selling produce has the power not only to act as an agent or as a monopolist or monopsonist but is also able to take as much profit as it likes out of the transaction before it passes on the results to its own people as producers or consumers. I have in mind such a state of affairs as, I believe I am correct in saying, the recent agreement in meat with the Argentine, where the price which this Government has agreed to pay to the Argentine Government is a high one, and one which might, in normal circumstances, be expected to encourage production of meat in the producing country. In actual fact, I understand, the Argentine Government intends to keep a big proportion of the price for its own coffers and to pass on to its own producers a relatively small proportion—one which will be much less likely to increase beef production than would be expected if the whole price had been passed on to them. Where a state has a monopoly either of buying or selling or trading, there are big possibilities for abuses of this nature.

At the outbreak of war, the Government of this country increased the price of postage stamps from 1½*d.* to 2½*d.* overnight. Whatever may have been the reasons for that, it is certainly not true that at the time such a big percentage increase in the costs of running the G.P.O. had occurred. And yet the user of the G.P.O. had to pay that price whether he wished or not, and any state is in the position of making such a profit on a transaction of that sort without the consumer having any redress at all. This state of affairs cannot be regarded as healthy, and it is one which I feel should be carefully considered in the whole subject of state buying and selling.

A. C. Gilpin, *Trade Secretariat, U.N.O., Geneva.*

A few points have been raised on which I would specially like to comment. Firstly, I think I should have made it clearer in what I said this morning that I was only dealing with one limited section of the Draft Charter of the I.T.O. But since you have heard that it weighs a pound and a quarter and contains some 190 pages, perhaps that is clear enough. Secondly, it was suggested in the discussion that these

provisions for commodity agreements are looking too much to the past and to the problems of surpluses that have existed in the past. I do not think that is absolutely true. The Draft Charter does provide for an entirely new type of agreement—an agreement to expand production and consumption on the lines envisaged by F.A.O. I admit, however, that this section of the Charter is mainly concerned with preventing the misuse of the controls which may be necessary. I do not admit that surpluses are entirely theoretical at the present time. There is already a surplus of wool, a threatened surplus of rubber, and it will not be many years before a number of other commodities will be in a similar situation. Regarding the *Manchester Guardian* quotation about loopholes and escape clauses, I think what the *Manchester Guardian* overlooks is the fact of I.T.O. control over the use of these escape clauses. In general it will be for the I.T.O. to decide if circumstances justify their use. In this way, the escape clauses, to which the *Manchester Guardian* takes exception, may make possible a gradual approach to the full application of the basic principles of the Charter, which even the *Manchester Guardian* would hardly claim to be possible here and now. Then on state trading I feel there has been an extremely illuminating discussion, which suggests one pointer, namely, that state trading is more suitable for transactions in primary commodities than in manufactured goods. In what I said this morning about political implications and the dangers to small countries, I had particularly in mind small countries, exporting manufactured goods, whose economies have got closely tied up with larger countries. There I still feel there is a danger. Finally, one speaker touched on the problem of what the United States *can* import and will *want* to import. I think that is a very real problem, because the possibilities are limited. I can only suggest one major import which has not been mentioned to-night, and that is the import of leisure—not the enforced leisure of unemployment, but the voluntary leisure of shorter hours, and with it a higher standard of living. That, in the long run, I believe is the only solution to the United States' problem of how to act as a great creditor.

O. B. JESNESS, *University of Minnesota, U.S.A.*

When Mr. Gilpin said he thought of one additional export, namely, 'leisure', what I thought he was going to say was that if we will develop more expeditions of Americans of the type you have in your midst at the present time it will constitute an additional form of import on the part of the United States. I wish he had said that, but the implication of his statement was that exporting leisure means

easing up on production. This involves an economic fallacy that we can improve our levels of living by producing less. We cannot. If we try to solve some of our export difficulties by substituting more leisure for production, it will be at the expense of material levels of living. I hope that any exporting of leisure that we may make will result from more efficient production rather than through less production and that it will be in the nature of additions to foreign travel for our own enlightenment.

H. DEGRAFF, *Cornell University, U.S.A.*

First, looking at John Raeburn's index numbers of changes in agricultural prices in various countries, we seem to find a goat among the sheep. Or could it be a sheep among goats? It is a little over a year since price controls were discontinued in the United States, and in these recent months our farm-produce prices have certainly gone up. Perhaps the increase has been in part an offset to the producer subsidies previously paid as a stimulus to production. But the total increase has been considerably more than merely a subsidy offset. Primarily, it seems to me, United States farm-produce prices are now a reflection of the free-market situation in a world short of food.

Because of high consumer purchasing power we have had an unprecedented demand for food in the home market. U.S. farm production has met that demand and in addition has made food available for export in volume close to 10 per cent. of our total output. Whatever else anyone may feel or wish to say about the current level of farm prices in the States, they are indisputably a stimulus to production. Without those prices I doubt if the rest of the world would be coming to the States and buying food. Before the war—and throughout the inter-war period—the United States was on a net food import basis. And as Dr. Johnson pointed out the other day, it has not been good weather that has made anything like the total war-time increase in our farm production. More significant in the increase has been farmers applying more fertilizer and applying more machinery and applying a great deal of diligence—and certainly not searching for shorter work-weeks and more leisure. I think it is worth while to point out that, at the prices reflected up there on the blackboard for farm products in the United States, the rest of the world has been getting some food from the States that at pre-war production levels they would not have been able to get.

One thing our farmers understand and respond to is price. Quotas, goals, public needs, or whatever other stimulus to produc-

tion, carries weight when an attractive price tag is tied to the appeal. Is not that precisely what Britain is now recognizing with the recently announced schedules of guaranteed prices? And is there not some real possibility that a food-short world could most quickly return to good eating if there was less bemusement with controlled low prices and more willingness to pay for production? A low price for an unavailable product is only a theoretical price for theoretical food. It will satisfy only theoretical hunger.

Another point has been running through to-day's discussion which bothers me considerably. It was introduced when, in his discussion, Mr. Gilpin referred to export subsidies. I understood him to say that under provisions of the Draft Charter of I.T.O., export subsidies may be brought into use by exporting nations when such use is approved by I.T.O.

What are export subsidies, when used by an exporting country, except the external reflection of internal policies to keep prices high? And have we, in our discussion of the needs of the agricultural community, given adequate consideration to the position of consumers in matters of purely domestic agricultural policy? In no country, importer or exporter, does agriculture function in an undiluted agricultural environment.

I believe I have detected in our discussion a prevalent idea that, after the period of reconstruction, all exporting countries will be looking to state-trading schemes to give buoyance to their domestic prices. Perhaps so, but will not consumer groups come to recognize such policy as scarcity economics in its impact upon their domestic markets? And varying only with their freedom of expression and political strength, may not such consumers stand in opposition to agricultural policy incorporating any such scheme? At least in the United States—currently an exporting country—it is almost probable such a policy impasse would develop. For nearly a decade before the war our farm programmes featured a good deal of scarcity policy, and no economic genius was required to detect growing consumer resentment against it.

Farmers in the United States are a minority. There is about one commercial farmer to five labour-union members. It is an impossible political situation if any real showdown should develop between food-producing and food-consuming interests. Our farmers must learn to operate as a minority (obviously on a high plane of statesmanship) or stand to be politically out-manœuvred if they promote policies too much at variance with majority interests.

Perhaps that situation is more true in the States than in most other

food-exporting countries. But there are few indeed of major food exporters where agricultural interests are a strong majority.

In a disrupted world we, as agricultural economists, are being called into high council. Are we recognizing that while our major interest is in agriculture the farm groups we serve are intimately tied to non-farm economics? There is danger that agricultural economists may suggest and promote policies for agriculture not knowing all the results to which such policies may lead if adopted. Other economic specialists, in industry, in commerce, in labour relations, &c., are prone to the same errors. It is an implicit risk that lies in high level economic planning for national and international action programmes.

THE HUMAN SATISFACTIONS OF RURAL WORK AND RURAL LIVING

OPENING ADDRESS

A. W. ASHBY

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THERE are many aspects of human satisfactions and dissatisfactions in rural work and living. All that can be done in the opening of this discussion is to offer brief notes on some of them.

In the first instance it is necessary to draw attention to the terms used. In respect of population 'agricultural' and 'rural' may be taken as synonymous terms, but under some circumstances they are not. Many agriculturists live in 'open country', i.e. in scattered forms of settlement, others live in smaller and larger villages, and still others live in large concentrated villages which in some circumstances would be called towns, and a few live in towns. On the other hand, many members of rural communities, and in some cases a majority, are not directly engaged in agriculture.

So it appears that at some points we may discuss the levels of satisfactions of persons engaged in agriculture and at others those of people living in rural communities. As regards agriculturists, we may discuss levels of satisfactions arising directly from the occupation itself and its rewards, and those arising from the modes and conditions of social living associated with the occupation.

As regards satisfactions, it seems necessary to say that there are none, except possibly those of hunger and of the desire to live, which approach universal requirement. Looking round societies at large, it is possible to find individuals, families, and groups who do not express need of satisfactions which others think and feel are either indispensable or important. Beyond the bare physiological minima, needs are largely determined by social inheritance, by environment, by individual and group contacts, by education, and by some causes of personal development in individuals.

The most common needs are:

1. Satisfaction of hunger.
2. Nutrition for optimum physical development and expectation of life.
3. Shelter and provisions for hygiene, for health, physical capacity, and comfort.

4. Clothing for protection and comfort.
5. Opportunity for sex and family associations.
6. Material and opportunity for personal development, for aesthetic expression, and for display.

Another common need is of opportunity for development and expression of individuality. But it is said that a common psychological need of man in society is of a known and predictable environment in which he can function. This, however, can be expressed in another form, namely, the need of a *favourable* environment in which to function, in which case it becomes obvious that any one psychological and social environment will not be equally favourable to all individuals.

In respect of the listed needs, it should be said that although they indicate mainly supplies of materials they also include supplies of services. And in the later part of the list they require leisure, i.e. freedom from gainful occupation.

As regards the levels of satisfaction in agricultural occupation as such, perhaps one of the most important conditions is that of mode of recruitment to the industry. In general, over the world at large, recruitment occurs mainly by social inheritance—by son following father or other near relative and by daughters of agricultural families participating in the establishment of others. The proportion of farmers and of agricultural workers directly recruited by social inheritance varies with different countries, and often with localities, and sometimes with types of farming within countries, but everywhere it appears to be a majority and often it is a heavily preponderating majority.

In a changing world, with expanding occupational and social opportunities, it would not be expected that this condition of inheritance of occupation would tend in the direction of high levels of general satisfaction. But the frequency of dissatisfaction and the actual occurrence of misery arising from this condition are not sufficiently recognized. There are many 'round pegs in square holes' and many 'square pegs in round ones' in the industry, and they are not only personally uncomfortable, they create discomfort for families and communities.

In order to approach the optimum of human satisfactions in agricultural occupations it is necessary to remove the barriers which hinder mobility out of the industry on the part of some of those born into it and pressed to it at an early age, and those which hinder mobility into the industry on the part of persons born in association with other occupations, possibly in other environments, who wish

to enter it. Looking round agriculture at large it seems desirable to list some special types of recruits or settlers.

1. Recruits by more or less free choice of occupation—sometimes as wage-earners, sometimes as 'apprentices' or learners, and sometimes as farmers or occupying cultivators.
2. Recruits *returning* to agriculture from other occupations—largely middle-aged persons—with adolescent experience of agriculture and subsequent experience of another occupation.
3. Adult misfits from other occupations, often with some capital, seeking the small specialized farm, or the pursuit of a special interest; but also the same type merely seeking means of subsistence.
4. Recruits for a 'fancy', with other sources of income.
5. Casual workers of many types.

It is not proposed to deal here with the material rewards of agricultural occupations in relation to levels of satisfaction. Conditions are extremely varied, but the general impression from extensive study of records and literature is that on the whole the satisfaction given by economic rewards is low and frequently, of course, deplorably low.

There is, however, one point to which attention must be drawn. Under-employment is rampant in agriculture and rural communities in many parts of the world. In India and south-east Europe, for instance, there are millions of under-employed agriculturists suffering poverty, sometimes absolute, sometimes relative, but always suffering deprivations which better technologies, more adequate capital, fuller employment of human capacities, should remove. Waste of labour is characteristic of poor agricultural peoples, not only of backward countries but also of some communities in 'advanced' countries.

It is, unfortunately, necessary to admit that some of the deprived agricultural peoples suffer deprivation as the result of their own activities or choices; they suffer from high birth-rates with declining mortality rates causing increase in population relative to resources; they suffer from fixation of habit and custom in respect of food production and consumption; they suffer materially from some elements in their religions or superstitions; they suffer from some customs and traditions which inhibit or restrict economic effort, and they suffer from indolence and lack of enterprise.

As regards the levels of satisfactions in rural living, i.e. living in rural communities, conditions are somewhat different. Rural populations may be maintained, even increased, while agricultural populations, or the *proportions* of people engaged in agriculture, are declining. The satisfactions of living in rural communities for their

members in general may be rising while satisfactions with conditions or rewards of work in agriculture itself are static or possibly declining.

There is a tendency amongst some agriculturists, journalists, littérateurs, and politicians, to glorify rural living. On the contrary, it must be obvious that this appreciation has not been common in mankind. One or two quotations will show some points of view. Thomas Sharp (*Town and Countryside*, p. 135) says:

'Man first created towns that he might, through them, obtain the comforts of the society of his fellows, and the benefits of their co-operation in his struggle with the blind forces of nature. When he built his first town he was definitely emerging from barbarism, was on the road to civilisation. It is true to say that civilisation began with the city. And it is true to say that the city developed with civilisation. So that as man becomes more and more civilised he builds his towns more and more in the image of his increasing or decreasing power and dignity, until eventually they become the outward measure of his civilisation.'

W. E. Lecky said:

'The question which of the two spheres of existence (town or country) is most conducive to the happiness and the morality of mankind will, no doubt, always be contested; but the fact that they produce[1] entirely different intellectual tendencies, both in religion and politics, will scarcely be disputed.

'The country is always the representative of stability, immobility and reaction. The towns are the representatives of progress, innovation, and revolution. . . .

'The inhabitants of the country . . . are extremely tenacious of the customs of religions that have elsewhere passed away . . . and are specially addicted to that aspect of those religions which is most opposed to the spirit of rationalism. . . . Superstitions still linger with the poor; while even the educated are distinguished for the retrospective character of their minds and for their extreme antipathy to innovation.'

'The general character of great towns, especially of manufacturing towns, is entirely different. . . . There is intellectual stimulus of association.

'Certain it is that neither the virtues nor vices of great towns take the form of reaction in politics or of superstition in religion. The past rests lightly, often too lightly, upon them. Novelty is welcomed, progress is eagerly pursued. Vague traditions are keenly criticised, old doctrines are disintegrated and moulded afresh by individual judgement.'[2]

Unfortunately it is difficult to find a concise expression of the specific satisfactions of rural living or of living in rural communities.[3]

[1] We would now say 'have produced'. Read past tense throughout.

[2] Lecky, *Rise and Influence of Rationalism in Europe*, vol. ii, ch. 6, p. 339.

[3] A useful analysis of differences between urban and rural groups and modes of living will be found in D. Glass, *The Town*.

But everyone is aware of many of the assumed satisfactions of living in rural communities; of their assumed virtues; and of a somewhat common fear of urbanization. There is, however, an element of contradiction in much of the thought on primary rural groups and their values. For instance, it is said that primary groups develop individuality, self-reliance, democracy, and that weakening the primary groups will weaken these qualities. But at the same time it is said that it is necessary to take action to strengthen these groups in order to conserve these qualities. Obviously if they were now capable of developing individuality and self-reliance it would not be necessary to take action to conserve the groups and their qualities. Or, if they were once capable of producing these qualities, they are no longer capable of doing so when external assistance is required. Similarly we are told that rural primary groups show high survival value in individuals; that their members show high vitality; yet we are told that it is necessary to take action to conserve the high survival values of these groups. Frequently we are told of the necessity of raising their nutritional and health status.

Perhaps it may be said that the general level of satisfaction of a *group* in rural living will depend largely on:

1. The sources of its members, with their influence on the desires and aims of individuals.
2. The general social and political environment and its degree of harmony with the needs, desires, and aims of the group.
3. The standard of technical success reached by the group, and the consequent potential economic success.
4. The establishment and maintenance of efficient commercial organization for marketing and for supply of group services.
5. The conversion of the technical, economic, and commercial success into social success by the establishment of harmonious and efficient social processes and agencies for education, entertainment, religion, &c.
6. The 'interferences' with the group needs, aims, standards by industrial developments, and the economic and social changes which they may bring.

While the 'interferences' mentioned imply that somewhat static conditions are necessary or acceptable, it must be said that some of them are often welcomed. In any case it is necessary to recognize that conditions of agricultural and rural living have undergone and are undergoing very rapid change in many parts of the world.

It has been said that 'to-morrow's rural life will be radically different from to-day's'.[1] Because of

1. Changes in facilities for transport and communications and desires of the rural population to make as full use of them as their economic resources allow.
2. The penetration of industries and their associated populations into rural areas, and the penetration of non-agricultural families for residential purposes.
3. Changes in agricultural techniques and equipment; the general rising level of requirement of technical knowledge and skill and increasing mechanization.

Again:

'On the social side the town is extending the range of influence of its culture and attitudes. Wireless broadcasts, national newspapers, even though they are modified to suit the special interests of rural population, and perhaps above all the cheaper and more rapid means of transport which enable country folk to visit the towns relatively frequently . . . are destroying the differences in attitudes and interests between town and country. The immediate effect may be to crush independent rural culture, but this is the result of the way they are used, or of the lack of countervailing action. . . . There is no fundamental reason why the rural parts of the world should not continue to make their special contributions to the cultural field even if those contributions are very different from what they have been in the past.'[2]

It should never be forgotten by agricultural economists and rural sociologists that changes in agricultural methods and equipment, and a rising standard of living in rural areas, themselves cause serious modifications in the structure of rural populations and societies. Without any specific penetration by groups of industrial producers or of residential non-agriculturists, each degree of change from subsistence to commercial farming; each degree of change and improvement in technical methods and equipment; each increase in the ratio of capital to manual labour in agricultural production, brings a greater proportion of local people not directly engaged in agriculture, i.e. not directly dealing with land, crops, and livestock. With these changes more traders, more mechanics, more workers in transport and communications, more workers in the 'service' occupations and professions become members of rural societies.

'Every increase in agricultural productivity helps to increase the possibility of urbanism, while at the same time the breakdown of the

[1] Anderson, *Rural Sociology*, vol. xi, No. 2, p. 120.
[2] D. Glass, *The Town*, pp. 128–9.

barriers against trade, whether those barriers are natural or artificial, helps in the same direction.'[1]

While it may not be possible to indicate exact proportions in the primary agricultural group and in the total of the secondary service groups at different stages of agricultural and rural civilization, it may be said that these proportions will fall from 90: 10 at a low stage to 40: 60 at a stage at which agriculture itself has been mainly commercialized and most of the 'home' services have been commercialized and where there is still no specific industrial or residential penetration.[2]

The general trend of changes in rural population due to transport and communications, and to modern methods and standards of education, is often described as 'urbanization'. Two social groups, two modes of living, one rural and the other urban, are distinguished. Sometimes one group and its mode of living have been idealized, glorified, sometimes the other. The general, though not universal, tendency amongst rural sociologists has been towards idealizing, glorifying, the rural groups and their modes of living. The process of 'urbanization' is often supposed to represent a decline, if not a degradation.

The process conveniently dubbed as 'urbanization' deserves more psychological and sociological analysis, accurate description, and measurement than it commonly receives. In some forms and degrees the process of mixing occupations, of mixing people from different occupational, geographical, and social environments is an inevitable result of agricultural progress and of economic change and progress in rural areas. Without any special, directly purposive penetrations by industrial or urban groups, the process of mixing people with different occupational experiences, different outlooks, different modes of living, will still occur. This natural process will always be somewhat gradual, never catastrophic or even radical.

With a gradual change in the structure of a population there is opportunity for cross-currents of social ideas, outlooks, and aims between the primary agricultural group and the secondary trading and service groups. If there are conflicts, they will be mainly regarding specific interests and issues. They will not usually be of radical

[1] D. Glass, *The Town*, p. 4.

[2] The proportion of agriculturists in the total of occupied persons in administrative counties in England and Wales varies from 2 to 40 per cent. The areas in which the highest proportions occur are materially poor. Administrative counties with high proportions of agriculturists have low rateable values (low values for local taxation), and low revenues, and consequently are unable to provide standard social services without external aid. The optimum proportion in England and Wales, so far as is ascertainable, runs round 22–5 per cent.

social character. The primary and the secondary groups will still be 'neighbours' with considerable measures of common interests and aims.

It appears that the concepts of rural and urban groups and modes of living have passed the era of utility in some national communities. Doubtless there are and will be differences between the two; doubtless there may be strains and even conflicts between them, but such strains and conflicts as occur may be of temporary and economic rather than of fundamental social character.

It would be useful if rural sociologists would begin to think in terms of a common cultural inheritance, common material standards of living (at least of minimum character), common minima of fundamental human satisfactions, as between those groups who must live in the primary agricultural and rural environments and those who are compelled or choose to live in the industrial or urban environments of their national communities.

Most agricultural economists will agree with the necessity or desirability of equalization of economic rewards of activities in agriculture and in other industries in general. Most of their efforts have been directed to assisting farmers to increase their incomes in productive processes or to securing adjustments in commercial operations which will ensure to them fair proportions of the final values of their products. Some agricultural economists have occasionally given up hope of success and have fallen back on the support of ideas of the non-material satisfactions in farm work and living.[1] But this is only a procedure of failure and despair. Many agriculturists, to say the least, and probably most, will not accept any suggestion that equalization of rewards is either impossible or undesirable. On the contrary, the general aim of farmers, and particularly of their economic organizations, is to secure it. On any approach to equalization of economic rewards and consumable income in agriculture and other industries there seems likely to be an approach to equal standards of living even if in somewhat different modes. But, in any case, approach to equalization of real incomes as between agricultural and industrial groups will increase the non-agricultural proportions of population in rural communities.

In a number of industrialized countries there seems little hope of permanent cultural and social segregation of rural and urban groups and of their social outlooks and standards. And everywhere the tendency of modern communications and their effects on thoughts,

[1] 'Most lovers of peasants think more highly of other people's poverty than do those most directly concerned.'

outlooks, and standards will be that of breaking down the barriers between the two groups. Those countries which endeavour to maintain such segregation as exists seem likely to suffer economically and politically as a result.[1]

Agricultural scientists and agriculturists who promote changes in the techniques and equipment of agriculture, particularly those involving use of more purchased requisites and more sale and processing of products, themselves tend to promote mixtures of agricultural and non-agricultural families in rural communities. The success of their efforts often involves the development of mentalities more closely akin to the urban than to what have been regarded as the characteristic rural types. And, as already stated, agricultural economists have been involved in processes which lead, almost inevitably, to some degree of amalgamation of rural and urban modes and standards of living. Their work also leads to the development of types of mentality somewhat different from the characteristic rural and approaching an urban or at least a common type.

On these grounds it seems highly desirable that the agencies concerned with rural development, and particularly those concerned with the advancement of rural sociology and rural social services, should consider what is necessary to enable rural groups to enjoy the full benefits of common cultural inheritances and common achievements in material civilization in the various national communities. The processes of adaptation, of amalgamation, and of cultures need not be those of 'urbanization'. In a general build-up there should be cross-currents, cross-fertilizations of ideas, values, and standards. And modern methods of publicity and propaganda have been showing that it is at least possible to induce urban populations to attach higher values to agriculture and agricultural modes of living than they accorded them in the past.

But the processes of adaptation and amalgamation of cultures and modes of living and expression, frequently and under modern conditions somewhat incorrectly called urbanization, are often depicted as suppressive of rural cultures and values. They are so regarded by some rural sociologists, by a number of the thoughtful, though perhaps nostalgic, of the middle-aged persons in the societies affected. Obviously they are not so regarded by the individuals who follow and accept them. On the contrary many of these individuals welcome changes as offering releases and opportunities. And no one is entitled to say that *ipso facto* the aims and outlooks of those individuals are generally bad or socially undesirable.

[1] There is some evidence to this effect as regards France.

It is said that in these processes of adaptation and amalgamation the urban mentality will submerge the rural and push it into a position of subordination, particularly perhaps as regards education, religion, and rural government.

As regards education, it must be said that this should be the chief formal agency for laying down the foundations of a common culture and that the need of many rural societies is of a broader type and a higher standard of formal education than they have enjoyed in the past. While during this century many efforts have been directed to 'ruralizing' education for rural areas, a more recent tendency towards providing a broader type designed to provide opportunities for agricultural and general training may be discerned. When 'rural' populations are no more than 50 or at most 60 per cent. 'agricultural', as is frequently the case, and often the population of non-agricultural families constitutes more than half of the total, it is obvious that rural education must do more than prepare scholars for efficient work in agriculture. Indeed, it should begin the process of preparing scholars for a life in a general community and of co-ordinating agricultural and non-agricultural vocational needs, and take a full part in co-ordinating rural and urban cultures—or, better still, in laying the foundations of a sound culture in the general community.

If religious observance and appreciation be regarded as characteristic of rural societies (the assumption is often stronger than the evidence), it would appear to be a result of living in small communities and in some degree of isolation from the currents of thought in the general community. There is also a suggestion, for which there is little supporting evidence, that it is a result of living in close daily contact with natural forces. But it appears that general social forces are likely to weaken religious organizations and observances in rural societies, in spite of the strength of convention and custom therein, unless the roots of religion lie much deeper in personal education and conviction. If the future of religion and religious organizations depends on rural societies and their relative isolation alone, the outlook cannot be bright. But, indeed, if religious faith and observance are necessary to the welfare of a community no one can be satisfied with their continuation mainly in rural societies; they should become part of the common culture of the whole community. Practical conditions are extremely variable. In some areas religious organizations have fostered and assisted agricultural and rural progress. In others they have been concerned to maintain customary systems, and to 'ruralize' with effects which have been undesirable from the points of view of both the rural and general communities concerned. There

is no inevitable association between adaptation of rural communities to general cultures, and a weakening of religious faith and observances. The result will depend on the nature and the strength of religious faith in the rural population and on the faith and work of religious organizations in the community at large.

As regards rural government, it has been obvious that many rural communities could not provide themselves with adequate social services, e.g. in roads and communications, education, sanitation, and health, on the basis of merely local taxation. With changes in the bases of financial provisions for community services, some modification of organization for local government was almost inevitable. Unfortunately, rural citizens have not always shown efficient adaptation to newer forms or broader geographical organizations. Rural education did not advance as rapidly as some economic and social conditions changed. Transport and communications were not fully used for effective changes in rural citizenship. Undoubtedly there is now need for better education and practice in citizenship in many rural communities. But again, any suppression of rural by urban interests in local government is dependent largely on the responses of rural citizens to new conditions. In the meantime many rural groups are pleased to enjoy the financial support of industrial and urban populations in the supply of community services.

For the rational, or the integrated, agricultural economist there can be no option in respect of the desirability of equal economic rewards in agriculture and other industries. He must accept the norm of equal reward of capital investments even though in respect of farm values he takes into account relative security of capital and some returns or satisfactions which are not directly measured in rent or annual interest. Unless he accepts the norm of equal reward for equal quantity and quality of labour (or human service in production) he either accepts or advocates the principle of exploitation of agriculturists by the rest of the community. While we know the tendency towards low remuneration of capital and human services in agriculture, this is an incident of change in economic methods, processes, and organization and is not inevitable. Postulation of a supply (and suppliers) of capital permanently subject to relatively low remuneration is not justified by any known conditions. And postulation of a supply of human services also permanently subject to relatively low remuneration or reward does not appear to be justified by any known conditions outside a system of slavery. The agricultural economist can scarcely be justified in postulating a permanent or continuing supply of either slave capital or slave labour adequate to social needs

in agricultural production. He may recognize the need for adjustment of rewards in agriculture and other industries; indeed he must, for that was the main reason for the development of an applied science of agricultural economics.

The suggestion that it is necessary to maintain a high agricultural rural population at low rates of remuneration for the maintenance or increase of national population is repugnant to agricultural if not to economic principles and even to common sense. The intelligent farmer whose livestock suffers from disease does not continue to increase his breeding stock to overcome the disability without looking for means of avoiding or controlling the disease. He would not unnecessarily waste materials and efforts in that way, but would, himself or by external aid, seek methods of avoiding the disease or its effects. Modern industrial occupations or modern cities need not 'use-up' population or destroy its capacities for reproduction. When they do so, society should be called upon to seek and apply the necessary remedies: the burden should not be thrown back on agricultural communities. There is neither moral nor economic justification for throwing on to what in this case must be poor farm families and communities the economic and the human burden of raising and educating people for groups which could better afford to provide for their own replenishment. Indeed, the other groups should begin to produce people for agriculture and make provisions for effective cross-currents.

On any objective consideration of positions it would appear that agricultural economists and rural sociologists who left farms for professional careers and urban or semi-urban living should be careful in imputing to the folk left behind on farms needs or desires fundamentally different from their own. The forces which distinguished and separated the folk remaining on farms and those who left were largely, probably mainly, of social character and partly accidental. If we are to consider objectively human satisfactions in rural work and living, we have to regard the people engaged in agriculture and living in rural communities fundamentally of the same breeding, with the same characteristics as our own. If there are any differences, other than those caused by post-natal environments, they must be objectively described and measured. Up to the present any firm description or measurement is lacking. Environmental differences are to a large extent modifiable or remediable. In so far as they are unfavourable to the satisfaction of the groups concerned, it is the task of agricultural economics and rural sociology to provide the knowledge required to modify or remedy them.

DISCUSSION

E. C. YOUNG, *Purdue University, Indiana, U.S.A.*

Before I offer a few brief comments on Professor Ashby's paper I would like to make one observation in partial defence of the American delegation. You have noted, I am sure, that they have appeared a bit critical at times of the British agricultural efficiency. For myself, I would like to testify that my surprise has been rather at the efficiencies which I found and at the most obvious lack of apparent poverty amongst farmers and people living in rural districts in England.

Turning briefly to the paper, I wish to commend Professor Ashby on delivering, as he always does, a paper which strikes at the roots of the problem rather than at its superficial aspects. What I have to say is in support of points which he raised and covered admirably rather than in presenting a difference of opinion.

Technology is one of the important factors in creating or modifying economic and social institutions. We are at the mercy of the chemists and the physicists. Our institutions to a very large extent are those which we create to maximize the efficiencies which technology creates and makes available to us. In a completely rational society the impact of technology is felt and spread, and is adopted within a reasonable length of time. In such a society institutions tend to conform with a reasonable degree of facility to these changing technologies. An economist or a sociologist is taking a great deal on himself when he attempts to predict the development of institutions or, for that matter, to guide them with any expectation that his guidance will be effective. I will grant that those of us in the social sciences can do much to ameliorate conditions of economic and social life. We can modify institutions, but fundamentally the institutions themselves tend to conform to changing technology which is not predictable, and to which the chemist and the physicist and the biologist make the maximum contribution.

The other point which I wish to emphasize, and which Professor Ashby also makes, is related to the spread of urbanization in modern communities where technological advance has been most rapid. I agree with him that the boundary line between urban and rural cultures is fast disappearing in such communities. As this boundary disappears, many of the generalizations with respect to the backwardness of rural communities become invalid. Modern technology, modern inventions, modern communications, and, particularly, the research and educational facilities of our extension and research

organizations have tended to spread technology into the country-side in such a manner that in many areas the spread of technology does not lag far behind that in urban centres. As the boundaries of the urban community spread, many of the population characteristics of urban communities also begin to emerge. One of the characteristics of rural communities throughout history has been the development of surplus populations. As Notestein has so well pointed out, this is related to the problem of rural poverty and the differences in standards of living between urban and rural populations. He has also pointed out, as has Professor Ashby by inference, that with the spread of urban influences into the rural community one of the first effects is a decrease in rural populations. As the rural population comes into balance with resources in the rural community, a rise in living standards and an equalization in living standards between the rural community and the urban community results.

Many years ago I made a study of the movement of farm population. After a great deal of experimental trial and error I formulated a law with respect to the effect of cities on the movement of farm population. It was to the effect that the movement of farm population towards a city varied directly with the size of the city and inversely with the square of the distance from it. After a bit of review of my physics I discovered that I had rediscovered the law of universal gravitation! Around a modern city I would suspect that urban cultures penetrate the country-side approximately in proportion to the size of the city and inversely as the square of the distance from it.

One of the most obvious effects of the development of an urban population in the midst of an agricultural community is the apparent deterioration of agriculture in the immediate country-side. This, I think, is inevitable, since the effect of the city is probably to raise the whole living standard of the community, raise labour costs, increase opportunities, and, as a result, bring pressures on inferior grades of land. Oftentimes cities develop in territories where lower grades of land immediately become sub-marginal for uses in the new pattern created by the urban environment.

C. G. McBride, *Ohio State University, U.S.A.*

I go along with Dean Young in my appreciation and admiration of this scholarly paper by Professor Ashby. However, it appears to me that in one area he might have placed more emphasis than he did, that is on the field of agricultural co-operation. He mentioned it as one of the factors of satisfaction in rural living, but it seems to me that

it deserves further consideration. I have been convinced since I have been connected with the International Conference that we have not given it the emphasis that it should have in our programmes. I think you will agree that during this Conference, with the exception of the paper by Dr. Coke, there has been scarcely any reference to the agricultural co-operative movement. I believe that it is one of the most effective of all influences, not only in the economic field but in the field of human satisfaction. In the economic field we have recognized it in the laws of the United States as a factor in the programme of setting up marketing mechanisms. The Agricultural Agreement Act of 1937 gives a definite place in the whole programme to the co-operative association. Without the approval of the co-operative association no marketing order has ever been established or marketing licence set up, and without its continued support no licence or marketing order has ever survived.

When it comes to the matter of pure human satisfaction outside of the economic field, I believe the co-operative movement is just as potent. I thought as I looked at that fine array of photographs over in the National Farmers' Union Hall at Exeter yesterday, what a great influence those men must have had on human satisfactions in that community.

In the larger field of international development that we are going through now, there has been given a greater recognition to the agricultural co-operative leaders than we have given here. For instance, when President Roosevelt was looking for a man to sit on the Hot Springs Food Conference he chose Murray D. Lincoln, an outstanding co-operative leader in the American Farm Bureau. He and other co-operative leaders have since built the organization—Co-operative for American Remittances to Europe, Inc., popularly known as C.A.R.E. This is the agency through which individuals send food and clothing to their needy friends in war-torn countries. Probably no agency has done more in the post-war years to promote human satisfactions.

It was interesting to learn from Mr. Porter at Exeter yesterday that the National Farmers' Union here in England is joining with agricultural organizations in other countries of the world to set up an International Federation of Agricultural Producers. Organized workers have been getting together on a world-wide basis for many years.

Several times this week I have been disturbed by the hard-boiled and cynical attitude towards international co-operation expressed by some of my colleagues. It looks as though there may be more

altruism and less cynicism in the international programmes of agricultural producers than of agricultural economists. As members of this International Conference I do not believe we can afford to build ourselves an ivory tower of classical economics. If organized workers and organized agricultural producers can join in a world-wide perspective, we should lend our support in the hope that the economic nationalism which Professor Ashby deplores may be whittled down to some extent and that both rural and urban people may enjoy greater human satisfactions and a higher standard of living.

C. SAMUEL, *Tel Aviv, Palestine.*

I should like to make a few remarks on the need for personal development raised by Professor Ashby as his last important point, and I should like to do so with particular reference to collective settlements. On the surface it seems to be rather contradictory, but in reality experience has shown in our country that it is in collective settlements that personal development has been most possible. The main reasons are these: in the first instance the hours of work are strictly limited. In the second place leave of absence can be granted and financed by the group in special cases where it is clear that a person has shown a special ability for a certain branch of agriculture. He is sent away for instruction, leading to specialist courses or to a university and even abroad. Further, the hours of leisure are used deliberately for cultural development in the most various forms, theatre, music, and recently revivals of very old festivals have taken place. Perhaps the most important reason is that in these settlements persons with qualities of leadership always have a chance to obtain sooner or later an executive post, for instance, the management of the cereal branch, or the vegetable gardening, or such-like. In all these cases personal freedom of movement is greater than average because it is absolutely necessary for the function of management. But there is no stimulus at all on the income side, because the standard of living of every member of such a settlement is strictly equal.

By contrast with all these possibilities in collective settlements we have had the experience—at least during the first decade, which is quite a lot of time—that individual farmers have such heavy work to do—and not only the farmer but even more so his wife—that they have scarcely any time left for leisure and of necessity they have to neglect personal needs in cultural matters. Of course, this is not true with regard to the education of children, which is very well

organized in both collective settlements and in the villages built up on individualist farming.

W. G. MURRAY, *Iowa State College, U.S.A.*

I am in general agreement with Professor Ashby's paper, but there are one or two points which it seems to me either may lead to an incorrect inference or may not have been emphasized sufficiently. The first had to do with the remarks that labour is not a virtue, or that work is not a virtue. I wonder if from that we might be in danger of getting the idea that there is not much satisfaction in farm labour or in operating a farm. I think that as mechanization comes in and as we remove much of the drudgery from farming, there is in the operation of a farm a great deal of satisfaction possible. I have noted, and maybe some of the rest of you have observed, that there are many farmers who, as we say in America, are getting a big 'kick' out of farming. They get a 'kick' out of the combination of farm enterprises which they put together into a successful farming business. I would suggest that Mr. Mathews and Mr. Cole, the two farmers we have visited, are men who are enjoying and getting a thrill out of the operation of a farm. I am reminded of a story in this connexion that we tell in our country of a farmer and his wife who tackled an abandoned farm, a derelict farm as you would call it over here. This couple over a period of about seven or eight years made a very fine farm out of what had been a very unpromising opportunity. After this accomplishment they decided one day to invite the pastor to come out for a Sunday dinner after church. He accepted the invitation and after a sumptuous chicken dinner the farmer took the pastor out to show him the different fields. He said to the pastor: 'You see over there on the hill; that was nothing but waste, and now look at that beautiful field of corn.' 'Yes,' the pastor said, 'you and the Lord have done a wonderful job on that field.' The farmer was a bit perplexed, so he said, 'But look at that side hill and that beautiful field of oats. When I came here that was nothing but an eroded hillside.' 'Yes,' the pastor said, 'you and the Lord have done a wonderful piece of work on that side hill.' Not to be outdone the farmer said, 'But look at that pasture down there in the bottom. When we first came here that had nothing but weeds on it.' 'Yes,' the pastor said, 'you and the Lord have done a wonderful job on that pasture.' The farmer finally somewhat overwrought said to the pastor: 'Yes, but you ought to have seen this farm when the Lord was running it by himself.'

There is one other point that I would like to make which will raise

an argument with our good friend Jock Currie. It is that we, in the United States at least, get a thrill, real enjoyment, and satisfaction out of owning our own farms. It is one of those satisfactions which I believe is high up in the list. Maybe you own your own home. If you do you may have experienced the same type of satisfaction. We notice that farmers like to feel free to organize their farms according to their own desires. This satisfaction was represented in Professor Ashby's paper, in that comment he made regarding security, the feeling farmers have of independence, and of working out their own future. I think that is one of the important satisfactions, in addition to that of getting a 'kick' out of operating a farm. These two satisfactions, operating a farm and operating one that is his own, make up, in my estimation, a large part of the satisfactions which a farmer gets out of farming.

SHERMAN E. JOHNSON, *Bureau of Agricultural Economics, Washington, D.C., U.S.A.*

I enjoyed this paper very much and I do not want to make this first comment as a criticism of Professor Ashby's remark with respect to production efficiency in the United States, but merely in explanation. The census figures are a little deceptive, as I suppose they are everywhere. We do not have a good segregation of our part-time farms and rural homes, but if you took them out of our census enumeration of farms you would probably take out close to 1 million of our less than 6 million farms. And, of course, those people do have other sources of income. That is an extremely important consideration in our north-eastern states especially, where they are close to industrial areas, and where part-time farming is prevalent. The income from farm production, using the value of production as reported by the censuses, is low there, but by and large the incomes of the people on farms when you include non-farm income as well as farm income are quite satisfactory.

Now then, with that modification, I think we certainly have to admit that we have low farm-incomes in the United States. The largest concentration of low *per capita* farm incomes is in the southern states. You recall the map that we had here the other day that showed the Cotton Belt with cotton, tobacco, and self-sufficing farming. One-half of our farm population lives in those thirteen southern states. Those states have one-half of the farm population, and approximately two-fifths of the farm income. Measured in *per capita* value of production they also have an average agricultural efficiency which is about two-fifths of the national average. So we have there a

real problem. Now as I said the other day we have the same problem elsewhere. We have it in the northern cut-over areas of our Lake states, Wisconsin, Michigan, and Minnesota. We have it in the Spanish-American areas in the south-west, and we could mention some other smaller pockets in some other parts of the country.

I think that is our real agricultural problem from the standpoint of increasing incomes which can serve as a basis for greater satisfactions in farm life. I might tie it to the question mentioned by Professor Ashby of merging the cultures of the industrial areas, or cities, and the country. The areas where we have low farm-income are somewhat isolated from the industrial areas. They have not had the opportunity of escape into other occupations, at least in the early days of their development. And it seems that after a while a vicious circle develops from which it is very difficult to escape. Those low incomes persist in prosperity as well as in depression. I think that we are going to have to inject some outside assistance into some of those areas if the situation is to be remedied. I know enough people who come from some of those areas to know that some of them at least do not enjoy the low standard of income and the culture that goes with that environment.

I think it somewhat follows that in our country at least we are not very anxious to set up a separate cultural group in rural areas that has a different standard of income and culture from that which prevails in urban areas.

I want to mention one other thing. A real danger in our present situation is that farm people at the present time are not siphoning off enough of their increased income into better living. Too much of it, in my opinion at least, is going into higher capitalization of farm investment, higher land values, livestock, and equipment. Now there are some real reasons for that because the materials and the opportunities for translating that higher income into a higher level of living have not been available during the war. We did make considerable progress during the First World War and we have made some recently, but I have some real fears about capitalization of higher income which eventually is translated into higher costs. These costs eventually will absorb much of the gain from increased efficiency and much of the gain that farmers could retain for themselves from a period of relative prosperity.

R. HENDERSON, *University of Bristol, England.*

This is a much vaster subject than one can appreciate at first glance. I have listened to all the talks on the subject to-day, and I do not think

anyone has treated the subject as I personally would like to have heard it treated. At the outset let me say that I am not one of those who claim that human satisfactions in rural life, or rural occupations, or in any other sense of the rural community, are complete in themselves, but I do maintain—and this is the gist of what I have to say—that there are many human satisfactions peculiar to rural living and rural work, and such forms of satisfaction we do not find elsewhere. Here I may cross swords a little with Joe Duncan. Rural satisfactions seem to me to fall under four main headings: (1) the occupational satisfactions, and I think there are many of these; (2) the social satisfactions, although sometimes these may be few; (3) the recreational satisfactions which may or may not be part of the social satisfactions; and (4) the natural satisfactions. I would like to say 'nature-al' rather than 'natural' satisfactions. These four groups of satisfactions are not clear cut in themselves. No one is clear cut from the other, and they differ very considerably according to whether the individual concerned is a landlord, farmer, farm worker, or one of the many other kinds and classes of people who live, or earn their living, by the pursuit of some rural trade or occupation. I am concerned here only with the people who earn their living more or less directly from the land and am omitting the landlords from this category for my particular purpose.

For the farmer the occupational, social, recreational, and 'nature-al' aspects of his life are very closely integrated. The market has long played a very large part in the agricultural and rural life of this country. The market is the farmer's business centre. It is, and has been, largely his social centre; and it is frequently his recreational centre. I think everyone will agree with that. The market is the place where he meets at regular intervals his fellow farmers and has an opportunity of relieving somewhat the isolation of his day-to-day existence. It is the place where he can do his business, where he can gossip, where he can grumble, where he can curse the Government, where he can criticize all and sundry. The market is, therefore, as I see it, a place where the farmer's cup of human satisfaction can be well filled. The total of human satisfaction constituted by the local farmers' market must, indeed, be enormous; and sometimes one cannot help but regret, despite the criticisms by the economists, that the old-fashioned market has in recent years been considerably modified.

I do not think we can altogether measure human happiness and human satisfactions in terms of higher money incomes and higher degrees of efficiency in marketing and in production. Human beings

form a strange device, and no one has yet proved whether the sum of human satisfaction to farmers is greatest when they are striving hard to make ends meet on a low price level or sitting pretty on a high price level. Many satisfactions are not measurable in money; hence we get farmers carrying out processes of production which they themselves know to be uneconomic, but from which they get a very high degree of satisfaction. The reluctance of farmers to change their methods or forms of production in the face of adverse economic forces is often the result of the fear that the sum of satisfaction from a new venture will not be as great as that derived from current methods.

Apart from the market, the farmer's social and recreational life in the past has been very much confined to associations with his own fellow farmers. (That this may be now changing to some extent is substantially true.) Why should this be so in a world where the diversity of occupation is so great? We may try to explain it in terms of the physical isolation of farmers from other folks; but this is by no means the complete answer. Here again I am going to clash with Joe Duncan. Despite what he has said, farming is the most natural occupation, and its very naturalness digs deep into the hearts, souls, and minds of men. Men, beasts, plants, and land become one. There is no separateness of the man from his work as in other occupations, and that, I think, is the crucial point. There is no separateness of the farm, the farmer, his family, and those with whom he comes in daily contact. They form the farm. They are part of it. They are the whole of it, and I think that is probably why farming has been so often described as a way of life. The job is all-absorbing, and consequently the man and his environment become one. Socially the farmer talks farming because he is farming and because no other kind of talk can so much increase his total satisfactions. After all we are talking about satisfactions. I have already said that farming has often been described as a way of life. Economists and others in recent years have tried to dispute this and to confirm that farming is now a business. Indeed I have myself frequently used this argument, but when I go to farms and talk to farmers I find that this theory is still very much a theory with very little factual foundation, except where farms are large and business methods probably more applicable. When a farmer takes you into his fields and proudly displays his stock and crops, he is not thinking of incomes and economics, but of the pride, tradition, and fullness of his occupation. I wonder if any of you have watched farmers when you go on to their farms and have listened to them and just wondered what they have got in mind.

They are not thinking about economics, they are not thinking about price levels, but they are thinking about what they see in front of them and the satisfaction which it gives them. In terms of satisfaction the farmer gets more out of this than he does out of the prices he receives, and this, I would say, applies just as much, and probably more, to the progressive farmer than it does to what we term the average farmer.

Incidentally, when we in this country speak of farming as a business, I wonder what we really do mean. If we mean the technical processes of production then there is some justification for the term business, but if we mean business in the financial sense then there is precious little business left to the farmer. In the war period and the post-war period his sale prices have been very largely fixed by government order. The prices of what the farmer needs to buy are also fixed and, as far as the individual farmer is concerned apart from whatever say or influence his organizations may have, he has practically no say at all in the actual business of his enterprise. There are some who say this lack of business power is the result of war-time and socialistic controls, but was the farmer's position in this country—I am referring particularly to conditions in this country—vastly different under conditions of free enterprise? Were not the prices of all he had to sell and of all he wanted to buy very largely dictated to him then by outside sources? Was his business power any greater under free enterprise than it is under government control? Indeed, I think his combined business power is probably greater now than ever it has been. I am not talking about his individual business power, but his combined business power, the power of his organizations, which is quite a different thing from individual business power. In the inter-war (1919–39) years the business end of farming was largely carried out by the merchants and auctioneers, and the farmer's freedom of enterprise was then, as now, very largely confined to matters of technical efficiency, or inefficiency if you care to put it that way.

Now, I would just like to refer lightly to the worker in the general set-up. His occupational satisfactions are very closely connected with those of the farmer, but his social and recreational life may differ very considerably from that of the farmer. He does not usually go to market, nor does he enjoy, to any great extent, the social life provided by the market. He has nothing to sell and, in the past, he has had very little to buy. I know that from personal experience. It should be pointed out to people who are not resident in this country that there is some difference in social status, indeed there is a

great difference in social status, as between farmers and workers, and that this difference is widest in areas and counties where the farms are largest. In some areas, where small farms predominate, the difference of social status may be very slight. The social life of the workers on large farms, however, is often widely separated from that of farmers. The farmer often has a house too large for his modern requirements while the worker has a cottage too small for his needs and frequently without any domestic amenities. The worker does not hunt the fox, but I must say this that in my time he made up for this lack by doing a good deal of poaching. In this way he increased his recreational satisfactions and often added materially to his bodily requirements. I do not want to enlarge any further on the differences that exist, although there are many more differences between the social life of larger farmers and farm workers.

In the past forty or fifty years there has been, as some have already indicated, vast changes in the mode of life of farm workers. At the beginning of my time, previous to the First World War, almost the sum total of farm workers' satisfaction had to be obtained from the farm, from the work, and the immediate environment. The whole interest of the worker was undividedly in the farm and in its surroundings. That is far from being true to-day. The main social life of the farms in my time was largely that of the farm dance. This form of recreation was largely executed with grim determination and much perspiration, but enjoyed with such complete abandon as is never now seen on a dance floor. I would have liked to have enlarged on this a little more, but I have not time. In those earlier years, too, the only days or half-days spent away from the farm were those when we attended the local flower shows and sports and the local fair. I will just say this about the local fair. Most of the farm lads, in those days, used to save up for a whole year to have a little to spend at the annual fair, and, at the end of the year, they might have managed to accumulate as much as five bob and on that they used to get, for once in the year, gloriously and hopelessly drunk.

I often wonder, and I wonder if anybody is going to blame me for wondering, whether the total of human satisfaction achieved by farmers and workers in those days, despite what I have said, was not greater than it is now. I sometimes think that it was greater. Advances such as we have made (somebody said this already) are not necessarily making for greater happiness. The modern rush of life has caught up the farm worker and nowadays he is not content with the old forms of satisfactions. He now runs away in his spare time to see some pretty-pretty Hollywood dame making love to a sparkling

hero, who does not look as though he has done a decent day's work in his life. On the whole, while it may be debatable whether total satisfactions of all kinds have increased or otherwise, there has been a decline in the total satisfactions derived from country life, both occupational and recreational. Whether the sum has been made up from other sources I am not quite sure. As I have indicated, I do not believe that it really has, despite all that has been said by Professor Ashby and others.

I have got to condense considerably what I wanted to say, but I would like to run over some of the satisfactions I personally have had from rural work and rural living. These satisfactions, as I have said, are not to be found elsewhere. As a boy, living in the country, what satisfactions did I have? I had the freedom of the open country, the freedom to run wild, to see flowers, to pick flowers, to eat wild berries, to catch little fish in the little streams, to catch bigger fish in the bigger streams, to poach rabbits, to catch pheasants (I was never caught), to go birds'-nesting, to throw stones, to use a catapult, to use a sling, to pinch apples, to pick blackberries, to pick nuts, to dig up and eat the roots of yarrow, to climb trees, to wander through the woods in the shade and in the sunlight, to climb rocks, to wander up and down hills, to slip through valleys, to catch eels, to look at lizards and newts, to fall in streams, to get caught in the rain, to battle against the wind, to go after Easter eggs, to fill up the village pump with soap, to tie the handle of same, to throw snowballs, to catch birds in the snow, to collect and eat hens' eggs, waterhens' eggs, pigeons' eggs, pheasants' eggs, pewits' eggs, to slide on thin ice over deep water, to catch butterflies and moths, to catch roosting birds with a light, to attend the country school, to learn nothing, and, and, and, on as much as you like. Now all these things I have done, all these things I have enjoyed, and I might add many others beside. Now all these things are part and parcel of the rural satisfactions that life has given to me. I do not say there were no dissatisfactions. Of course, there was another side to this picture. There was the side which one can briefly sum up in one word, poverty. But in spite of this I would not have changed for all the negatives that masses of bricks and mortar could have brought. In other words I would not have changed this form of life for anything in the form of a town or city, because the things I am speaking of I am quite sure you cannot find in a town environment.

When I became 'a man' at the age of 12½, I went to work on a farm, and in spite of what has been said I did get much satisfaction out of farm work. What were the satisfactions that I got out of it? In the

first place the pride of being 'a child' no longer, of working amongst men, working with horses, tending horses, seeing young horses grow up from foals, working a team of horses for the first time, ploughing, harrowing, rolling, sowing seeds, watching the young shoots come through, watching the crops grow, cutting the weeds, making the hay, cutting and harvesting the corn, thrashing the corn, carting the roots. Many a time my back was nearly broken with these jobs, many a time I was hungry. All the same I enjoyed it, I got satisfaction out of it, a lot of satisfaction. That is why I say this subject is somewhat complex, because one can only illustrate the particular side that one sees, and one has not time to go into that completely. Then there was feeding the sheep, feeding the cattle, watching them fatten, watching them go off to market. Pride in this achievement as far as I was concerned was as great as that of the farmer who possessed them. That may seem a strange thing to say, but it is not a strange thing, and it is true. What greater satisfaction can an occupation offer than that of being an integral part of a whole process of production from beginning to end, of ploughing the fields and reaping the harvest of all those efforts? Men are fond of harvesting, they get a lot of satisfaction—a tremendous amount of satisfaction—out of harvesting, particularly corn harvest and hay harvest. Whether men be farmers or merely non-possessing workers, harvest is obvious achievement. It is the fruits of hard effort and toil. It is result, it is the end of the year and of the year's effort. When the corn stacks are packed in the yard and in the twilight and dusk the sparrows are nestling under the eaves, there is a feeling of great content, of great security, of complete satisfaction, of a job well done, of a reward well earned. As I have said, after that, to-morrow the year begins again. This is not sentiment because I have experienced all these things. I have experienced all these satisfactions, despite the fact that I never owned or occupied a farm, and never owned a sheaf of corn. Again I must say there is another side to all this. There is the mud, the muck, the sludge, and the poverty. But why should I spoil the picture by going into all that?

Some of you may be inclined to say: 'Well, if you were so fond of working on the farm, why didn't you stick to it?' As I said at the outset there are a number of satisfactions peculiar to rural work and rural living, but in the modern world these in themselves are not enough. During the years when I was a farm labourer, if a man had any desire for some of the other satisfactions of life, if he wanted to marry and bring up a family as he would like them to be brought up, probably differently from his own poverty-stricken upbringing, he

had no alternative but to try to find some other occupation offering an income sufficiently high to do so. I have changed my occupation from that of a farm labourer to that of, if I may use the term, a farm economist, but I doubt, after all, whether I am a better man or doing a better job.

EDGAR THOMAS, *University of Reading, England.*

I had not thought of taking part in this discussion this morning, but one or two things which have been said make me want to put to you one point which has been troubling me very much. Once more I am afraid that I am referring to developments in this country rather than to conditions generally. I am in complete agreement with everything that has been said this morning by Professor Ashby and by other speakers about the need for the improvement of the living conditions in rural districts and in rural communities. In this country there has, for some time, been a drive to revive and develop rural life. But the tendency is to concentrate that drive almost entirely on agriculture. I suggest that there is a real danger in this concentration. I suppose that we are all very fond of talking 'shop'. Farmers are very prone to it. So are agricultural economists! But there is a real danger that the modern development of agriculture with its tremendous fascination—the 'kick' which one speaker already referred to that farmers are now getting from developing their farms—can well monopolize their whole life. Indeed the up-to-date farmer to-day needs to be concerned with so many farming developments that he has little time for anything else. It may be that to-day the leisure of the farmer is being menaced by the task of keeping up with technological progress, whereas in the past it was the physical toil of performing farming operations which hindered the fuller development of his life.

I may perhaps illustrate the danger by referring to the development of the Young Farmers' Clubs Movement, a movement which has had a great influence on the furtherance of farming in this country during the last twenty years. I put it in that way, namely, that this influence has been in the furtherance of farming, rather than in the furtherance of rural life, because I feel that there is a real danger in certain circumstances for the whole life of the rural community to be increasingly based on the development of things like Young Farmers' Clubs. I suggest that is the wrong type of development. The life of the community should centre on something which is infinitely greater than the vocation which happens to be the predominant vocation of that community. I feel instinctively that the

pursuit of modern farming somehow constitutes a real danger to community life in the more advanced countries. It seems to me that we cannot have a rural community which is giving the best opportunity in every way for human development if the chief vocational interest of the majority of that community is allowed to monopolize its leisure as well as its working hours.

J. COKE, *Department of Agriculture, Ottawa, Canada.*

I would like to carry forward the discussion which Edgar Thomas has raised and perhaps bring to you something of the experience that we have had in Canada in developing junior farmers' organizations. There are various kinds of them, and perhaps all of them suffer from the fact that they tend to emphasize the problems of agriculture. It has been extremely difficult to get information to them that would bear upon urban problems, and therefore give a balanced point of view. Some of our junior farmers' organizations are under the auspices of the Canadian Federation of Agriculture; some of them are organized by the Provincial Federations of Agriculture; some of them, of course, are organized under the Provincial Departments of Agriculture; and, within the last five years or thereabouts, we have had what we call a Farm Forum, which is conducted through the auspices of the Canadian Broadcasting Corporation. Local groups of adults and juniors meet in homes or in community halls to discuss topics which are being discussed at the same time by local groups all across the country. The procedure is to have about a fifteen-minute broadcast in which representatives of farmers and professional agriculturists take a part, although I must say that we had so many professional agriculturists one year that a decision was taken to reduce the number on future programmes. Effort is made, however, to have someone who understands the operation of farms and someone who is technically trained, and very often they bring in a representative of a labour union or of a business firm, if the topic lends itself to that type of discussion. This Farm Forum programme is developed under the auspices of the Canadian Federation of Agriculture with some financial assistance from the Provincial Departments of Agriculture, and, of course, the services of the Canadian Broadcasting Commission. The broadcast is arranged before it actually takes place. The people who are to participate meet with the technically trained broadcaster, and their scripts are prepared in advance. That obviously has to be done when you are dealing with people who do not have much experience in broadcasting. The broadcast is just like an opening paper here. It sets up the

problem; it endeavours in so far as it is possible in a short broadcast to pose the different aspects of the problem, and then they hope to set to work to discuss the broader aspects or, shall I say, the more detailed aspects of that particular problem.

This programme begins in late October and it goes on until the end of March. In other words it is a means of providing a ground for the meeting of rural groups. Those of us who have been associated with the actual development of the programmes have tried to introduce as much of a balanced point of view as is possible. We have not succeeded entirely, but we are making some progress. I think it is quite possible for farmers to spend so much time thinking about the technical aspects of agriculture that their horizons become limited.

S. C. LEE, *University of Nanking, China.*

In China rural people as a rule have been treated as second-class people while urban people always counted themselves as first-class. Of course, we know world civilization up to the present has been an urban civilization. It is true not only of China but of the whole world. We must admit that without urban cities we could not have attained such a high state of civilization as we have now, but on the other hand urban people have been very much privileged because of the interest in cities. The rural people have not been treated on an equal footing in all the things of life. So long as this gap between the urban and rural people exists, there will be no social, economic, or political equality in the nation. In order to attain the goal of freedom we must sweep away these differences.

At the beginning of this Conference the President announced that he had received a letter from Sir John Boyd Orr congratulating the gathering here. Everyone is aware of the work of the F.A.O. Conference which is now meeting at Geneva. Many workers for human satisfactions of not only the rural people but also the urban people are meeting there, and its objectives are worth repeating. It was established to help member nations first in raising levels of nutrition and the standards of living of their peoples; second, to secure improvement in the efficiency of the production and distribution of all food and agricultural products; third, to work for the betterment of the condition of rural populations; and, fourth, in these ways to contribute towards an expanding world economy. In the report made by Sir John Boyd Orr to the present Conference he puts forward two objectives to be achieved; first, that of developing and organizing production, distribution, and the utilization of basic foods to provide

diet on a health standard for the people of all countries, and, second, stabilizing agricultural prices at levels fair to producers and consumers alike. I think these objectives come within the field of our study. They are closely related to the work of agricultural economists, and we ought to show common cause with the Geneva Conference. In order to achieve our final goal of attaining the full satisfaction of human wants for the rural people we must have more sympathizers and more co-workers.

H. DEGRAFF, *Cornell University, New York, U.S.A.*

Like Professor Thomas, I had not intended to participate in this discussion. But I am stimulated to do so by the actual or tacit acceptance of the concept of income equality between farm and non-farm people. It was expressed in Professor Ashby's paper. I understood Mr. Holmes to say it is a policy of the dairy farmers of New Zealand. I have heard it many times among farm people in the States. And I have heard it expressed, may I add, on the Farm Forum radio programme from Toronto, Canada, about which Dr. Coke has spoken. It seems to be a widely held idea among farmers, and those who work closely with farmers, that an objective of agricultural development should be income equality among farm and non-farm people. I wish to enter a demurrer against the idea that it can be attained, or that it would be desirable if attained in any manner except as a natural economic development.

We are talking about developing and increasing the satisfactions of rural living. I take that to mean, in large part, an increase in the *per capita* supply of material things. Of course, immediately I say material things someone will object and point out that we are concerned with something broader than material satisfactions, and that there are many satisfactions in life other than those of a material nature. Yet it seems to me that only through material accomplishments do we attain the other somewhat less tangible satisfactions which certainly we all value highly.

In essence, then, we are talking about material accomplishment. And for farm people as for others it may be attained only in two ways: (1) by increasing productivity per unit of effort, or (2) by increasing price per unit of product.

In the United States, for example, I am confident we could not follow a policy of income equality (actual purchasing-power equality) for farm and non-farm people, and maintain a continuance of material progress and an average increase in living standards. My reasons are: first, the increasing efficiency of agricultural

production and, second, the differential birth-rate between the farm and non-farm segments of our population.

With a rising level of labour accomplishment on farms, a given volume of production requires a smaller total farm-labour force. Our agricultural expansion (area-wise) has slowed down practically to the point of stopping altogether. Some intensification of operations is taking place on existing farms, but not enough to prevent a net displacement of farm workers. In addition, the net reproduction rate among our farm population is about one and a half times the maintenance rate. Thus from these two sources we have a chronic condition of surplus population on the land.

If this surplus is not to pile up to serious proportions and reduce the average level of rural living, there must be a net flow of population from farm to non-farm employment. Such a flow can be expected to move only in relation to the magnetic pull of more attractive levels of living. And if we were, in the States, to follow a policy of equalizing income levels between farm and non-farm people, we would be offsetting the force which now serves to draw surplus population from the land.

The only time in many years when we pulled down the farm population in the States to something approximating the level at which it ought to be was during the war. I do not know just how to express the net change in terms of farm workers, but 5 millions of our farm population left farms for non-farm employment and military service. And still, as Dr. Johnson pointed out the other day, we greatly increased our agricultural production with the smaller numbers. The levels of living in rural America, and at least some of the satisfactions of farm living, have increased in part by reason of the smaller number of persons among whom the total farm production is divided.

Whatever we had of under-employment and over-population on our farms before the war, we have less now. Our farmers are talking about a shortage of help. A survey or two taken during the period coinciding with the end of the war indicated that many of our farmers thought they would hire more labour as soon as it is available. Of course, some will. But probably many more will not. A major reason why they feel short of labour at present is because they are finding it profitable to operate their farms at maximum capacity. They have not as much help available as they would like to have to do as much business as they would like to do. But that very pressure is further stepping up the overall production per man and fostering an increased degree of farm mechanization.

Though at the moment there is comparatively little of surplus

population on American farms, it is probable that a greater surplus will again develop—as production efficiency per worker on farms continues to move ahead and as the large crop of youngsters on farms comes along to productive age. Too many will stay on farms unless the magnet of better-paying jobs elsewhere is a strong magnet indeed. It surely will not be strong enough if we start off on a policy of equalizing *per capita* farm and non-farm incomes.

Equality of income between farm and non-farm groups, should it develop in a free economic environment, would reflect a balance and a stability between farm and non-farm populations. Certainly not in the United States, and certainly in few other countries, has any such stable balance developed. Nor can it as long as a marked rural-urban differential exists in net reproduction rates, or as long as workers are displaced from farming by an advancing agricultural technology.

Of course, equality of income can be forced even though farm and non-farm populations are unbalanced in the direction of over-population on the land. That is, it can be forced if the non-farm group is willing to surrender the required part of its production output to the necessary subsidy of the farm group. But such subsidy could have only unfortunate long-run effects. Equalized income, if so achieved, would weaken or eliminate the pull towards non-farm employment and the flow of surplus population from the land. With population piling up on farms, and (as would be the case) with total farm production not increasing proportionately, the equalized incomes would again become unequal. The old subsidy rate would have to be augmented by a new and greater subsidy—only at a later date to be augmented still further. Technical progress in farming methods would be impeded. And the programme if carried to the ridiculous ultimate would turn the trends of development backward from the tractor towards the spade.

Income equality for *how many* and *what kind* of farmers is a more fruitful field to investigate. Certainly not all the population of the States could be employed on the land and maintain the same average level of living as now prevails. What number of farm families, producing at what level of accomplishment, would be able to realize a healthy and much-to-be-desired equality of income?

The more productive 35–40 per cent. of U.S. farm families now have income equality with our non-farm population. It is among the less productive 3 millions plus of our farm families in the States that we have nothing like income equality. It is among those families also that we have the highest reproduction rate and the largest

over-supply of farm population. If a part of this low-producing group could be pulled out of farming (and assuming they wish to improve their lot in life), the land and other resources they now use could return a higher level of living—possibly even equality of income—for fewer. Certainly they cannot all have equality of income on present or prospective levels of production per person where they are. I certainly do not wish to sound heretical. I am merely talking about a proper adjustment of farm population to land resources at the prevailing level of technology. It is the only way I know that farm families can have income equality with non-farm families except through subsidy.

R. R. RENNE, *Montana State College, U.S.A.*

Professor Ashby has given us a very fine paper indeed, and I find myself in close agreement with his conclusions. Some points have been raised during the discussion of his paper upon which I would like to comment. The first concerns the point raised by my colleague Dr. DeGraff. Dr. DeGraff has advanced some excellent arguments for his point of view, but nevertheless I insist that it is a desirable goal, as Professor Ashby has stated, that we professional agricultural economists work towards trying to achieve equality of incomes for agriculture and industry. Emphasis upon the right types of education and research, improved skills, efficient management, and other practices are extremely desirable in making possible a rise in the level of living of our rural people.

I am not at all worried about where the necessary population to maintain our cities will be secured. As a matter of fact I believe that when our farm people have their living levels raised, their population trends follow precisely the population trends of urban areas. In other words, the differential birth-rate is not one between rural and urban; it is a differential between poverty and wealth. In our wealthiest agricultural areas our birth-rate has gone down rapidly. In city slums and in rural slums we find the heaviest birth-rates. If it were possible to bring up the level of production and attainment of our farm people so that farm incomes were much higher compared with those of other groups than they are now, our rural population would decline through a declining birth-rate. If economic opportunities were greater in cities there would be movement from farms to urban areas. If economic opportunities were greater in rural areas, cities would have to make adjustments to get along with fewer workers, or bid up their offerings to a point where they could attract population from other areas.

The result would undoubtedly be a different distribution of population between rural and urban areas. Perhaps cities would not become so large; perhaps adjustments within urban areas would reduce the numbers needed in the city, or result in action that would draw people from other countries and not necessarily from rural areas within the nation.

Returning to the bigger question which Professor Ashby has raised, namely, the concern over the decline of primary or rural groups, I suppose that concern over this problem is more general in the United States than in some other nations, because we have such a brief and limited historical and cultural background. That is, we have developed so rapidly as a nation that we associate our instability or rapid advance with the fact that we do not have a continuing stable farm population. I believe the relationship is not one of cause and effect, but rather of coincidence.

About four years ago one of the great foundations of the United States made a grant to one of our state institutions. The purpose was to try to develop an experimental project which would determine the conditions essential for the preservation of small rural communities. Among the many significant statements made by Professor Ashby was one that gave me much satisfaction, namely, that if primary rural groups are capable of, or there is something fundamental about them which develops, individualism, vigour, and vitality, and a democratic way of living, then they should be able to survive on their own merits in competition with other social forms of organization. Yet, as Professor Ashby says, we are told it is necessary to take action to preserve these groups. When the foundation grant was made, the rural extension people that were called together to discuss the proposal felt that the whole approach was scientifically unsound and that the agricultural extension service, our land grant colleges, and our educational institutions could be more helpful to rural people and to society as a whole if we continued to emphasize the research and educational programmes and techniques which would improve production efficiency and satisfactory living of our farm people, so that they could more nearly approach the incomes which the more successful people in other lines of endeavour were able to achieve. They also concluded that with the exception of a few approaches such as special provision for health facilities in sparsely settled communities, we should work along these lines rather than with any preconceived notion that we should preserve as such a rural community of a particular size merely because it was that size when we came upon the scene.

A community selected by the foundation study for special consideration was a community that is partly agricultural and partly a forest community. The attempt apparently was to preserve this small community by bringing into it a cultural pattern which it was felt that community should have, but which apparently it was not able to afford and which it would never be able to secure competitively over the long pull, isolated as a small community. Farm folks in general in the community felt that the approach was unsound, and in the discussion of their problems soon got off on to topics such as how to improve the tax system to make it more just and equal in terms of assessment based on quality of soil and productivity, how to improve the organization of the schools so that the children would have good educational opportunities more nearly comparable with the urban, &c. It was the city folks not so far distant from the little community that thought the whole idea was an excellent one. It leads me again to think of Professor Ashby's statement that those who did not necessarily participate in the poverty were the ones who seemed to be most enthusiastic about it.

It seems to me that with many of our problems, such as education, transportation, and health, as Professor Ashby has pointed out, we are more likely to get the pattern of settlement and utilization of resources which will lead to higher general standards of living and more satisfactory living if we insist upon mobility among all groups in our society and emphasize those fundamental efficiency factors which will increase our output. In a small community where one confused child may be the only one in school or in his grade, there may be too much opportunity for development of individualism. Under these conditions we do not develop a very effective individual. On the other hand, where we have too large a population, the individual may be submerged. Yet I believe there are more opportunities of redividing the group and providing the kind of environment and the facilities for the development of strong individuals where we have more of the essentials, such as communities with considerable numbers of people, rather than sparse rural areas that are not able to survive or thrive with existing economic conditions.

A. Curle, *Tavistock Institute of Human Relations, London, England.*

I feel extremely diffident in addressing this Conference at all, but from the point of view of my own discipline I felt at the end of this morning's discussion that some of the basic problems of human satisfaction had rather been left in the air. There was a tendency to stress the material adjuncts of satisfaction, while avoiding the fact

that satisfaction is a psychological state, and as such is affected by many factors less concrete than working hours, wage levels, housing conditions, and so on. Coupled with this was the implied neglect of the fact that human beings are contrary creatures, into whose laps you may pour all the blessings of the world without increasing their quota of happiness.

Of course, external conditions are vital, and it is important to remember that they are particularly significant in the subtle undertones they give to the relationships of man with man. I believe that it is in these inter-personal relationships that we can locate the wellspring of human satisfaction. What then, is satisfaction? It is hard to substantiate any answer in terms of openly expressed pleasure and enjoyment, but it may be negatively assessed by the absence of emotional disturbance. Modern psychological techniques have not only provided better tools for the diagnosis and treatment of this, but also for relating emotional stress to specific conditions in the social environment.

A survey recently published[1] shows the great extent of neurosis in industry. From my own experience I would say it was less considerable in rural areas, and this in very general terms is supported by analysis of the different degrees of tension imposed by the structures of town and country society, and by the relation of them to what is known of the aetiology of neurosis.

Psychiatry shows that to retain psychological health a man needs to feel that he matters in the social group to which he belongs; to feel that he can depend for friendship and help and sympathy on the people whom he meets in the commerce of everyday life; and to know that he himself is ready to give these things to other people. A community in which this type of satisfaction can best exist needs a stable culture—that is, one which perpetuates a series of accepted behaviour patterns grouped round significant social roles.

This type of community is found predominantly among some primitive, isolated peasant groups in which all aspects of life—legal, religious, social, economic, &c.—are woven into one coherent fabric. By contrast, life in an industrial city has very little emotional security for the individual. He is often rootless, because the street, in which he knows a couple of neighbours, is not the village where he knows everyone—even although he may dislike many of them. Nor can he relate his manifold activities within a single consistent framework, and is thus subjected to many disturbing conflicts. The resultant anxiety has a very negative function, for the individual develops a

[1] R. Fraser, *The Incidence of Neurosis among Factory Workers*, H.M.S.O., 1947.

fear of the society causing these tensions; and this fear frequently impedes him in using those social institutions which do exist and which might help him to integrate himself with his community. His dissatisfaction then increases.

An example, which is significant if we accept these criteria of satisfaction, illustrates one difference between modern industrial and primitive peasant life:

A woman who had worked for years in an office in London fell ill and died in the single room where she lived. No one knew or suspected anything until the milk bottles began to pile up outside her door. When she was discovered it proved impossible to trace a single friend or relative. She had no social relationships save those incidental to the earning and spending of money.

This happens almost daily in our large cities. It can hardly ever happen in a rural community—there may be isolates, but at least something is known about them.

Of course, a rural community in western Europe cannot be compared to a primitive society. It is not and cannot be incapsulated, nor would this be desirable. Nevertheless, save where external conditions are extremely adverse, I believe that the rural dweller has some psychological advantages over his town-dwelling brother.

Firstly, there is often some survival of traditional co-operative behaviour. Secondly, the groups may be sufficiently small for some sense of common identity, of belonging, to survive in normal times, whereas in the cities this exists ordinarily only at periods of crisis. Thirdly, the home and the place of work are frequently near enough for the individual to lead a unified life, all of which is comprehensive within the same social framework: that this may lead to some friction does not negate the underlying structural stability it imposes. A variety of circumstances may prevent these things from operating effectively, but at least the country in this way has potentialities denied, at any rate until our sociological skills are greater, to the towns.

Faced with the need for planning it seems vital to discover a *via media* between economic size, dispersal, and organization, and the psychological needs of the individual. The example of industry shows that the traditional incentives of increased wages, shorter working hours, &c., do not make for increased production if the individual cannot feel that he has a participant role in his work-group. This means that if there is no adequate harmonizing culture, the morale of the individual—his psychological satisfaction—is so reduced that he cannot give of his best. As I have said, it is very hard to maintain a strong and valid culture in segmented city life,

and although the town has so much to offer to the country-side it has also profoundly disturbing psychological effects.

Being neither an economist nor an agriculturist I cannot presume to suggest how the inevitable and necessary but disrupting impacts of the large groups upon the small can be modified—that is a matter for technical knowledge. I am only trying to pose some problems which, I feel, must be answered if the material advantages of technical and social innovation are to counterbalance the disturbing effects they have on an existing pattern of social integration. For social integration is an essential prerequisite of human satisfaction.

J. F. DUNCAN, *late of the Scottish Farm Servants' Union.*

I do not know the language of the psychologist and the anthropologist, and therefore I hope it is without offence that I say that the speech we have just heard is quite incomprehensible to me. But when I heard the speaker talking about the integration of the rural society I could not help feeling that my experiences have been entirely in a rural society which has been steadily disintegrating for the past fifty years and probably before that time. It is a rural society with agriculture as its commercial undertaking employing wage-earners in groups which may vary, taking the norm, from 3 or 4 people employed up to a dozen. I would suggest to the social psychologists that it might be worth their while to study these groups. I think they will find that there is just as much difficulty in the individual adjusting himself to a group on a farm as in an industrial group, that there are more points of friction, and they are complicated by the fact that the very small agricultural group is not merely working together but living together, which again provides more points of friction. One of the difficulties in commercial farming, working with groups of wage-earners, is this difficulty of making the individual worker feel at home in his group. In my own particular experience in agriculture there has been more migration of labour, more changing of jobs, than in any of the industrial fields we have in this country, and time and again I have found that the changes have taken place because of the difficulty of the individual adjusting himself to the small group in which he was working.

This subject that we are discussing, whatever we include in the term satisfaction of the rural work and rural living, is a difficult one because we have to ask ourselves: Is there a distinctively rural work and rural living? I am rather surprised that no one yet has been talking about 'farming as a way of life'. It is the usual phrase that we hear in the attempt to distinguish agriculture from other occupations.

I have never been able to understand that phrase, because it has always seemed to me that one could in the same way talk about a way of life even of agricultural economists. In every civilized community where there is growing industrialization and a rising standard of living, there is the effort of the workers to escape from agriculture. We talk about it as the flight from the land, rural depopulation, and all that kind of thing. You find it also even in areas where settlement is still developing. Take America, where they went in for mechanization much earlier than any other country because of the difficulty of getting labour. That was not in an old settled community, but in a community that was still developing. But take the evidence of settled communities. It is the case that agricultural work and the rural life have been looked upon as something to escape from, and the effort has always been to escape.

There are various causes for it apart from the actual nature of farm work. There is the fact that civilization has been inclined to treat the rural people as though they were second-class people. Legislatively we have treated them as second-class people. They have always been later in being admitted to any of the social provisions made by the community. Even now Great Britain, the Scandinavian countries, Holland, and Czechoslovakia are the only countries that I know of where the same social provision, the same social protection, is made for the agricultural worker as for other workers in the community. Even in New Zealand—I think it is true, though I may be corrected —the very widely developed social services do not apply to the rural community in the same way as they do to the urban community. That fact tells on the men who are living and working in rural areas. It is in our common literature. The word in America is 'hick' or 'hayseed'; in England it used to be 'Hodge'.

Ashby referred to the sentimental slush that has been poured out on rural life and on rural people. I have seen samples of it from America, and we have had a perfect spate of it in this country. The theme is that there is something fine about working on the land, mother earth, the wind on the heath, and all those phrases; that farming is a natural life as distinguished from the industrial life. But what is there natural about a modern milk-cow? I cannot conceive anything more unnatural than what we have done to milk-cows. Is there anything natural about these miserable hens sitting on the wire netting in their boxes, being scientifically fed to produce the maximum number of eggs? Is there any particular joy in working on a farm? Taking farms, by and large, in any country—and I have seen a good many countries now—is there anything about the layout of a

farm, and the wading about in muck and dirt, that is attractive to a human being, to make it a more desirable way of living than any other? It is the conditions under which farm work has to be done which make it so disagreeable and undesirable. I have never felt that it was wages so much. In our country it used to be partly the working hours, but that has very largely been remedied now. There is also the engrossing nature of farm work, the seven-day week, the cow that must be milked at regular times, and all those other jobs that must be done and cannot be postponed at all. We talk about man being a slave to the machine, but at least you can stop the machine. You can go away and forget about it. But you cannot stop that cow, and you cannot stop the other things from going on. The weeds will not refrain from growing because you want to take a holiday. The human being is much more of a slave to the animals and to farm work than he is in industrial work. There is the story of the American who, when asked why he had given up farm work, said he got tired of being chambermaid to a mule. That does express one side of the farm work, and why it fails to give satisfactions.

What brought me into this discussion was what DeGraff said. A breath of fresh air came in with DeGraff's participation in the discussion. We talk about equal pay and that kind of thing. I think we sometimes use unfortunate words about it. It is not a matter of equal pay, but it is a matter of equivalent standards of living, something approaching equality of standards of living, between rural people and urban people. I think we are bound, those of us who are interested in trying to improve the conditions of rural people, to make that claim. We are bound to push it through, as Ashby said, frankly on economic lines. But when we start to pursue it on economic lines we come up against the economic dilemma that DeGraff presents to us. What is going to happen when you make that plain? As DeGraff puts it, unless there is something to attract rural population away, you only find yourselves in the position of having far too many people for your land resources, and therefore equality is a wrong aim even to have before you. What is the alternative? Consider the economic implications of having two standards in your community, a definitely lower standard for your rural community and a definitely higher standard for your urban community. We had reached that stage in Great Britain and in Scandinavia. I think our Dutch friends would agree that they have reached it as well. We see the effect of the dual standard, which is to depopulate the rural areas. The attraction has been selective, and the longer it goes on the more selective it becomes, because it is the more enterprising, those with

some initiative and ambition, that are attracted away. I do not agree with those who say that the effect of that selection is that there is degeneracy in the rural community. I do not think it affects the breed, and I doubt if geneticists would agree that there is any good reason for saying that it does. But it does affect the calibre of the rural population at any given time because the type of parents you have left to rear the children are less desirable parents, the type who are prepared to allow the world to run over them rather than to pit themselves against the forces which they ought to master. If you attempt to maintain that dual standard, the result will be a steadily deteriorating older population, the kind of thing that you find in the southern states of the U.S.A., or in certain districts in the highlands of Scotland, and in one or two of the outlying agricultural counties of England, and some of your hill country in the States.

If we are serious about equating the standards of living of the rural and urban communities, we have got to face quite seriously the reorganization of our agriculture and the stepping-up of efficiency to a much greater extent than we have done before. It cannot be done permanently by wangling the price level. That is what we have been attempting to do for the last twenty-five years. The American price parity is their particular aspect of it. Our particular aspect is the policy we have been following for some years of fixing wages and then handing out increased prices to the farmers to meet those wages, without any consideration of whether we are producing it from the industry at all. With the very small proportion of rural and agricultural population we have in this country, that kind of thing can go on for a long time without any very serious disturbance, because it is such a small section of our economic life. But if the rural population is considerable, one cannot go on maintaining it by pouring back into the rural districts subsidized wages, subsidized prices, or anything else of that kind out of the taxes or levies. Agriculture has got to be reorganized to provide these standards, and if that is to be done it does mean a very considerable disturbance in the whole structure of the agricultural population. We have either to accept DeGraff's position, and allow for the dual standard, or if we honestly and sincerely mean to close the gap between the rural and the urban standards, then we must set about the reorganization of agriculture in such a way as to enable us to produce the standards from the agricultural industry itself.

I would just like to say a word on this question of rural culture. I happen to be one of those people who like to live in the country, but if I had to live *on* the country and I had to find all my associations

in my own rural community, then in view of the restricted nature of that rural community I should find country life a very dull thing indeed. After all, what do we mean by urban culture? We mean that the community is large enough for the people who have common interests in particular directions to get together and pursue their interests because they can build up their groups. But if you think of culture as something to take out to the rural districts, you have to remember what a very small proportion of the urban population any one of these groups is. A lot of very well-meaning people have made up their mind that they are going to take music out to the country; to take the drama to the country; to take arts and crafts out to the country. They are all busily engaged doing something for rural life by stimulating what they call culture—their own particular brand of it—in the rural districts. And they wonder why they fail. They fail because in a sparse rural community the people who have like interests find it extremely difficult if not impossible to build up a sufficient group with the same interest accessible to one another. The community is too small to do it, and that will always be one of the difficulties. I was very glad to hear Ashby say that what we have to do in our thinking is to get away from this idea that there are two separate communities, the rural and the urban. I have had experience of three types of single communities. Our fisher people live very much by themselves. Our mining communities used to be very much segregated, living in their own villages, and our farming community, in Scotland at any rate, has been very much a separate single-occupation community with very little infiltration of other interests and of people with other occupations. I do not know any form of community life that is less desirable, that is more cramping, that offers less possibilities for development than the single-occupation community. Part of the difficulty that we are suffering from to-day in the mining industry is due to that long tradition of the miners being separated from the rest of the community, until everything presents itself to them as a miner's question. We are likely to suffer for a good long time to come in attempting to adjust relations in the mining industry until that idea has worn out of their system. It is wearing out now because the miners are becoming more diffused throughout the community. The same thing is true of the fishing communities, and I feel that the same thing is true to a very large extent of our agricultural communities. We have to get away from the idea that people pursuing the same line of occupation should live together, because that does so largely define the type of life that they are leading.

Mr. Duncan, *in reply to a question*:

The question, I understand, is: Have I any evidence to support the statement I made that the people who leave the land are the more enterprising, more ambitious, and, on the whole, better types of workers? I cannot give any statistical evidence of it, and it would be very difficult to express in statistics. We have to rely on general experience. I can only give my experience during a lifetime spent amongst them, and of discussing it with people who are in a similar position to myself, giving their experiences in their countries. The general consensus of opinion is that there has been a selective influence at work adverse to agriculture, so that it is not able to keep the sort of men that it would want to keep. The other evidence I can adduce is to the effort now being made in those countries where the labour problem has become serious, where the supply of labour is falling very short, to try to raise the standards of living of the agricultural worker so that we may be able to retain the type of worker that we wish to retain in agriculture and whom we found has been going away.

E. M. Ojala, *Department of Agriculture for New Zealand.*

I would like to thank Mr. Curle for making what I think was a valuable contribution to this discussion. I particularly appreciated his definition of human satisfaction as involving a sense of social integration. The two points which I have in mind to make arose when I was listening to Professor DeGraff this morning. They are both questions of attitude and very difficult to make, so I must ask you to bear with me. What I have to say has some relation to what Professor Thomas said this morning.

Perhaps I could usefully preface my remarks by telling you of a farmer whom I met recently in Finland. He employs eleven men. He said that through all his life he had regarded his farm workers merely as impersonal labour units, and only recently he had suddenly seen them as men and women. When he had made this discovery—new to him—it had not only made his farm business and his labour management much more interesting, but he found that his work-people were happier and their work responded to his new attitude. He said he had found that people mattered more than things. That is by way of introduction.

Professor DeGraff mentioned the movement of population away from agriculture into industry. In connexion with that movement and the need for it he doubted if it was desirable for agricul-

turists to work for equality of income on the farm as compared with industry. Dr. Renne dealt adequately, I think, with that question of desirability. The question that arose in my mind was: What is the attitude that gave rise to that statement? Maybe I am misinterpreting Professor DeGraff, but I wondered whether there is anything so valuable in the mere working of an economic system (which exists perfectly only in our minds) that we should be content to pay the price of having a section of the community living with low incomes. Certainly the movement of people out of agriculture into industry is a very necessary thing in many communities, and I think I have had sufficient experience with primitive societies in the Pacific to realize how basic that need is as a preliminary to economic advance. But should we rely upon a relatively low standard of living on farms as the means of bringing about this movement? If I say that I doubt it, then that would be, I think, a very moderate statement of how I feel.

Several speakers this morning mentioned the fact that farmers get a kick out of farming. I think that is true, and it is one aspect of the human satisfaction to be found in agriculture. But I think (and this ties up with something Dr. Duncan has just said) that what we do need in agriculture is some spirit or some method of organization whereby farm workers and farmers together can get a kick out of farming.

One other point Professor DeGraff made was that he felt the only way to achieve these human satisfactions was to concentrate on material advance. Now that seems to me a doubtful proposition. Again I do not want to be misunderstood, because I have a very clear picture of many communities—and I am thinking again of some primitive communities—where the need for material advance is very great indeed, and the lack of it is seriously limiting the possibility of achieving a higher level of human satisfaction.

But I am not certain that, if we concentrate on achieving a high level of purely material advance as our aim, we will necessarily achieve as a result a high level of human satisfaction. Dr. Coke referred this morning to the situation in Canada where concentration on technical progress on individual farms was sometimes being carried to the point where the agricultural community was suffering from a lack of civic leadership. And we all have many illustrations in our countries and communities of the strife and confusion that result from undue concentration on material advance as the goal to be pursued. It is very often hard to resolve conflicting claims based on material demands.

It is possible that if we accept as the aim of social progress the highest development and expression of human possibilities and personality then we may find that material welfare will emerge as a by-product. Perhaps we should not forget the uniqueness of the activity at this institution where we have our Conference. From what I have been able to observe and discover it seems to me that a prime objective here is the building of individual character as the basis of progressive living and working together. It is conceivable that from this sort of emphasis we will develop the material welfare that eludes so much of mankind to-day.

I leave these questions with you, feeling that they are sufficiently important to attempt to deal with, and yet very much aware of my inadequacy in trying to elucidate them.

M. El Said, *Fuad I University, Egypt.*

I shall be very brief, because I am afraid if I try to go too deeply into the matter I shall get too much involved. I have been very much impressed by the instructive paper of Professor Ashby. To my mind it gives enough enlightenment and suggestions in laying down the basis of a workable programme designed for the amelioration of peasant life in a country like Egypt. In Egypt we mean by a farmer one who owns and operates his own farm. Those are the only people, and they are very few, who get a kick out of farming. But the majority of the people who are directly attached to the land toil all the year round on irrigated farms and are getting very little. The largest share of their labour goes to the landowner in terms of high land-rent. This is to be expected in over-populated countries dependent mainly on agriculture. I might have gone on to discuss the economic and social characteristics of the Egyptian peasant, but that would be contrary to my own view of the essential purpose of this discussion. I believe that we are concerned more with the betterment of man as an individual than with the conditions of any particular nation. By this means we shall protect ourselves from getting too far into politics and the nationalistic consequences which would hinder, if not destroy, our effort.

I do not think I am being irrelevant to our discussion here if I say it is time now to take the individual, rather than the nation, as the unit of thought in social and economic planning. Only if we do that shall we see patriotism replacing, in large part, nationalism, and people of different nationalities having a great deal in common. This condition will make a better world in which effective measures can be seriously planned for the satisfaction of rural as well as urban life.

R. W. BARTLETT, *University of Illinois, U.S.A.*

In reference to the discussion of the day it seems to me that we have to realize one important fact. That is that each of the twenty nations represented here represents a peculiar type of economy. As I see it we should not try to map out a pattern which can be fitted to all economies, but rather should raise the question: What are the most important problems retarding realization of human satisfactions in rural work and in rural living in *my* economy ?

Specifically, we can take Mr. Shenoy's discussion yesterday about some of the problems in India. People there, apparently many of them, frequently are on the verge of starvation. That represents one of the important problems for India. I was very much pleased at Mr. Shenoy's suggestions for a balanced approach to their problem; first with mechanized farming and then, with the release of workers, the development of urban industry which could absorb these workers. That reasoning is a realistic approach to the real problem of improving satisfactions in India.

Mr. Murray discussed this morning some of the problems of Iowa. He is thinking of Iowa farmers. Every farmer in Iowa has an automobile. Every farmer there has an opportunity to travel in a wide area and enjoy a lot of the satisfactions that are impossible for an Indian farmer who does not have an automobile.

Mr. El Said has been discussing some of the problems of Egypt. To me it seems only good sense for each of us to start from where we are and to attempt to work out improvements in the conditions of farmers in each of our economies. As we think through these problems, some of the suggestions that are found to be workable in India may also be workable in Palestine, or workable in some other economy. It is confusing the issue to expect an English type of farming to be quickly adapted to an American type of farming, or an Egyptian type of farming to be adapted to farming methods used in Hungary.

Now there is one other point that I should like to make in regard to agricultural economists. We have four types of economists in a country. One is labour economists, who deal mostly with the problems of labour. We have business economists who teach in our colleges of commerce and deal with the problems of the business man. Agricultural economists constitute a third group whose main objective is to deal primarily with the field of agriculture. It seems to me that possibly we have done too little to develop the 'statesmen economists', towards which each of these types should rise. In other

words, it seems to me that we have got to rise a little above the well-being of our own particular group and ask the question: Is this in the public interest? As university men it seems to me we are not doing our duty unless we look at each question of farm policy from the viewpoint of public interest.

During the past few years it has been my privilege to work on problems which were controversial. In attempting to find sound solutions to these problems it is absolutely necessary that one should develop a social philosophy which will help one to keep in the middle of the road. In any question dealing with policy, whether it be price policy or whether it be the policy of a new governmental institution, I ask myself three questions: First, *Is this policy in line with public interest?* Is it something that will help to improve the standards of living of the people whom I, as a university representative, am serving? Is it something that will improve health? Will it help people to arrive at sound decisions? The question of interpretation of public interest, of course, has to be a concept of one's own, but there are certain things which are generally accepted as being in the public interest.

The second question: *Is this policy fair?* Is it fair to workers? Is it fair to farmers? Is it fair to urban business? Is it something for which I can go out and be hit at from both sides and still stand up?

The third question which I raise is: *Is this policy workable?* This is very important, since we can have a lot of things that are of public interest and that are fair, but which are simply unworkable. For every thousand of the most altruistic schemes in the world, 999 of them will not be workable. You have to think every proposed policy through. Can the policy be applied to everyday practice?

As an example of the application of this method of analysis may I refer to our Rural Electrification Administration which came into being in the 1930s? The purpose of the R.E.A. is to provide funds so that electric power can be made available to farmers who do not have power. Under the set-up the Government loans money to agricultural co-operatives, consisting of a group of farmers—maybe 300 in a community—who organize the co-operative and who, under government procedure, build electric lines. Several years ago the R.E.A. programme was submitted to the three tests.

First: Was such a programme in the public interest? The facts showed that we had 3 or 4 million farms without electricity. The thing that raises mankind from the level of a beast to one who has the privilege of enjoying life is power in place of muscle. Hence the answer to the question of improving the standard of living of our farm household was a healthy '*Yes.*'

The second question: Is a system of loaning public funds for this purpose fair to other groups in the society? To do this it would be necessary to take certain funds from the public treasury and loan them to a particular group. Study showed that according to the proposals, the loans would be made on a basis which could be amortized in a period of twenty-five years. At the end of the twenty-five years the funds would be repaid to the Government, and the electric lines would become the property of those using them. It seemed to me that in this case the answer to the question 'Is it fair?' was 'Yes.'

The third question was: Is the policy workable? At the time this question was raised we had farmers' purchasing co-operatives in the United States extending from coast to coast which had already proven their ability to operate successfully. So this proposal was one of applying the same principles to the electric co-operative which had been applied to the farm purchasing co-operative. And so the answer to the question: 'Is the policy workable?' was also 'Yes.'

From 1930 to 1940, 90,000 farms in Illinois alone were electrified out of a total of about 200,000. Over a million farms in the United States were electrified between 1930 and 1940.

Repeating what I stated at the beginning it seems to me that to attain our objectives in the realization of human satisfaction we have first to raise the question: What are the most important problems retarding the realization of satisfactions from rural work and rural living for people in my own economy? After getting answers to this, then we should attempt to start from where we are and head towards our goal of improving standards of living for the people living in this economy.

A. W. Ashby.

I am very glad indeed that we have had the lyrical statement from Dick Henderson. Perhaps all I need to add is that I knew him more than twenty years ago, when he was fairly fresh from a Northumberland farm, and in those days I used to listen to statements equally lyrical with a totally different tone and content.

In the little time which is available I would like to refer to Mr. Curle's statement and to say this, that before I started to prepare my notes for this paper I did look up as many of the psychologists' and anthropologists' statements about the psychological needs of man in society as I and a colleague could find. But when the definitions were on paper in front of me I found them so involved, so difficult to understand, that I thought it would be useless to open this paper

with them. Indeed, one or two of them are wrapped up in words which are almost meaningless. However, I am afraid that Mr. Curle was to a certain extent analysing a picture which he had already built in his own mind rather than analysing the objective world. It is true, of course, as I think I stated in my own paper, that one of the psychological needs of man in society is that of feeling that he matters to the group to which he belongs. But I would now add, not necessarily to the group to which he belongs by birth; rather that he should matter to the group to which he has the interest and capacity to belong. Those are totally different things. He also said, I think, that one of the virtues of a small society was that the individual actions should or would be consistent with the structure of society as a whole or of his own society as a whole. But it was, I believe, exactly that expectation which drove many of my generation out of those small rural societies. Exactly that situation: that if you wanted to think for yourself and to express your thoughts, if you wanted as a man under 35 to make an innovation in farming practice, in social, political, or religious affiliation, you just had to get out of your small society in order to be able to do so. Then I think Mr. Curle was also drawing a distinction between urban society and rural society with reference to the association of work and living. I know that these distinctions have been drawn and comparisons have been made on many occasions. I know, for instance, the suggestion that the separation of work and living in urban societies, for instance in the case of the man who goes from home to a lock-up shop during day-time and leaves his wife at home, is responsible for a lot of marital breakdowns, or at least marital discomfort. But the fact that we have less of open and obvious marital breaches, less divorces or separations, in rural society is not evidence that we do not have the same psychological breakdowns, or that the same breakdowns of affection have not occurred. The property or income interest holds many rural marriages together. The fact is that the woman does not know another source of income, another method of maintaining her children, or way of avoiding the sacrifice of their prospects of support or inheritance if she leaves her husband. Conversely, the husband loses important economic services if he parts with a wife. From the moral point of view, or from the point of view of psychological satisfaction, I am not at all sure it is not better under adverse circumstances to have the breakdown than to have the continued discomfort and occasionally the continued misery. But we are sometimes told in the same way that the rural family is a better family than the urban. Again, many rural families are held together by property

interests, even if it is only the movable capital on the farm. If your standards of comparison are personal loyalty, affection and its power, there is no comparison whatever between an urban family, in which a father and two sons or a son and a daughter, and perhaps more children, have separate occupations, go after breakfast to these separate occupations, come back at night to the family, and pursue certain individual interests as well as certain common interests, thereby holding together as a family for many years, and a rural family held together by economic or other compulsion. The affection and the moral position in a family of that character is the higher; perhaps not higher than in all rural families or even the majority, but certainly higher than you will find in a minority of these rural families. But, definitely, when Mr. Curle was telling us of the isolated individual who died unknown to her neighbours and that this thing could not occur in the country-side, he was just making a picture in his own mind. Actually these are the conditions: that there is scarcely a large village in this country in which, if you know it well, you will not find an isolated group of two or three houses, sometimes two houses separately, in which the village prostitute lives, in which the poacher lives, in which somebody lives who has spent six months in jail; people who are on the fringe of society and sometimes who are definitely outcasts. And actually the case of the outcast child or the child from the outcast family or the fringe family is one of the real problems in rural schools and in rural education. Then we can find cases exactly like his own of old men and old women who either died or were discovered to be ill and taken to the workhouse or, as we call it nowadays, to the County Hospital. We do have outcasts, we do have isolated individuals and fringe families in rural society, and I would not be surprised if when we traced them we would not have as high a proportion in rural as in urban societies. Again when he tries to draw a contrast between an urban community and a rural community and tells us in terse words that 'a street is not a village', I must say that my experience of urban communities is somewhat different. I think I could take him to streets, little groups of streets, which have many of the characteristics of a village—like personal knowledge of all the 'accepted' people, personal interest and gossip, the same attitudes to new-comers or 'outsiders', in general much the same 'sense of community'. And we should never forget that this 'sense of community' involves or carries with it certain attitudes to outsiders.

But that is not the whole story. The main thing about the urban group, especially about the urban group of somewhere between

25,000 and 40,000 people, is that in that sort of group it is possible for the individual with almost any type of interest to find a similar group, to find an interest association, and very often on the interest association to build a community life. The individual also makes his community attachments in other ways.

Then consider two other of the virtues of the small social group chosen by Mr. Curle that I made a note of. One was the survival of the traditional modes of behaviour, of which I have already said something with reference to the expectation of behaviour in society. Here I would say that in this world of changing technology, of changing economic forces and institutions, it is just that survival of the traditional modes of behaviour which makes adjustment so very difficult and which causes in many instances grave discomfort. The other is that of a common identity or identity of interest. If you begin to say that one of the virtues of a small rural society in this country is that it exhibits a common identity of people or interest, it is just all rubbish! One of the strangest things I know is that we in this country never began to talk about the breakdown of the rural community until the working classes of the country-side began to go into the towns for their shopping and their entertainment. The facts are that the landowning group in this country always built its community either on a county or on a national basis, and that the main group of farming families in any locality always built its community on the basis of a market town.

PROBLEMS OF INDIAN AGRICULTURE

SIR MANILAL NANAVATI

President, Indian Society of Agricultural Economics

BEFORE I commence my talk on the subject assigned to me I must thank you for the very kind reception you have accorded us to-day and all through this Conference. Perhaps most of the members here do not know that the Indian Agricultural Economics Society, of which I am the President, was founded by our Chairman, Mr. Elmhirst, in 1939. Having had intimate contact with Indian agriculture for several years he rightly felt the need of having an institution devoting itself to the study of the agricultural economy of the country. It is on the foundation laid by him when he was in India in 1939 that we have built our Society, although it has not acquired the same prestige and the same status which your institution possesses. May I take this opportunity to convey to him on behalf of our Society our grateful thanks for bringing that Society into existence and giving us help, guidance, and encouragement at every stage. You will be interested to know that in 1944 he inaugurated our conference at Allahabad and gave us very valuable hints on the development of Indian agriculture. But his interest in Indian agriculture is not merely in holding conferences. Those of you who have heard of Dr. Tagore's Shantiniketan in Bengal must know that this institution has a branch for the study and development of agricultural economy and rural life. This agricultural institute, again, owes its origin to the initiative and help of our Chairman. To us who come from India, therefore, our meeting is a reunion of old associates who have been working for agriculture more or less on the same lines and will continue to work for a number of years more in the same direction.

I have not prepared for this morning's discussion, but I am going to try to do justice to the subject in which we in India are at this moment of our national life most deeply interested, viz. the problem of rehabilitation of our agriculture. It seems to me that agriculture presents one of the most difficult and most complicated problems for the economists and administrators of India. I would not like to take you through all the ramifications of the subject, but shall give you, in a few words, a comprehensive view of the present agricultural situation in our country.

You all know that we have a very vast population—nearly 400 millions. During the last two or three days I have been repeatedly asked: What are we going to do with that population? The basic fact of Indian economy is that, out of these 400 millions, nearly 75 per cent. are directly dependent on agriculture. About 88 per cent. live in villages and only 12 per cent. in urban areas. Thus the country's economic well-being depends on the condition of our villages, which in turn depends on the condition of our agriculture. It is the backwardness of agriculture which keeps the country poor. Even on a low estimate, 60–70 per cent. of cultivators have uneconomic holdings. Again, most of these uneconomic holdings, as a result of the laws of inheritance, are fragmented and scattered about in the village. Cultivation of land taken on lease is much too widespread, since 50–60 per cent. of the cultivators are tenants. Most of them are tenants-at-will, sharing their produce with their absentee landlords who very seldom render any useful services in the cultivation of their lands. The net result is that the population pressure is more than the land can bear. The symptoms of this economic disease are too glaring to escape the notice even of a casual observer—poor physique, lethargy, low vitality, and incapacity to resist famine, disease, and epidemic, high mortality, and so on. The Bengal famine of 1943 is only a tragic proof of the disorganized state of the business of farming in India. In the last seventy-five years we have added only one year to our expectation of life. Our agricultural yields not only fail to show any increase but have been actually falling in many parts of the country, in spite of the fact that we have added 20 per cent. to the area under irrigation. Indebtedness has become chronic although we have been trying for the last forty-five years to stop usurious borrowings and to lessen the debt burden by developing the co-operative movement and, recently, by compulsorily scaling down old debts. Even the four or five years of unprecedented rise in agricultural prices since the war began have not brought any substantial relief to the cultivators, as a vast majority of them produce for their own consumption and have too small a surplus to sell to be able to benefit by the higher prices. On the contrary, most of them have lost a good deal during this period owing to bigger rises in the prices of their other requirements such as implements, cloth, plough-cattle, oil, and so on. No doubt the bigger landlords—about 16–17 per cent. of the cultivators—must have benefited during this period, but the vast majority—the uneconomic holders, tenants, and share-croppers —have been left poorer by the war. It is because of such numerous odds against the average cultivator that our yields are going down.

The backwardness of agriculture is more clearly seen in the distribution of national income. According to the study on this subject by one of our university professors, agriculture, on which over 70 per cent. of the population depend, gets only 38 per cent. of the national income. On the other hand, industry, services, trade, transport, and professions, in which 28 per cent. of the working population are engaged, get 42 per cent. of the national income. As a result the income per worker in services is Rs. 307, in industry Rs. 195, and in agriculture Rs. 133. The *per capita* income in agriculture is Rs. 48, or only 15 dollars. These figures relate to the year 1931–2.

Now, you might ask me: 'Why is it so?' We have reason to believe that about a century and a half ago our agriculture, as a business, was in a flourishing condition. The land was cultivated by a class of people who, in efficiency, could compare favourably with cultivators in any part of the world. Even at the close of the last century, one of the British agricultural experts who toured India said that the Indian cultivator was quite as good as, and in some respects the superior of, the average British farmer. Even to-day there are a number of genuine cultivating classes such as Lingayats, Jats, Kunbis, or Patidars, who are well known for their intelligence, hard work, thrifty habits, and efficiency in cultivation. But the number of these classes in agriculture is now slowly diminishing as the decaying conditions in the village make the town more attractive to them. The town has additional attraction for them because it has better educational facilities—three out of five villages in India have no schools—and they think that if they educate their children they will do much better in business, professions, or service than in agriculture.

Side by side with this fall in the number of efficient cultivators we find an increasing number of inefficient classes swarming into agriculture. I think it is a phenomenon peculiar to India that in spite of large-scale industrial progress the number of people actually employed in industry has greatly diminished during the last century. This is so because the small handicrafts of old have been succumbing to competition from the highly industrialized West, as also from the indigenous mills and factories. Every decade more and more men in these small crafts have been de-employed and thrown on the land. In 1880 nearly 13 per cent. of the population were engaged in industries. In spite of the development of large-scale industries during the last sixty years, the proportion has fallen to 9·3 per cent. As a result the percentage of the population dependent on agriculture has risen from 56 to 75 during this period. This increasing pressure on land,

decade after decade, would have been more glaringly shown if we had occupational statistics for the last hundred years. But the first census in India was conducted only in 1876, and it took some time for these censuses to be conducted on reliable bases. Nevertheless, if we note that since 1900 the industrial population has declined, and that the gross cultivated area has increased by 31 million acres or by 15 per cent. while the population has increased by 75 million or by 34 per cent., the only possible conclusion is that population is outstripping land.

The net result of all this is that, as I said, land is getting increasingly fragmented and subdivided. Economic holdings soon become uneconomic, and the holder thereafter goes on mortgaging or selling parts of his land until he is caught in a vicious circle of poverty increasing his debts and his debts intensifying his poverty. Ultimately he sells off his land and becomes a landless tenant, share-cropper, or labourer. The number of this agricultural proletariat has been increasing fast in India. Between 1891 and 1941 landless labourers alone have nearly doubled themselves to 40 millions. There has been a similar increase in the number of tenants and in the extent of leaseholds. The agricultural strata to-day thus comprise a small minority of large and economic holders at the top and a vast number of uneconomic holders, tenants, and labourers at the bottom. This is the situation in which Indian agriculture finds itself to-day as a result of forces operating during the last hundred years.

The main cause of this continuous deterioration is the system of land tenures and tenancies in India, which is the most vicious system one can think of. As far as tenancy is concerned, even though laws have been passed to improve the system during the last ninety years, the actual producer has benefited but little because he is helpless on account of the keen competition for land. As for the tenure system, we see it at its worst in the Zamindari settlement which is 'permanent' in some areas and 'temporary' in others. In the permanent Zamindari tenure system a single landlord may be owning an area comprising as much as four districts. He is responsible for the payment of land revenue which was fixed when the settlement was effected early in the last century. This system was introduced by Lord Cornwallis, who wanted to place Indian agriculture on the basis of British agriculture by creating 'benevolent' landlords. Moreover, the administrators of that period found it difficult to frame an organization to ensure prompt and regular collection of revenue. The British Government wanted also to create some vested interests on whose loyalty they could always count. So they declared the tax-collectors

of those days to be the zamindars or landlords and fixed the revenue to be paid for all time to come. These zamindars were left to collect whatever they could from their tenants—a privilege which was grossly abused by the zamindars for a long time until, in 1859, tenancy legislation was enacted to restrict the freedom of making extortionate demands from the cultivators. A number of laws have been passed since then, but they have not eradicated the evil completely. The difference between the permanent settlement and temporary settlement is only that, in the latter case, the revenue due to the State can be revised by Government every 20 or 30 or 40 years.

This conferment of proprietary rights on tax-collectors has worked greatly to the detriment of Indian agriculture. It has killed the initiative and the spirit of enterprise in the tenants and sapped the agricultural structure of its vitality. The tyranny of the zamindar, though moderated by law, still continues. A Royal Commission which investigated the effects of the Zamindari system in Bengal —one of the most landlord-ridden provinces—reported that illegal exactions by the zamindar still continue. If, for instance, there was a marriage at the landlord's place, the tenants would be required to place their carts and bullocks at the disposal of the landlord to carry people in the marriage procession and even to pay levies in cash or in kind.

The drawback of the Zamindari system became obvious to the early British administrators about forty years after the introduction of the system. By that time it had been extended to about 55 per cent. of the area—mainly in Bengal, Bihar, C.P. and Berar, Orissa and U.P. Subsequent settlements, therefore, were made, not with any intermediary interests, but directly with the ryot or the cultivator. This system is known as the Ryotwari tenure.

In the Ryotwari areas the cultivators are, comparatively speaking, better off. The land is owned by Government but is leased out to the cultivators on certain conditions such as regular payment of the state dues, that is, revenue, and taking care that they do not do anything which will damage the productivity of land. But here again, due to several causes, the conditions to-day are highly unsatisfactory. Firstly, the law of inheritance which permits each heir an equal share in every type of land. As a result of this law land has been continuously subdivided and fragmented and we have reached a critical stage where a large number of holdings are uneconomic to-day. Secondly, owing to the unrestricted rights given to the ryots to lease, mortgage, or sell their land, lease cultivation with its attendant evil of absentee landlordism has become widespread. The right to mortgage or sell

land tempted the agriculturist to raise money—more often than not for unproductive purposes—and thus to sink into irrepayable debts deeper and deeper until they sold their land and became a tenant. Tenancy and absentee landlordism thus also characterize the Ryotwari tenure, although not to the same extent as in the Zamindari areas.

In the Zamindari provinces, particularly in those areas which are permanently settled, the margin between the statutory rent and the competitive rent is very wide, and this has given rise to a long chain of middlemen between the zamindar and the actual tiller. The Royal Commission to which I referred earlier found that sometimes the number of these middlemen was as high as fifty. Under the circumstances you can well imagine what will be left to the poor cultivator after surrendering the larger part of the fruit of his labour to support as many parasites as that. This situation not only makes the tenantry poor but also impoverishes the land. Neither the zamindar nor any of the middlemen evinces the least interest in the good use of the land. In fact, so remote is the zamindar from the land that the cultivating tenant seldom knows to whom the land belongs and the zamindar is equally ignorant as to who makes use of his property. The zamindar's sole concern is to get his share in the revenue, which is about one-tenth of the total collections. In the permanently settled areas the revenue to be paid to Government was fixed in perpetuity, with the result that all extra collections, whether legitimate or otherwise, go to the zamindar. Since land values have gone up rapidly since the introduction of the permanent settlement, the zamindars in these areas have gained immensely due to this permanent fixation of their contribution to the Government. This 'unearned' income has been a heavy drain on the villages.

The situation in the Ryotwari areas, though comparatively better, is far from satisfactory. The same symptoms of deteriorating agriculture, namely, predominance of uneconomic fields, fragmented holdings, chronic indebtedness, and transfer of land from the agriculturists to the non-agriculturists are all present in these areas as well. Between the ten years 1926–7 and 1936–7, for instance, the agriculturists in the Bombay province alone lost as much as 5 million acres or 20 per cent. of the total cultivated area to non-agriculturists. The number of non-agriculturists owning land also increased during this period from 200,000 to half a million. This shows how rapidly tenancy is increasing even in the Ryotwari areas. During the last twenty or thirty years, transfers of land have been on such a large scale that to-day tenancy covers as much as 65 per cent. in the

Punjab, 30–35 per cent. in Bombay, and about 40 per cent. of the cultivated area in Madras. If this process goes on unchecked, more and more land will pass into the hands of non-cultivating owners, and thereby the number of landless agriculturists, tenants-at-will, share-croppers, and farm labourers will reach alarming proportions.

It is because of these unhealthy trends that in spite of numerous schemes to improve our agriculture technically or scientifically, the results have not been commensurate with the efforts made or the money expended. The Famine Commission found that in Bengal in fifteen years the yield of rice had fallen from 14 to 12 maunds per acre. Figures regarding other crops such as wheat, sugar-cane, and cereals point to the same conclusion. The significance of this continued fall will be clear when it is remembered that, already, our lands have one of the lowest yields in the world. Every small decline, therefore, means immense loss and hardship to the country, especially when the population is fast increasing.

For a long time the Department of Agriculture held that the deterioration of agriculture was solely due to the farmers' unwillingness to take full advantage of the improvements suggested to them. Illiteracy in the villages being as high as 95 per cent., this official view met with little opposition and was readily believed by the educated sections of the public. But during the last ten years the view has been gaining ground that the defect lies not so much with the farmer as with the system in which he is working to-day. I know of at least two Directors of Agriculture who, after spending nearly thirty years in India and trying their best to raise the yields from land, have, during recent years, come to the conclusion that unless the land system is completely overhauled, nothing substantial, nothing definite will be achieved by the introduction of better varieties of crops, better manures, and such other technological improvements. These measures, no doubt, have raised the yields in some areas but, as far as the bulk of agriculturists are concerned, the situation has not improved and, in fact, has even worsened.

That this is a fact is obvious when we look at India's food position. According to the Famine Commission of 1880 we had a surplus of 5 million tons at that time, on the basis that each person consumed 1½ lb. of cereals daily. In fact, the minority held that this level of consumption was too low and pleaded for a higher level. But just before the recent war India was faced with a food deficit of 10 million tons, even when the *per capita* consumption was placed as low as 1 lb. a day. Since the war the consumption has been further reduced to 12 oz., in some cases to 10 and even to 8. It is true that the human body has

a sort of resistance and can adjust itself, at least for some time, to any conditions under which you place it. But the effects of this low level of consumption will not fail to make themselves felt in course of time.

This is the critical situation we have come to as a result of continued deterioration of our agriculture. The *per capita* consumption has fallen to a half and, in some areas, to one-third during the last six or seven years. It might fall still further if this deterioration of agriculture continues. It cannot be too strongly emphasized that we cannot afford to ignore this fact. Last year we tided over the crisis by importing 4 million tons of food from outside, and this year we will be doing the same. With all that we will have a *per capita* consumption of only 10–12 oz. I am not sure whether next year we will be able to import any food at all, because I do not know whether we will have enough of foreign exchange to pay for the same. For, after all, our ability to spend on food is limited. We want to expand our economy, and for that purpose we have to import capital goods on a large scale from abroad. The choice is difficult, and in either case we stand to suffer, at least temporarily.

No doubt efforts have been made for growing more food within the country during the last four or five years. But the results are uncertain and, if positive, negligible. The Department of Agriculture claims to have increased the yield by 2 million tons, but the Food Department complains that this extra production is nowhere visible or cannot be obtained for distribution. In Bombay the university recently made a survey of the operation of the Grow More Food campaign in a part of the province and found that, in spite of the campaign, less food was grown now than before the war. This is only to be expected from a disrupted and disorganized agricultural economy. In a village survey projected by our Agricultural Economics Society, we found that on nearly 750 acres of land the food production was only one-third to one-half of the land's capacity. Where we ought to have got 20 maunds of millet we got only 5–7 maunds. It is not that the people do not know the value of better methods of farming, marketing, &c. But their deep-rooted poverty and chronic indebtedness come in the way of adopting even such improvements about whose value they are quite convinced. The war has only intensified their difficulties by creating scarcity of fertilizers, iron ploughs, and other implements, by raising the fees for the hire of cattle for ploughing, and so on. Even the installation of irrigation pumping sets is a difficult problem. I myself have been trying hard for the last six months to get an oil-engine to extend

irrigation in the village surveyed by us, but I have not succeeded so far. You can well imagine how great would be the difficulties of an average farmer in improving his method of farming under such abnormal conditions.

The remedy generally suggested for this situation is that we should industrialize the country and reduce the pressure on soil. But even this remedy will be of little avail if we do not proceed with the plan of industrialization discreetly. While reducing the pressure on land in this manner we shall have to see that particularly those persons are drawn away from agriculture who are unfit to be efficient cultivators. I have explained already how, owing to steady de-industrialization, people from all classes have swarmed on the land without considering whether they are sufficiently qualified or equipped for the job. Those who are inefficient and thus depress the productivity of land and help only to create rural slums in our country-side should be gradually absorbed into industries.

But we cannot hope to industrialize the country in a day. Industrialization is a long-drawn-out process. In the meantime we have no other alternative but to overhaul our agricultural structure and to place it on stable foundations. That is why I have always felt that we should have a sort of seven-point programme for our land development. I should like to explain what these points are.

Firstly, all land must be declared as belonging to the Government By such a declaration all zamindars and absentee landlords who fulfill no useful function will be removed from agriculture. As a parasitic class they have no right to live on the land. Their habits and modes of living are such that they cannot be made a useful part of agricultural structure.

My second point is that the cultivator should get only the occupancy right. He should not be given the right to divide his property or to transfer it as he likes. This may go against some of our cherished ideals or against the current practice, but I think we have to formulate policies suited to our conditions, which are getting desperately bad. Your conditions are different. You can afford to give more money and more security to the farmer who operates on a commercial scale. He is a business man. If cultivation does not pay, he will at once give up farming and take to another occupation or profession, or migrate to another place. But in India one who is born a cultivator will live a cultivator and die a cultivator—howsoever great the odds against him. Farming to him is a mode of life, not a business. There is no other avenue of employment for him. That is why, even in those areas where legislation for consolidation of holdings has been passed,

land gets subdivided and fragmented more and more every generation. The right to divide land should, therefore, be restricted by suitably modifying our laws of inheritance. I am glad to tell you that in Bombay province the Government is trying to restrict the right of inheritance, although indirectly, by prohibiting division of land beyond a certain limit. I do not know whether the bill has finally passed through the legislature. But it is clear that we are gradually coming to feel that all land belongs to the Government and that the Government has every right to apply the necessary restrictions to ensure its proper use.

The third point is that every holding must be an economic unit. It is of no use rendering any financial or other help to an uneconomic holder. It all runs to waste. That is why it must be provided by law that whenever any land is to be transferred the holder of an adjoining uneconomic field must have a priority right to purchase it. We call such a legal provision the Law of Pre-emption. Usually this law is applied to the urban areas to discourage or prohibit foreigners from settling down in our neighbourhood, but this law is now being applied by some provinces to agricultural land to prohibit the sale of an uneconomic plot to anyone except an adjoining holder.

The fourth point is that every holding must be in a single block. Fragmentation has gone too far in India. Holdings are scattered in even 10 and more pieces. On an average, it is said, a holding in India is parcelled in 8–10 strips. The result of this is a colossal waste of time and energy, particularly during the busy season. Moreover, under these circumstances only the land near the village gets the best attention. For instance, dividing the village lands into three classes—land around but close to the village, lands within a moderate distance from the village and, thirdly, those on the outskirts of the village—it will be found that the last will get the least manure, their crops will have the least protection, and their yields will be the lowest.

We shall, therefore, have to work from two directions towards this end. Firstly, we shall have to consolidate fragmented holdings. This has been done in the Punjab and in parts of the Central Provinces with considerable success either by persuasion or by compulsion. But other provinces are not yet ripe for this kind of legislation. The Government of Bombay, however, has decided on taking strong action and is assuming comprehensive powers to enforce consolidation of holdings in all villages. Secondly, the cultivator should be encouraged to live on his own farm. This, however, may appear strange to some of you, as the trend here is to drive the farmer towards the villages. But from my own experience I have found that

our villages are so congested and insanitary that it would be better for the people—particularly the farmers—if they would spread themselves out instead of huddling together in rural slums. If every farmer went to stay near his farm, he would not only get better accommodation for himself and his family, but he would be able to tend his cattle better and it would be possible for him to have the help of his family in his work whenever he needed it. This should not inconvenience him, because our villages are not so far-flung as in your country. Generally the distance between two villages is only about a mile or two, and as such it should not be difficult for those who settle down on the fields to avail themselves of the amenities available in the village.

The fifth point is that the cultivator should not be allowed to raise credit on the security of his land for unproductive purposes. The Indian villager is well known for his extravagant spending during festivals, marriages, and funerals alike. This is partly due to the social customs which require him to perform certain religious rites or to entertain his caste people by giving a feast and to give alms to the priests on such occasions. That is why we find that nearly 25–30 per cent. of the debts incurred by the farmer are for unproductive purposes. This is true of farmers from all castes and creeds in our country. In Baroda state the Government has passed a law which removes the rigours of the caste system and protects a member who does not observe the expansive caste rules regarding marriages, compulsory caste dinners, and such other customs which add to his debts. But the force of custom is very strong and the law has only a negative effect; we need legislation which positively prohibits one from mortgaging or selling his land for raising credit for such wasteful purposes. All transactions in land should be with the permission of the Government.

Another point in the programme is that we must regulate the lease-contract in such a way that the landowners who do not cultivate their own lands have no incentive to hold lands. The ultimate objective is that the land should be cultivated by one who owns it, as only in that case can we be sure of efficient use of the soil and the fullest retention of the produce by the cultivator. To begin with, we must put an end to the crop-sharing system. My experience of thirty-five years has convinced me that the share-cropping system has no place in a country like India. The monsoon is so uncertain and irrigation facilities so limited that it is the share-cropper who has to bear all the risks of enterprise while the landlord has nothing to lose but everything to gain by the system. This system should be

replaced by cash rentals not more than three to four times the land-tax or revenue paid to Government and also correlated to the price level each year so that the tenant may not lose in times of low prices. This reform is highly necessary because the landlords, mostly from the money-lending classes, particularly in the backward areas, have gone to the length of transforming the impoverished tenants into serfs. While regulating the rentals in this manner to discourage land-ownership by the non-cultivating classes, it is also desirable that the Government should encourage and help the tenants to buy the land which they cultivate on lease.

Finally I come to the land-tax, which is highly inequitable to-day. Land in India is assessed according to its productivity per acre. While fixing the assessment the Government takes into account factors such as the type of soil, irrigation facilities, nearness of market, prevailing price levels, &c. But no consideration is given to the net profits from the holding, which vary mainly according to size. As a result the land-tax in India is not only not progressive but actually regressive in effect. We must therefore have a graduated system of land-tax which will, on the one hand, completely exempt holdings below a certain minimum while, on the other, it will be progressively higher as the holdings increase in size. To make good the loss from exempting the uneconomic holdings, the Government should levy a tax on agricultural incomes. This would remove another anomaly from our present taxation system under which non-agricultural incomes over Rs. 2,000 are liable to tax but agricultural incomes of large landholders are completely free of income tax, even when they run into several thousands. Recently agricultural income tax, however, has been introduced in five out of eleven provinces, but the tax on the uneconomic holdings, however, continues all over the country. I may add that the levy of agricultural income tax is not of much avail unless the tax burden on uneconomic holders is lightened.

These are the essentials of the policy for our agriculture, which, as I said, has got into bad ruts to-day. I do not wish to say more on this subject, but before I close I should like to answer in brief one question which I have been asked by several members during the last two or three days. Their question is: How is India going to manage with her 400 millions? My only reply is that to-day, at any rate, we are not alarmed by this number. Look at your own population statistics. They show that between 1870 and 1930 the population of Europe increased by 198 millions or 64 per cent., while during the same period that of India increased only by 88 millions or 31 per

cent. No doubt we cannot afford to allow the population to increase even at this rate. It is true that the problem is already big enough, in fact the biggest we are faced with, namely, how to ensure a decent standard of life to all. But it is not an insoluble problem. We do have the resources to develop our economy, to build new industries, and to create new avenues of employment. To give only a few instances, we have a potential reserve of water-power which is estimated to be 27 million kilowatts, but less than 1 million of it is utilized. We are using hardly 10 per cent. of water that descends from the heavens and the snow-capped mountains while we could easily utilize 25–30 per cent. for producing electricity as well as for irrigation. We have also a great store of minerals. India, if we look at her deposits, is one of the world's major reservoirs of mica, coal, and iron; besides she has large deposits of several other minerals. We can be equally optimistic of our forest resources which remain largely unutilized to-day. Nearly 13 per cent. of the country is under forests which can supply a rich variety of timbers, fibres, resins, and material for a number of industries such as the manufacturing of matches, paper, rope, mats, &c. But the sad fact about India is that her economic development was, all these years, retarded by her political conditions. She has now won her freedom, and let us hope that the rulers as well as the ruled in free India will co-operate in this task of national rejuvenation and progress.

RECENT AND PROSPECTIVE CHANGES IN FARMING IN THE UNITED STATES

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PRODUCTION CHANGES

THE changes in farming under consideration in this paper are those that have developed and that seem to be in prospect in the United States. It seems desirable to interpret the term 'recent' somewhat liberally in order to consider developments in the inter-war period because the foundation for the large production increases of the war and early post-war years was laid in the period between the two wars. In considering the broad sweep of changes since the First World War, most of the comparisons are from statistics contained in the agricultural censuses of 1920–45 and from the annual estimates of the Bureau of Agricultural Economics.[1]

There was a small increase in gross farm production in the United States during the 1920s (Fig. 1).[2] This was partly accounted for by a net increase in cropland. Several million acres of virgin sod were broken up in the Great Plains and planted to wheat during the 1920s. But the effect of the additional arable land in the west was partly offset by land abandonment in the eastern part of the country. The output of farm products available for human use increased more rapidly than gross farm production because of the shift from animal to mechanical power during that period. This shift released land for marketable products that formerly produced horse and mule feed (Fig. 1).

The small increase in production during the 1920s was halted by severe depression and the beginning of the drought years in the early 1930s. The unprecedented drought of 1934 reduced gross farm production about 20 per cent. below the average of the years 1928–32

[1] Much of the material in this paper is described in more detail in recent publications of the Bureau of Agricultural Economics, especially in the series of reports summarized under the title *Changes in Farming in War and Peace*, F.M. 58, Bureau of Agricultural Economics.

[2] The measures of production used in Fig. 1 are explained in the processed B.A.E. report entitled *Farm Production in War and Peace* by Glen T. Barton and Martin R. Cooper. Briefly, *gross production* includes all crop production, pasture consumed by livestock, and the production of all livestock and livestock products, including farm-produced power. The measure called *farm output* does not include farm-produced power. It is a measure of the volume of farm production available for human use.

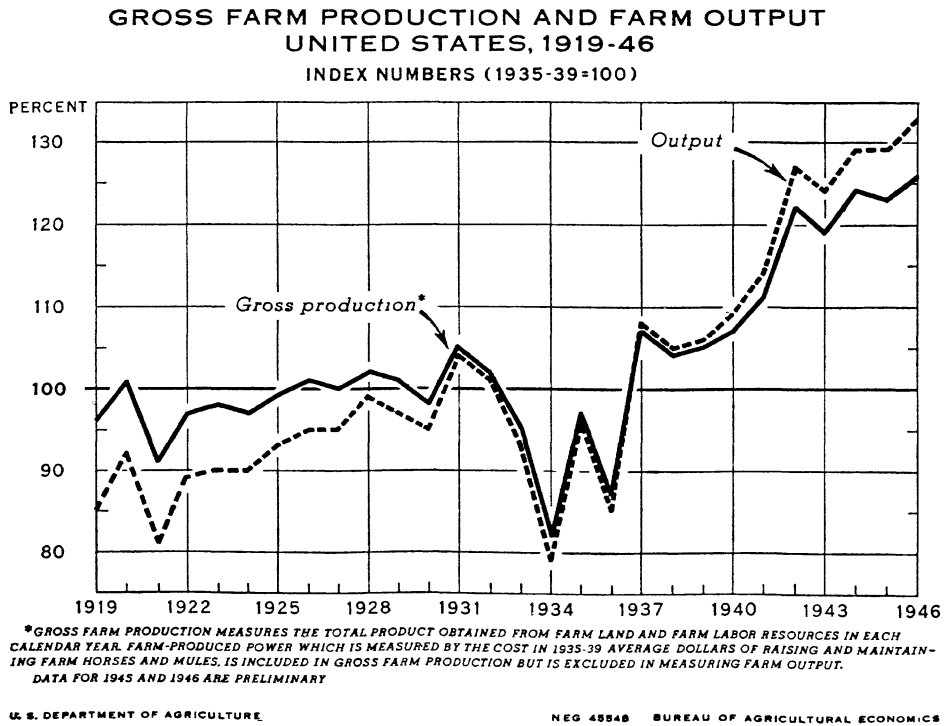

FIG. 1. Gross farm production increased 22 per cent. during the war period 1942–4 over the pre-war period 1935–9. The higher increase in farm output was the result of transfer of production resources from horse and mule production and maintenance to production of other livestock and crops for sale. Exceptionally large corn and wheat crops in 1946 partly account for the record output.

The drought in 1936 was somewhat less severe, but its influence on production was almost as great because it was preceded by several drought years with only slight let-up in 1935. The volume of farm production reached a new peak in 1937, and although it receded slightly in 1938 and 1939 it remained above the pre-drought level up to the beginning of the war.

The increase in farm output during the Second World War and the early post-war years is unprecedented. In the war years 1942–4 it averaged 27 per cent. above the pre-war years 1935–9, and in 1946 it reached an all-time record with an output 33 per cent. larger than during the pre-war period. At the same time that this increase in total output took place, farmers also made large shifts towards products that were more needed in the war effort. In the early war years this meant expanded production of pork, eggs, and milk; and a tremendous increase in soy-beans, peanuts, flax seed, dry beans, and peas. In later years more emphasis has been given to wheat production.

These changes in the component parts of the output made it more difficult to expand the total volume because production per acre is usually lowered when a product is grown on land that is less suited for its production or by growers who have insufficient experience. It would have been much easier to increase the total volume of production by maintaining the same relationship among the different farm enterprises as prevailed in the pre-war years.

The expansion in farm output that took place during the First World War furnished no basis for expecting a large increase in the recent war period. With financial and patriotic incentives similar to those of the Second World War, and with the need for food just as urgent, the volume of output for human use increased less than 10 per cent. from the pre-war years 1910–14 to 1918–19. Production at that time was limited by lack of mechanical power, shortage of fertilizer, damage by plant and animal pests and diseases, and somewhat unfavourable weather. In the early years of the Second World War many people felt that exceptionally favourable weather conditions were largely responsible for the increased output. But when the phenomenal production record continued year after year despite adverse weather in many areas, especially in 1943 and 1945, favourable weather seemed an inadequate explanation.

The Bureau of Agricultural Economics undertook a study in the fall of 1944 with the objectives of analysing the changes in farming during the inter-war and war years and appraising the forces back of the large increases in production. From that study it appears that about one-fourth of the total increase in farm output during the war

years 1942–4 can be accounted for by weather conditions that were more favourable than in the pre-war years 1935–9. This means that 75 per cent. of the war-time increase must be explained in terms of other forces. The forces that made this part of the increase physically possible are largely the product of research and invention that took place in the inter-war years.

Considering the inter-war as well as the war years, the most effective production-increasing forces were: (1) mechanization of agriculture, (2) use of lime and commercial fertilizer, (3) improvements in strains and varieties of crops, (4) greater use of conservation practices, (5) better breeding, feeding, and care of livestock, (6) insect and disease control. These forces represent technological changes in farming that will have permanent production-increasing effects.

In addition to these more permanent forces there were some of a more transitory nature that operated during all or part of the war period. For example, in 1944 about 3 per cent. more land was planted to crops than in the pre-war years. We also planted about 4 per cent. more intertilled crops (Table I). There was a steady decrease in the acreage of intertilled crops in the southern states during the war years, chiefly because of reduced acreage in cotton.

TABLE I. *Changes in the Principal Uses of Cropland in the United States, 1928–32, 1935–9, 1944, and 1945*

Use of cropland	*Average 1928–32*[1,2]	*Average 1935–9*	*1944*[2]	*1945*[2]	*Percentage 1944 is of*		
					1928–32	*1935–9*	*1945*
	Mil. acres	*Mil. acres*	*Mil. acres*	*Mil. acres*	%	%	%
Intertilled crops[3]	176·6	163·0	168·8	157·6	96	104	107
Close-growing crops[3] . .	132·6	133·0	129·8	132·4	98	98	98
Sod crops[3, 4] .	77·3	73·5	80·2	82·5	104	109	97
Total cropland used for crops .	386·5	369·5	378·8	372·5	98	103	102
Summer fallow and idle cropland . .	41·3	56·9	47·3	54·4	115	83	87
Total cropland[5] .	427·8	426·4	426·1	426·9	100	100	100

[1] The data on which the 1928–32 estimates are based are less complete than for later periods.

[2] Planted acres in so far as available; all others harvested acres.

[3] Adjustments made for multiple use of land by considering first use in the crop year as the primary use.

[4] Including acres in tame hay, hay, and cover-crop seeds, and in rotation pasture.

[5] Includes rotation pasture, but does not include wild hay, orchards, vineyards, and farm gardens.

But until 1945 that decrease was more than offset by the large increases in corn, soy-beans, and other intertilled crops planted in the Corn Belt and Lake states. The wheat acreage planted for 1947 harvest was over 8 million acres higher than for 1945.

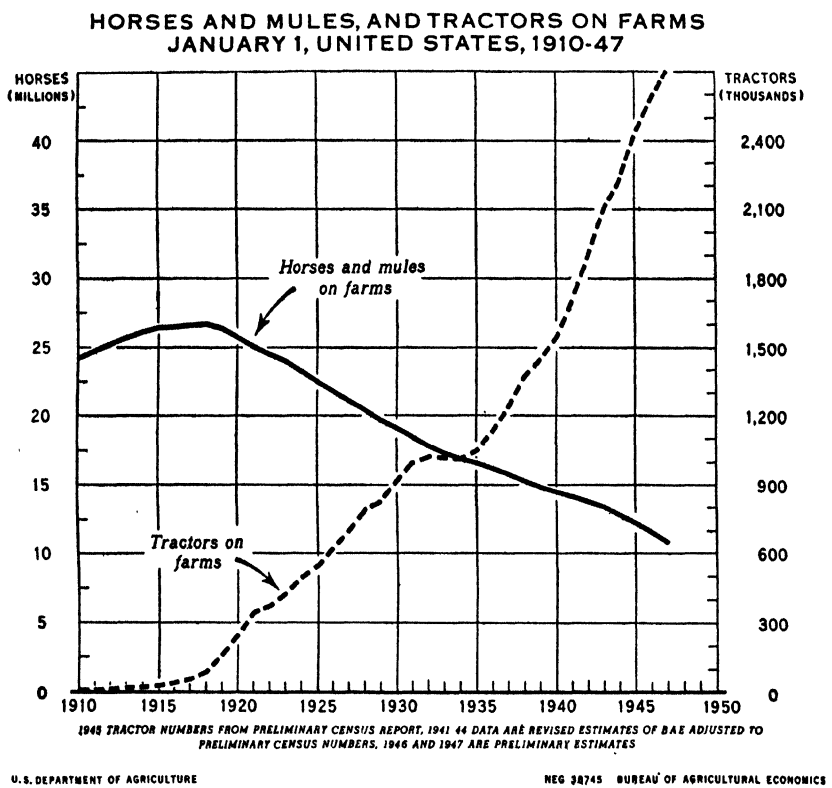

FIG. 2. Displacement of horses and mules by mechanical power has been rapid during recent years. Production of smaller type tractors is resulting in further displacement of horses and mules, especially in the south. The number of colts raised in recent years has been small, and the rate of decline in horse and mule numbers has been increasing.

Whenever emergency food needs subside somewhat it will be necessary in the interest of soil maintenance and permanent agriculture to shift between 8 and 9 million acres of intertilled crops in the Corn Belt and Lake states into hay and rotation pasture. It will also be desirable to return at least 10 million acres of the less adapted cropland of the Great Plains and some other areas to permanent pasture and other less intensive uses.

Of the production-increasing forces in operation since the First

World War, mechanization has had the greatest effect on output for the market. The shift from animal to mechanical power since 1920 has made available for the production of marketable products about 55 million acres of cropland that was formerly used for horse and mule feed. The drastic nature of this change in type of power is portrayed in Fig. 2. There were nearly 26 million horses and mules on farms in January 1920, whereas in January 1947 the number had shrunk to 10 million. Our colt crops are only large enough to maintain 5 million horses and mules, which means that over a period of years there will be a gradual displacement of animal power and the release of 15 to 20 million more acres of cropland for production for the market. In January 1947 we had 2,700,000 tractors on farms as compared with 246,000 in 1920. By 1950 there will be over 3,000,000 tractors on farms in the country. Tractor power not only releases land for the production of marketable products. It also adds timeliness and thoroughness to farm operations with definite yield-increasing results.

Use of lime more than tripled during the war years (Fig. 3). And in 1946 it was nearly four times the pre-war average. In terms of plant nutrients, application of commercial fertilizer nearly doubled during the war, and by 1946 we were using more than twice as much as before the war (Fig. 4). These changes probably were next in importance to mechanization in their production-increasing effects. Farmers in our Corn Belt states, as well as in many other areas that formerly used no commercial fertilizer, have learned to use it during the war years, and once having learned what it can do to step up yields, even on relatively productive soil, they are likely to continue its use.

Of the improvements in strains and varieties of crops, hybrid seed corn is by far the most important (Fig. 5). About 71 per cent. of our more than 86 million acres of corn was planted with hybrid seed in 1947; and in the north central states, which contain the most important corn areas, 93 per cent. of the acreage was planted with hybrid seed. It is estimated that the use of hybrid seed alone added nearly 400 million bushels to the 1946 corn crop. Improved varieties of oats, soy-beans, wheat, cotton, and many others have also had pronounced yield-increasing results. Effects of conservation practices are difficult to measure, but there is little doubt that their adoption has influenced production. For example, the acreage of winter cover crops in our southern states was 4 times larger in 1944 than in pre-war years. Other practices such as contour cultivation and strip cropping also have been adopted on large areas. Disease

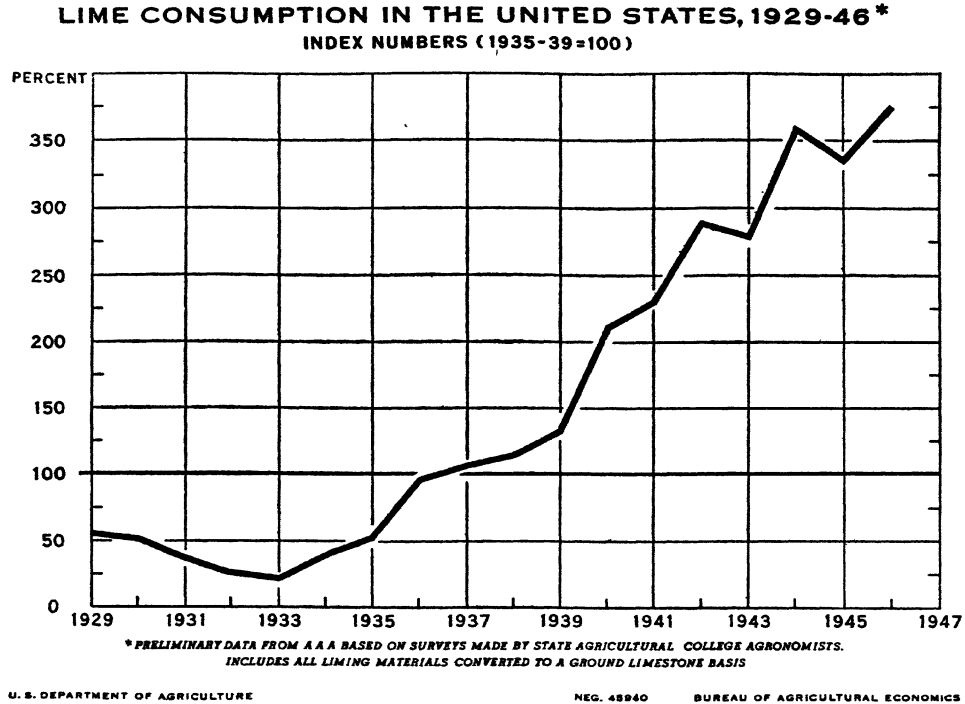

FIG. 3. Application of liming materials rose to pre-depression levels by 1935. Most of the increase in the use of lime since 1936 can be attributed to the stimulation provided by its inclusion as a conservation material in the Agricultural Conservation Programme.

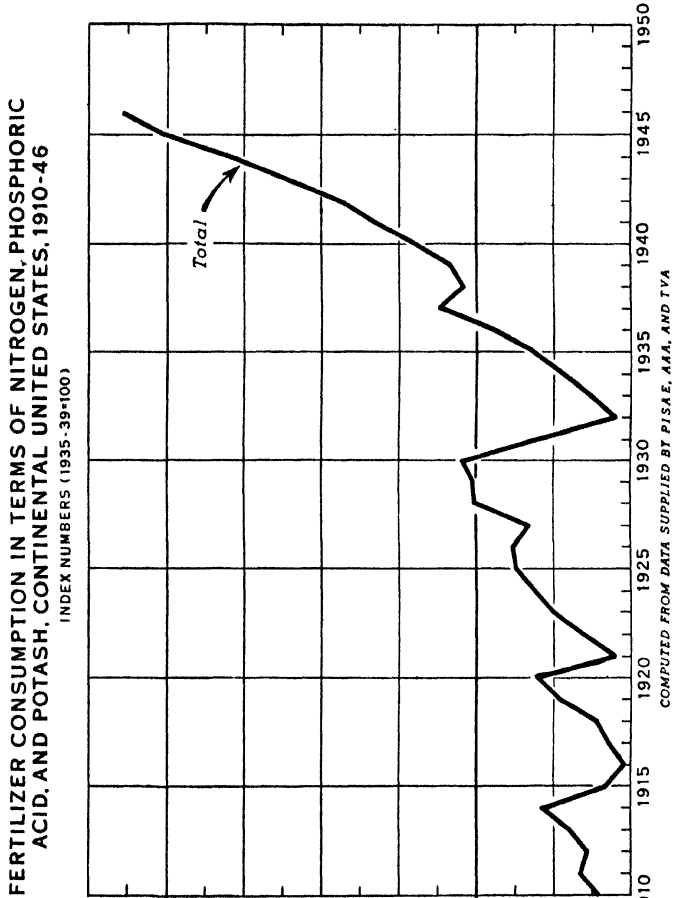

FIG. 4. Use of nitrogen, phosphoric acid, and potash as fertilizer during the Second World War reached a level nearly double that of the 1935–9 average. Consumption in 1945 and 1946 was more than twice the pre-war average. The highest consumption before 1937 occurred in 1930, when the level reached was 5 per cent. above the average of the years 1935–9.

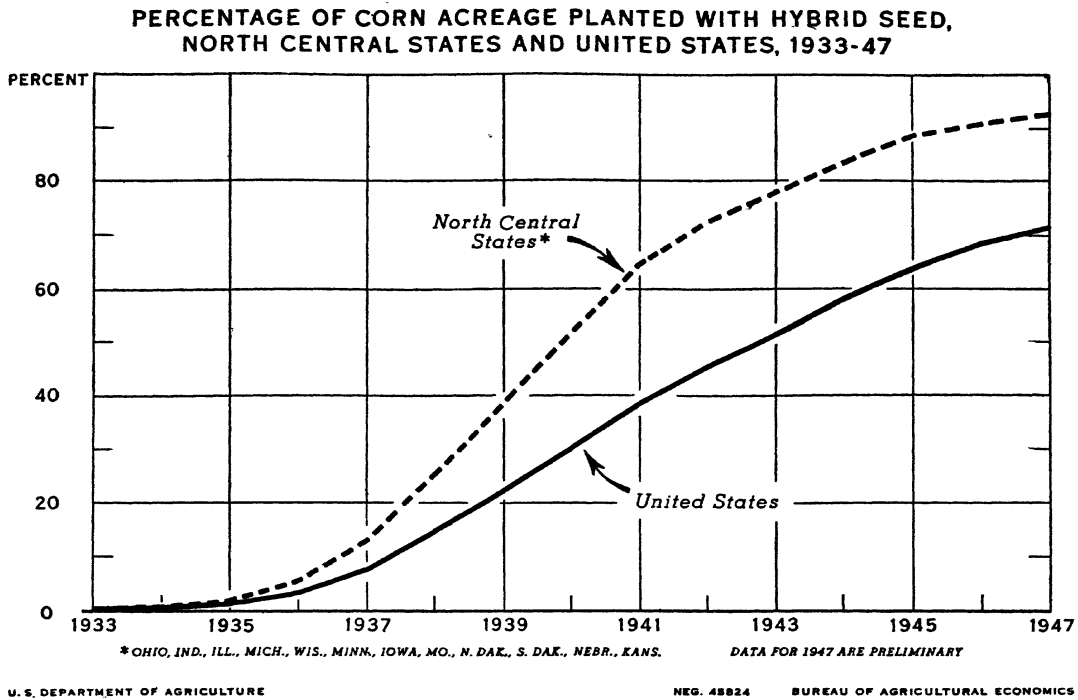

FIG. 5. From the merest beginnings in 1933, hybrid seed had replaced open-pollinated varieties on about 64 per cent. of the total acreage planted in 1945 and on 71 per cent. of the acreage in 1947. The increase has been most rapid in the north central states, where it was used for planting 88 per cent. of the acreage in 1945 and 93 per cent. in 1947.

control has been important especially on some crops. The new insecticides were not sufficiently plentiful to influence yields materially during the war years, but the use of D.D.T. on potatoes was a significant factor in the high potato yields of 1946.

The combined influence of improved practices on crop production is indicated in Fig. 6. This chart shows the relatively small additions to the cropland base, and the contrasting large increase in production per acre.

The effects of better breeding, feeding, and care of livestock are evidenced by the considerable rise in production per unit of breeding livestock, shown in Fig. 7. In large part the higher production per unit is the result of more feed per animal but also of better balance of feed nutrients. One of the more significant changes in the feeding of livestock has been a constant improvement in the quality of hay. The substitution of higher protein legume hays has added nearly 40 per cent. more digestible protein to the hay supply since 1920. The remarkable freedom from major outbreaks of insect pests and animal diseases during the war years is partly good fortune, but also in large part due to development of more effective control methods.

The combined effects of all the production-increasing forces that have just been described are indicated in Fig. 8. This chart also shows how farm employment decreased steadily from 1935 to 1945, which meant that the war-time increases in production were achieved with a constantly shrinking labour supply. In 1945 farmers had 10 per cent. fewer workers than in 1935–9, and many of the hired workers that were available did not have the strength and skill that are usually considered necessary for farm work. Total farm population dropped from 30 millions in 1940 to 25 millions in 1945. Fewer workers and a large expansion in farm production obviously meant more gross production per worker—37 per cent. higher in 1945 than in 1935–9.

Despite the large production increases of recent years the conclusion should not be drawn that there are no limits to further immediate expansion. Unfortunately, from the standpoint of the present food emergency the limits are now fairly rigid over a period as short as from one to three years. Present production levels have been achieved partly by the sacrifice of soil-maintaining rotations in the Midwest. And the record wheat crop of 1947 was grown partly at the expense of summer fallow and other yield-maintaining practices. It must also be realized that once in a while we are likely to experience weather disasters, such as the droughts of 1934 and 1936. In any one year these might cause as much as a 20 per cent. drop in output. On

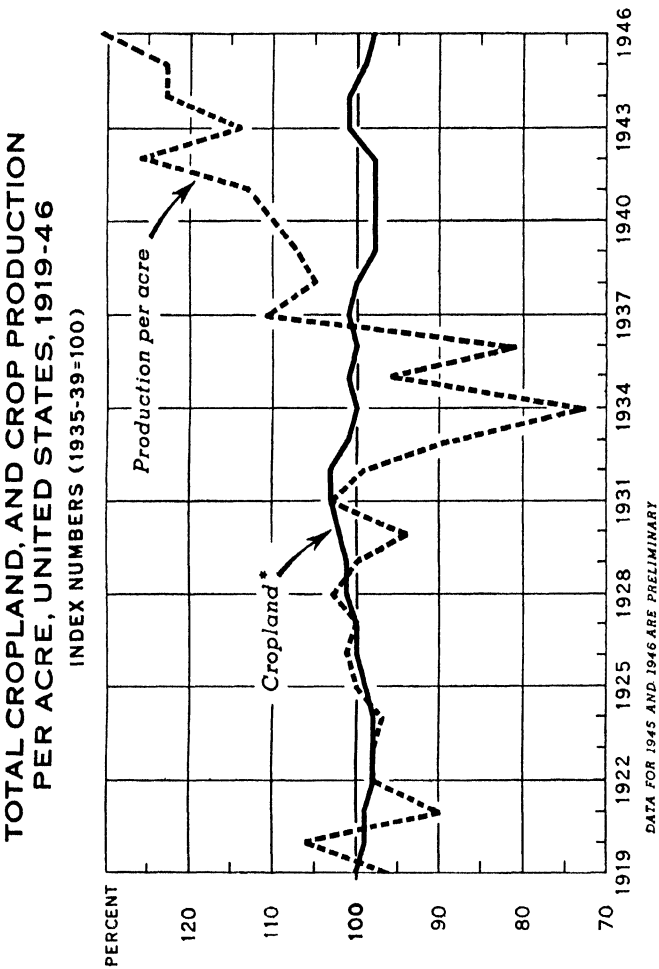

FIG. 6. Increased crop production per acre was by far the most important single factor responsible for record war-time farm production. The total cropland acreage has been fairly stable throughout the entire period.

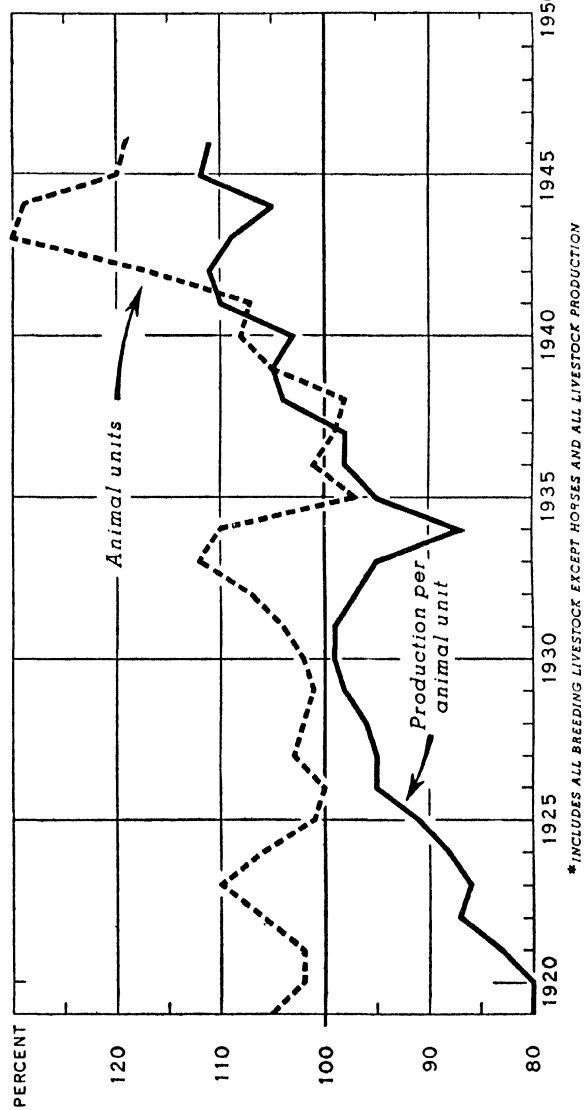

FIG. 7. Livestock production per animal unit of breeding stock has shown an upward trend since 1920. And the animal units of breeding livestock increased sharply in the early war years. The war-time increases in livestock production therefore resulted both from increases in numbers of breeding animal units and in production per unit.

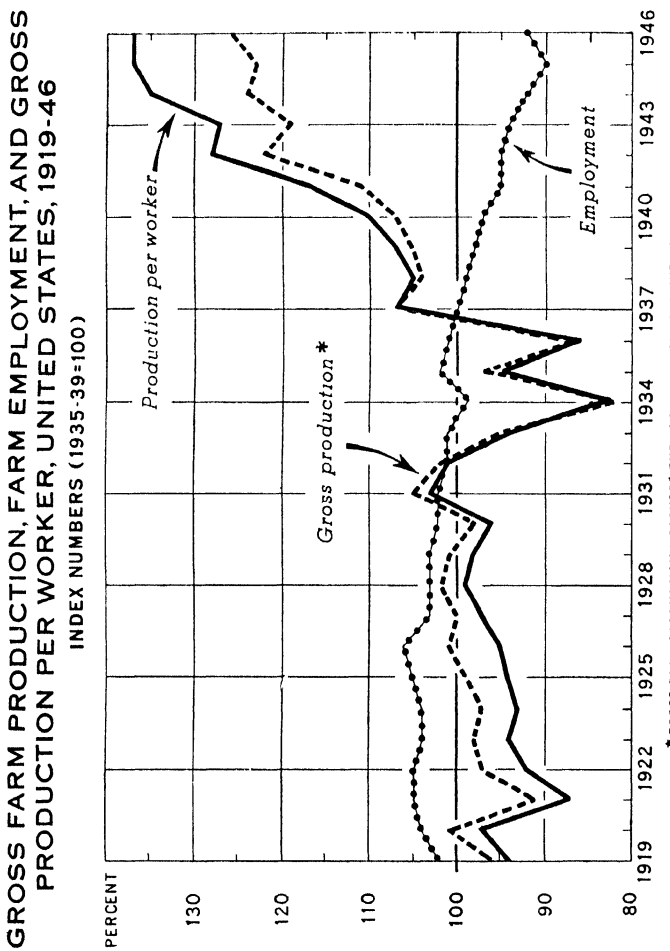

FIG. 8. Acceleration during the war of the long-time downward trend in farm employment, coupled with marked increases in farm production, resulted in record levels of production per farm worker.

the other hand, the production-increasing forces will have only minor effects over a period as short as from one to three years.

Considering the production outlook over a period of five to ten years, however, it appears that, with average weather, we can look forward to an upward trend in the volume of output for human use. Further displacement of animal power will release more cropland. Mechanization will promote further progress in timeliness and thoroughness of farm operations. Use of more lime and fertilizer and other improved practices also will tend towards increased output. On the other hand our cropland base is fairly stable. The new land that might become available from clearing, irrigation, and drainage might be more than offset by land abandonment and by shifting to other uses the land that is not permanently suited for arable farming.

Over a still longer period of time it is evident that one of the main production-increasing forces, the shift to mechanical power, will slow down. Its effect on total output will diminish progressively as horse and mule numbers decline towards minimum levels. Expansion in output will then come chiefly from increased production per acre and per animal; which in turn is dependent upon new advances in technology, and their adoption by farmers.

CHANGES IN NUMBERS AND SIZES OF FARMS

The technological factors responsible for a large part of the production increases also have had considerable influence on changes in the number and sizes of farms (Table II). A part of the change in sizes of farms since 1920 results from factors related to development of new arable land in the west, abandonment of land in the east, and the very considerable growth in part-time farming. But technological forces have influenced those changes. And they have also directly affected both the changes in number of farms and their size distribution.

The total number of farms counted in the census of agriculture decreased 9 per cent. from 1920 to 1945. On the other hand, the 'land in farms' increased 19 per cent. The latter change occurred largely in the seventeen western states. In fact, the land in farms decreased in some of the eastern states during this period.

Changes in sizes of farms are difficult to measure. There are several reasons for this. The first is that the counting of farms in different farm size groups has varied in the different census enumerations; second, we do not have a good measure of farm size; third, we need a better classification of farms than we now have in order to appraise the changes that have occurred; and fourth, in order really

TABLE II. *Number of Farms and Changes in Number of Farms by Size of Farm in the United States, 1920, 1940, and 1945*[1]

Size group (acres in farm)	*Number of farms*			*Percentage change*		*Percentage of farms in farm size groups, 1945*
	January 1, 1920	*April 1, 1940*	*January 1, 1945*	*1920–45*	*1940–45*	*1945*
	Number	*Number*	*Number*	%	%	%
Under 10	288,772	506,402	594,561	106	17	10
10–99	3,486,240	3,071,308	2,811,724	−19	−8	48
100–259	1,980,430	1,796,077	1,693,024	−15	−6	29
260–499	475,677	458,787	473,184	−1	3	8
500–999	149,819	163,694	173,777	16	6	3
1,000 and over	67,405	100,531	112,899	67	12	2
All farms	6,448,343	6,096,799	5,859,169	−9	−4	100
Average size of farm (acres)	148	174	195	32	12	..

[1] From United States census reports.

to understand the size of farm changes we should analyse them by type of farming areas and by types of farms. But our information is not adequate for that type of analysis. It is possible only to consider the acre changes in size on the assumption that the census reports reflect the broad changes that have taken place.

In the quarter-century from 1920 to 1945 there was a 106 per cent. increase in the number of extremely small units that are counted as farms by the census, those under 10 acres in size (Table II and Fig. 9). In the United States farms of that size are mostly part-time farms, rural homes, and retirement units. Very few of them are considered as actual farms in the areas where they are found. But they are counted by the census as farms because they are 3 acres or over in size, or have value of products of $250 or more. Fig. 10 shows the areas where a large number of farm operators worked 100 days or more off the farm. These same areas also had a large number of farms under 10 acres in size.

In contrast to the large increase in the extremely small farms, there was a 19 per cent. decrease in what might actually be called 'small farms', those from 10 to 99 acres in size. There were 675,000 fewer farms in this group in 1945 than in 1920. There were also 15 per cent. fewer farms in the size group 100–259 acres. This was our traditional 'homestead' size. But the size group from 260 to 499 acres nearly held its own. It showed only a 1 per cent. decrease in number of farms from 1920 to 1945.

At the upper end of the size of farm scale there was an increase in the number of farms during this period. The group from 500 to 999 acres showed an increase of 16 per cent., and those of 1,000 acres and over increased 67 per cent. Although the group of farms of 1,000 acres and over in size was two-thirds larger than in 1920, that group still contained less than 2 per cent. of the total number of farms in 1945. But operators of farms of that size controlled about 40 per cent. of the total land in farms. This seems like a rapid trend towards concentration of land holdings until we analyse the data more closely. About 87 per cent. of the number of farms of 1,000 acres or over in size were found in the 17 western states. This means that the increase took place mostly in the ranching and dry land wheat areas where 1,000 acres is not a large-scale farm.

But there has actually been some increase in farms of 1,000 acres or over in size outside of the grain and ranching areas of the western states. In other words, we have had some growth in large-scale farming. More important, however, was the shift to larger farms within the size groups included between 100 and 999 acres. That

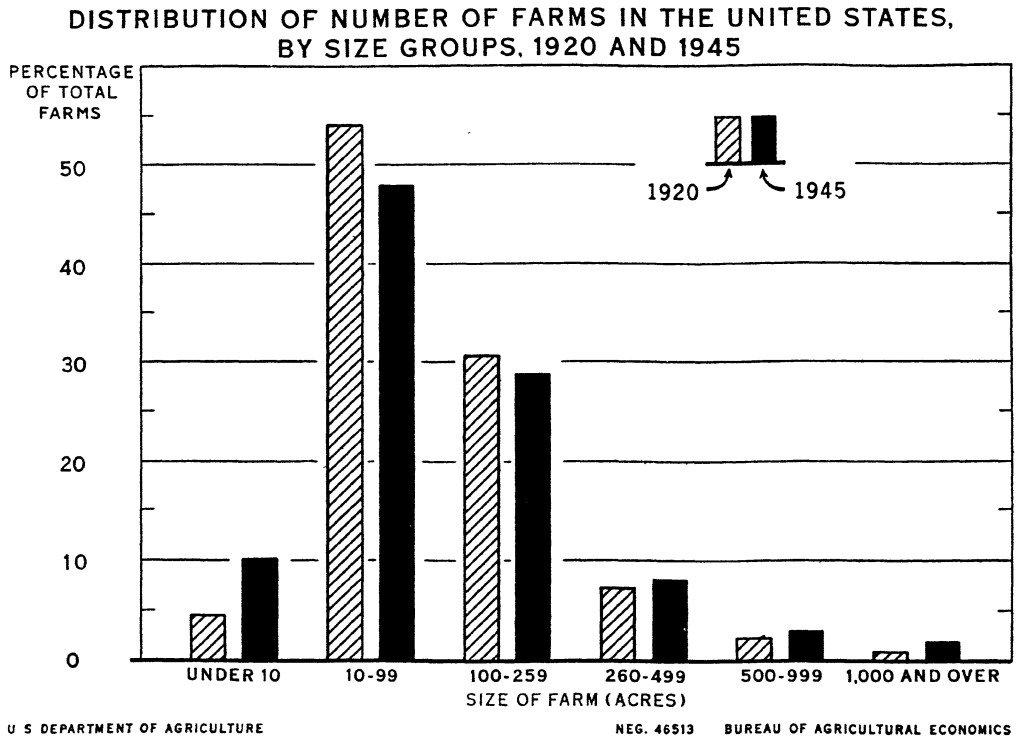

FIG. 9. From 1920 to 1945 the number of farms under 10 acres in size more than doubled. There were fewer farms of 10 to 99 acres in 1945, but they still constituted 48 per cent. of the total number. Farms in the size groups above 259 acres were relatively more important in 1945 than in 1920.

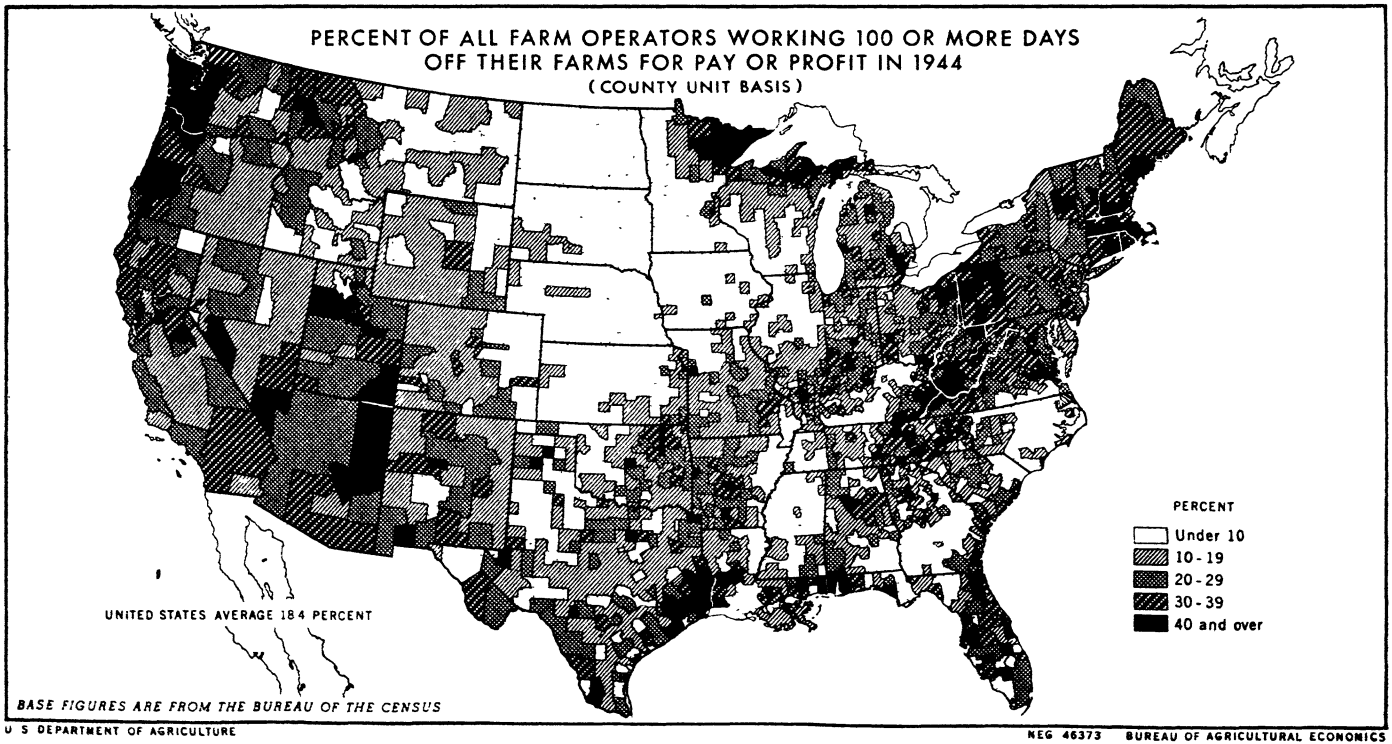

FIG. 10. Part-time farming as indicated by operators working 100 or more days off the farm is concentrated near metropolitan centres, or in areas where mining or lumbering is carried on.

change can be characterized as a trend towards larger, more commercial family farms rather than towards large-scale farming. It was made possible and has been accelerated by technological changes, especially by adoption of mechanical power and associated equipment.

Farmers in the size groups from 100 to 999 acres controlled nearly half of the land in farms in 1945. They constituted 40 per cent. of the total number of farms counted by the census in that year. About 48 per cent. of the total number of farms were in the small farm size groups (10–99 acres), but farmers in that group controlled only about 11 per cent. of the land in farms. The extremely small farms, those under 10 acres, had less than 1 per cent. of the land in farms. And even though this group more than doubled, they constituted only about 10 per cent. of the total number of farms counted by the census in 1945.

In summary, the census changes in sizes of farms from 1920 to 1945 show a doubling of the extremely small or 'nominal' farms, an increase of two-thirds in farms of 1,000 acres and over, some increase in the number of farms of 500 to 999 acres, and much more than offsetting decreases in the small and middle-scale size groups. These changes resulted in a 9 per cent. decrease in the total number of farms; also a 32 per cent. increase in the average acreage of all farms, which increased from 148 acres in 1920 to 195 acres in 1945.

Looking forward over the next decade, some of the same forces are likely to continue to influence changes in the number and sizes of farms as have operated over the last quarter-century. We might expect a further large increase in the number of part-time farms. The full-time family-operated farms are likely to be fewer and larger. And there might be some further increase in the number of large-scale farms, but they will still constitute a relatively small segment of the agricultural industry.

CHANGES IN TENURE

There have also been important changes in farm tenure during the last quarter-century. Census returns for 1945 indicate that about 32 per cent. of all the farms counted by the census were operated by tenants, as contrasted with 38 per cent. in 1920. Tenancy increased in the decade following 1920, and 42 per cent. of the farms were operated by tenants in 1930. But by 1940 the percentage of tenancy was about back to 1920 levels. And a very considerable decrease between 1940 and 1945 resulted in the lowest level of tenancy since before 1900 (Table III).

TABLE III. *Number of Farms by Tenure of Operator, United States, 1900–45*[1]

Census year	All operators	Full owners		Part-owners		Managers		All tenants	
	Number	Number	Per cent. of all farms	Number	Per cent. of all farms	Number	Per cent. of all farms	Number	Per cent. of all farms
	thousands	thousands		thousands		thousands		thousands	
1900 . .	5,737	3,202	55·8	451	7·9	59	1·0	2,025	35·3
1910 . .	6,362	3,355	52·7	594	9·3	58	0·9	2,355	37·0
1920 . .	6,448	3,366	52·2	559	8·7	68	1·1	2,455	38·1
1925 . .	6,372	3,313	52·0	555	8·7	41	0·6	2,463	38·6
1930 . .	6,289	2,912	46·3	657	10·4	56	0·9	2,664	42·4
1935 . .	6,812	3,210	47·1	689	10·1	48	0·7	2,865	42·1
1940 . .	6,097	3,084	50·6	615	10·1	36	0·6	2,362	38·7
1945 . .	5,859	3,301	56·3	661	11·3	39	0·7	1,858	31·7

[1] From United States census reports.

The number of full owners actually increased 7 per cent. from 1940 to 1945, at a time when the total number of farm operators decreased 4 per cent. A part of the increase in farm ownership is accounted for by the larger number of farms under 10 acres in size, about 75 per cent. of which are owner-operated.

The number of part-owner farms increased about 18 per cent. from 1920 to 1945, and the acres of land they operated by 112 per cent. More than twice as large an acreage of land was operated by farmers who owned part of the land and rented part as in 1920. In this group of part-owner farms a little over half of the land (52 per cent.) was owned by the operator in 1945; the acreage of land rented more than doubled from 1920 to 1945. The greater number of part-owner farms is one explanation of how many farms have become larger in size. Farmers who owned some land have rented adjoining farms or separate tracts of land that could be combined with their own land for operation as a more efficient unit.

Fig. 11 shows the geographic concentration of the land in farms operated under lease in 1945. About 38 per cent. of all land in farms was rented land. The area operated by *full* tenants was less in 1945 than in 1920, but the increase in part-owner farms resulted in a somewhat larger total area of rented land.

Owner-operatorship of family farms is considered one of the goals of agricultural policy in the United States. The tenure figures for 1945 indicate considerable recent progress towards that goal. The overall mortgage debt situation also indicates that farmers have greatly increased their equity in the land they own. Total mortgage debt is only about half as large as in 1920. But 1947 figures indicate an upward turn in mortgage debts. And one of the blind spots in the picture is whether there are large numbers of new owners who have bought farms on credit at inflated values, and therefore will find themselves vulnerable in periods of lower farm-incomes.

CHANGES IN COSTS AND RETURNS

The changes in farming that have been described so far have had significant effects on costs per unit of output of farm products. A recent study indicates that costs in terms of physical inputs per unit of product for labour, power, and machinery were reduced about 30 per cent. from the years 1920–2 to 1942–4.[1] Total costs per unit of farm output, also measured in physical terms, decreased about

[1] The basis for these computations is described in detail in the forthcoming U.S.D.A. Miscellaneous Publication 630, *Progress of Farm Mechanization*, by M. R. Cooper, Glen T. Barton, and A. P. Brodell.

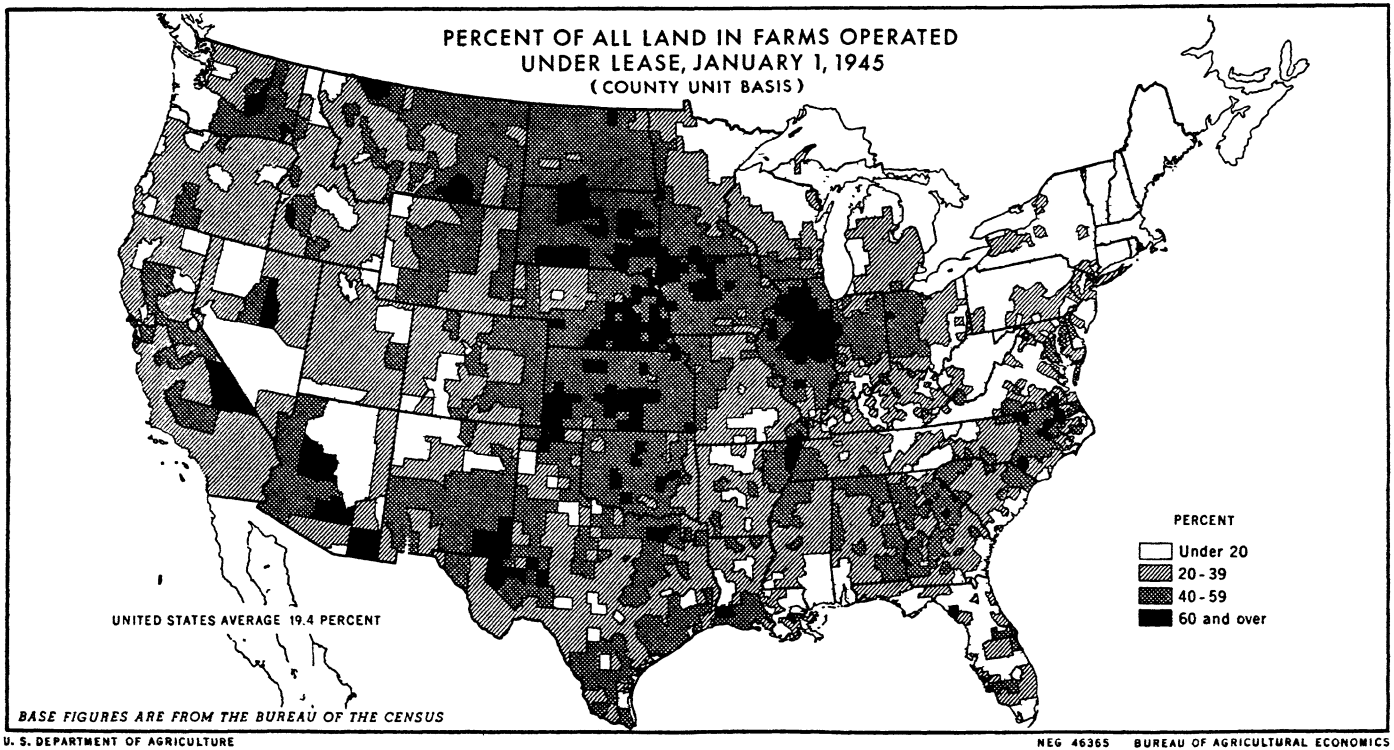

FIG. 11. The land operated under lease in 1945 was mostly heavily concentrated in the corn, wheat, and cotton areas; and also in some western counties, where grazing-lands are leased.

26 per cent. during the same period. If war-time farm output in the years 1942–4 had required the same costs per unit as prevailed in 1920–2, farm-operating expenses would have been about 3 billion dollars higher in the latter period. Or, stated the other way round, if cost reductions per unit of product had not taken place in the intervening years, farm-product prices would have needed to be 14 per cent. higher than they were to provide farm operators with the same net income as they received in 1942–4. Or, assuming the same gross farm income, the net farm income would have been 26 per cent. lower if there had been no cost reductions.

Labour requirements per unit of farm output were reduced about 36 per cent. from 1920–2 to 1942–4. It is estimated that about the same total hours of labour were required on farms in this country in 1945 as in 1939 despite a 22 per cent. increase in farm output.

So far the labour savings have come largely in the production of some of the staple crops. Small grains and corn and even the hay crops are now well mechanized. But labour savings in caring for livestock have not been nearly as significant as in field operations. In consequence, on typical Midwestern livestock farms about 75 per cent. of the total labour used on the farm is expended in direct work on livestock. The rapid progress of rural electrification in recent years should facilitate reduction of labour requirements in livestock production. Research directed towards potential cost reductions in livestock production, especially in the dairy enterprise, might point the way towards very significant savings in labour and other costs.

Cotton and tobacco are still produced largely with hand labour. Production of these crops is centred in our southern states, where technological advances have not been nearly as rapid as in other regions. Partly as a result of this lag in technology, production per worker is low; and a little over half of the total number of farm workers are employed in the thirteen southern states. Table IV shows gross production per worker by geographic divisions in 1944. It indicates that production per worker in 1944 was 61 per cent. of the national average in the three southern divisions, that workers in the south had only a little more than half as much cropland per worker, and that the investment in land and buildings, livestock, and equipment was about half as large as the average for the country, including the south.

If we make these comparisons for the southern states with the rest of the country, exclusive of the south, we find that production per worker in the southern states was only 43 per cent. of the average for

TABLE IV. *Gross Production per Worker, and Value of Land and Buildings, Livestock, and Equipment per Worker, by Census Geographic Divisions, 1944 and 1945*[1]

Census Geographic Division	*Production per worker, 1944 (U.S. average = 100)*	*Land and buildings per worker, 1945*[2]	*Livestock per worker, 1945*[2]	*Equipment per worker, 1945*[2]	*Total cropland per worker, 1944*
	%	*Dollars*	*Dollars*	*Dollars*	*Acres*
West north-central	168	7,668	1,592	926	88·1
Pacific	152	8,748	826	623	33·8
Mountain	143	6,470	1,820	719	66·5
East north-central	131	7,175	1,184	863	43·3
Middle Atlantic	108	3,942	1,018	838	23·9
New England	96	3,960	745	529	15·6
Northern and western states	142	6,899	1,288	823	55·1
West south-central	71	3,433	616	320	33·4
South Atlantic	61	2,212	343	187	14·6
East south-central	51	1,923	351	177	16·1
Southern states	61	2,519	434	227	21·2
United States	100	4,622	844	513	37·4

[1] Production per worker in 1944 is used because that is the production year reported in the 1945 census.
[2] From the 1945 census of agriculture.

the other regions, and that cropland and capital investment per worker were only about one-third as large as for the rest of the country.

These figures indicate that if it were possible by mechanization and other technological advances to increase production per worker in the south to the level of the rest of the country, the average production per worker would be stepped up tremendously. And fewer workers would be needed on farms in the United States. The significance of such a change can be illustrated by indicating that if production per worker in the south had averaged as high as for the rest of the country it would have required only about 70 per cent. as many workers to produce the total output of that year as were actually employed, and the gross production per worker would have been 42 per cent. higher.

It is fully recognized that there are many obstacles to achieving as high a production per worker in the south as the present average for the rest of the country. Such a change could not come rapidly, and a quick transition might not even be desirable because of certain social problems that would be involved. But there is no doubt that progress in that direction is highly desirable. Some of the changes that will bring it about are already under way. The percentage increase in the number of tractors on farms from 1940 to 1945 in the three southern regions was about double the average for the entire country. The mechanical cotton-picker, the mechanical chopper, the flame cultivator, and other labour-saving machines also are being adapted for southern farms.

These advances are likely to result in larger farms and fewer workers, but much greater output per worker, which should also bring larger real returns to the remaining farm-workers. Mechanization in the south would have progressed much more rapidly in the war years if an adequate supply of suitable farm machinery had been available. Additional labour would then have been released for war work, and the transition to higher farm production per worker would have been much further forward.

If mechanization of the south can take place in a period of industrial prosperity when other employment opportunities are available for workers no longer needed in farming, the transition will be relatively easy. But if part of the change is made in a period of unemployment, the stress and strain of labour displacement will be much greater. And farm-labourers who have been displaced by labour-saving machines or other technological advances will find their situation worsened—at least temporarily.

Our next consideration is the effect of technological advances on the incomes of farm-operators who own the land they operate. The farmers who first adopt cost-reducing improvements are in a position to retain all of the gain until or unless the improvement results in marketing a larger volume of product and this in turn reduces market prices. In periods such as the present food emergency there is a ready market for all the food that can be produced. In this situation farmers tend to hold all the gains from cost reduction. But in the inter-war years food-supplies were pressing heavily on market outlets. And under those conditions part of the gains are shifted to other groups. Not all improvements result in increased output. For example, a more efficient method of harvesting hay may save labour in haying without resulting in the production of more hay. The entire gain from such an improvement is likely to be held by farmers who adopt the practice. If some producers cannot adopt it they will operate at a disadvantage in comparison with those who benefit by adoption, but the actual level of their incomes will not be affected.

Most improvements, however, do have a tendency to increase output. For example, use of more commercial fertilizer results in higher yields per acre. Such an improvement can be said to be *land-saving* in its effect. Substitution of tractor power for animal power releases land formerly used for producing feed for work stock and is also land-saving but in a somewhat different sense. Land-saving improvements also tend to be labour-saving because less labour is required per unit of product as more is produced per acre. Some improvements, however, are *labour-saving* without also resulting in larger output. The hay-harvesting example is one of these. But even though such labour-saving improvements do not increase output directly they do release time that can be spent on other enterprises and this might indirectly result in larger output. On family farms it may mean pressure to increase the size of the farm in acres or to build up more labour-intensive enterprises such as dairy or poultry.

Improvements can be said to be *capital-saving* in their effects when they actually result in less use of capital for a given volume of production. If a new and more efficient corn-picker can be bought at a lower first cost than the machine it replaces, capital is saved on the first investment in the machine. If the outlay for operating expenses also is lower it is capital-saving in current operation as well as in the original outlay. Most improvements in farming have had a tendency to require both a larger total capital investment and larger current outlays on family farms, but this does not necessarily mean more capital for the same operation. It can mean less capital per unit of

product, provided the new machine or technique is adopted on a scale that constitutes a good fit on the farm on which it is used. Frequently, however, purchase of a tractor and associated equipment has resulted in a high overhead investment in machinery for the size of farm; and since use of power machinery enables each worker to do more work the effect is pressure to increase the size of the farm either in acres or by shifting to more intensive enterprises.

Thus, although only the land-saving improvements have direct production-increasing effects, both the labour-saving and the capital-saving improvements have indirect tendencies to increase output. The larger volume of product going to market will have a price-depressing effect unless the demand for that particular product is increasing, as it has during the war emergency.

If farmers could count on gradually increasing market outlets for the products in which cost reductions are effected they would tend to hold the gains resulting from lower costs. Otherwise part of the gain will be shifted by lower prices. But even if the entire cost reduction is shifted in this way farmers might still benefit indirectly because more purchasing power would be available for other things —including other farm products.

The farmer who adopts improved practices, however, is protected against price repercussions both by lower costs per unit and by having a larger volume for sale. It is the farmers who cannot adopt improved practices and who still continue to produce the products affected who will find themselves seriously disadvantaged by the change. If such disadvantage prevails over a farming area and persists over a period of time it will tend to be reflected in lower land values in that area.

In areas where a cost-reducing improvement is adopted, the pressure to increase the size of farm will tend to push land values upward. The higher physical production per acre also means a higher land income expectancy unless the larger production is entirely offset by lower prices. The higher income can be used for the purchase of land and to service a loan based on higher land values. This, of course, means that part of the gain from technological advances will be translated into higher land costs to new purchasers. And this will tend to offset the reduction in other costs. Farmers again will have a high cost structure because of a larger investment in land. Thus, by bidding up the price of land, farmers as a group tend to lose what they otherwise would gain from improved practices. Farmers could retain this part of the gain from cost-reducing improvements if as a group they were willing to use their first income advantage to slacken the pace of farm work, to make

more leisure time available for the entire family, and to invest their increased earnings in education, health, farm, and home conveniences, and in maintenance of soil resources.

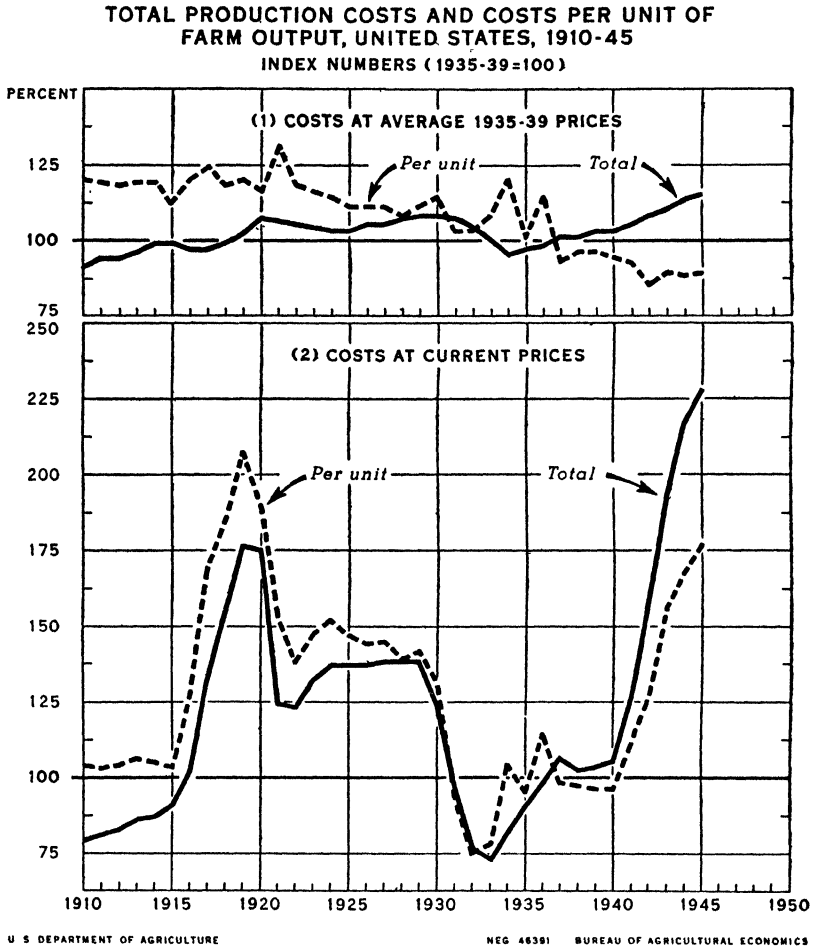

FIG. 12. The trend of costs per unit of farm output is downward when measured in terms of average 1935–9 prices; but in terms of current prices costs per unit have risen a great deal since the beginning of the Second World War.

Cost-reducing improvements not only tend towards larger scale of operations on family farms; they also tend to make the business of farming more complex. These improvements, therefore, are *management-consuming* in their effects. This does not necessarily mean that

more management is needed per unit of product; but more is required per farm, and it takes a higher grade of managerial ability for successful operation of the size of farm that can be handled by a farm family.

The farmer who possesses managerial ability of a high order will be able to combine improved practices in a larger business to obtain a much higher income for himself and his family. On the other hand, the farmer who possesses only limited managerial ability may have to continue operating a smaller farm on which he cannot take full advantage of the new improvements. This tends towards greater disparity in incomes between farmers of high and low managerial ability.

Technological changes also have another management-consuming effect. They increase the proportion of costs that are cash outlays—for power, machinery maintenance, fertilizers, hybrid seed, &c. Farmers therefore become more vulnerable to price changes or to crop failure. More management is required to cope successfully with these problems. Some technological advances, such as drought-resistant varieties of seed, tend to reduce this vulnerability by reducing the physical hazards. But on balance, as farming has become more commercialized, the risks from low prices or production losses have increased.

The higher capital investment needed to operate a family farm efficiently tends to restrict the opportunity for owner-operatorship. The war-time increase in land values will accentuate this tendency if we experience a period of lower farm-prices. The total investment required for land, equipment, and livestock on Corn Belt farms to-day is about twice as large as before the war.

If we consider the management-consuming effects of improvements along with the higher capital investment that is needed for the operation of the larger farms equipped with mechanical power, we can readily see that commercial farming in the United States has become a business that cannot be readily entered by all the young men growing up on farms; and that only those who possess better-than-average managerial ability are likely to make a financial success of the undertaking. Young men without special aptitude and training for the job will tend to have a harder time getting a foothold as farm-operators. Many will have to seek other occupations or become farm-labourers.

SUMMARY OF PROSPECTIVE CHANGES

The following is a short summary of the changes and the problems that seem to be in prospect for the years ahead.

1. *Technological advances will continue.* In fact, mechanization is likely to be accelerated during the next several years. But as mechanical power supplants more and more of the animal power now on farms the effect on output of the release of land for marketable products will slow down and eventually tend to disappear. Other technological advances can be expected to continue, although their effect on production may not be as great as during the war years because that change represented adoption of developments over several years which had been dammed up by the forces of drought and depression.

2. *The total volume of production is likely to increase over a period of years.* With allowance for average weather conditions we can expect a higher total volume of production at least under conditions of relative prosperity, but the increase will come at a much slower rate than during the war years. And it should be recognized that at present production levels there is not a great deal of elasticity in the total volume of output over a period as short as from one to three years.

3. *Use of improved techniques will result in more efficient lower-cost farming.* This will mean a much higher output per worker engaged in full-time farming. If larger markets are available over a period of years it will also mean larger net incomes per worker and per farm family, although part of the gains is likely to be shifted to other groups in the form of lower prices. Farmers can retain a large part of the benefits from cost-reducing improvements by refraining from capitalizing these gains into higher land values.

4. *Fewer workers will be needed in full-time farming.* This points to the need for non-farm-work opportunities for those who will no longer find employment in farming; also the need for training part of our farm youth for non-agricultural employment.

5. *The trend towards more part-time farms and rural homes is likely to continue.* This desirable trend can be accelerated by development of sound lending policies for these units. There is also the possibility of extending farm-management assistance to those without farming experience who desire to establish homes in the country.

6. *Although the number of small full-time farms is likely to decrease, they will still constitute an important group in American agriculture.* Nearly half of the total number of farms counted by the census are now in that group. Many small farms furnish a comfortable living for the farm family. And some operators of small farms can adopt a sufficient number of improved practices to maintain their income position. But the gap is likely to widen between the efficiently-operated fairly large farm and the small farm that cannot readily adopt cost-reducing

methods. Small farms located in poor land areas will experience the greatest disadvantage unless these areas are given special attention by public agencies. The fact that low-income farming in these areas has persisted over a period of years through agricultural prosperity as well as in depression is evidence of the need for special attention if existing maladjustments are to be corrected.

7. *Family farms of middle-scale and larger size are likely to become larger and somewhat fewer in number.* As they become more mechanized and as many of them shift towards more livestock there will be need for investment of more capital in relation to land and labour.

8. *There is likely to be some increase in the number of large-scale commercial farms.* They are not likely, however, to constitute more than a small percentage of the total number of farms. The family farm seems likely to remain as the prevailing business unit in the agriculture of the United States. There is no convincing evidence of economy of scale that will tend to push agriculture rapidly in the direction of large-scale farming, but we need some basic studies of the competitive position of family farms in the different farming areas.

9. *Changes in farm tenure will be subject to opposing forces.* There is likely to be a further increase in owner-operatorship under conditions of prosperity, but the high land-values that now prevail will act as a deterrent to this trend. And young men who go heavily into debt to purchase farms will be burdened with high fixed charges if less favourable economic conditions are encountered.

10. *Commercial farming in the United States will become a more complex business as farms become larger and as more and more technological improvements are adopted.* This means that adequate training and managerial ability of a high order will be needed for successful operation of efficient family farms. But there are likely to be many people with rather limited resources and capacity who will still find their best income opportunities in full-time farming. They will need special types of assistance if they are to earn a comfortable living on farms. Serious study will need to be given to the desirability of maintaining a continuous array of all sizes and types of farms to provide farm living and work opportunities for people with different backgrounds, abilities, and interests.

In reply to questions:

In reply to Mr. Shenoy: There are some statistics on the extent of subsistence farming in America available for 1940 from the censuses of agriculture. They have not been completed yet for 1945. There is a census monograph from 1940 that gives indication of the percentage

of the gross value of production that is consumed in the home. We do have some fairly concentrated areas of subsistence farming. The area between the Cotton Belt and the Corn Belt and dairy areas of the north has quite a concentration of subsistence farming, and all through the Appalachian highlands. There are also some areas in New Mexico and some in the 'cut-over' areas of the Lake states.

Dr. Lee has asked what are we going to do with the farmers that are displaced by technical improvements? In times like these, of course, we do not need to worry very much. When industrial production is high, employment is high, and there are employment opportunities in non-farm work, we do not have to worry a great deal. But still some of the workers that will be displaced will not have adequate training and skill for non-farm work. Historically we have had periods of unemployment and periods of fairly full employment. But displacement has not been much of a problem over a period of years because our economy has been expanding. Some workers have been temporarily disadvantaged, but actually I think to a large extent mechanization has come in periods when farmers thought there was a labour shortage, because workers had already found other employment. There is one exception to that, the period of the middle 1930s. Tractors came in, and workers were displaced who could not find work elsewhere. That situation became especially acute in some of our southern states.

Dr. Klatt asked: What will be the effect of the Marshall Plan, and what is the attitude of the American farmers towards the Marshall Plan? My feeling is that they are not yet well informed about the Marshall Plan. I think to the extent that they know and realize the world situation they are for the objectives of the Marshall Plan. And I should say this, that knowledge with respect to the world situation is very much better than it was after the last war. There has been a tremendous improvement in the realization of world conditions and that we are living in a world from which we cannot isolate ourselves. I do not know that I can go any farther than that. Farmers are impressed with the need for markets for some of our export crops and the fact that recovery of the rest of the world is an important factor in that.

Mr. Dinsdale's question was: What is the relationship between the decrease in the horse and mule population and the increase in the human population? Of course, our human population has increased. We have had quite an upward spurt in the war period, as some other countries have had. The downward trend in horse and mule numbers has released crop-lands for the production of food and fibre for the market, and it has enabled us to feed a larger population

and maintain exports. It has not been the only factor, as I have tried to bring out, but it has been the most important one.

Mr. Dinsdale also asked me if I could confirm the statement that the cropland released by the reduction of horses and mules is just about twice the rate of increase in the United States population. I think I can state that there has been about a 25–30 per cent. increase in population since 1920. The release of cropland has been about 55 million acres, and we have about 370 million acres of cropland. The amount released is about 15 per cent. Our population has increased proportionately more than that.

Dr. Coke's question was: Does the increase in the number of part-time farmers include those who are producing fruit and vegetables? Yes, they are included. Farms of all types are included in the different size groups. Sometimes our census is a little incomplete, but they are all supposed to be included. Now there has been an increase in fruit and vegetable production—a tremendous increase—that is one of our enterprises that has been going up, and going up very rapidly, because there has been a tremendous increase in *per capita* consumption of fruit and vegetables. I think it is correct to say that the increases have been greater in the *commercial* vegetable- and fruit-producing areas, where they are produced on larger acreages than under 10 acres. But there are some truck farms included among the farms under 10 acres. The point that I tried to make was that the increase in small farms was mostly accounted for by the growth in part-time farming. I was in our north Ohio area recently, and travelling over about a 50-mile area between Cleveland and Akron it seemed to me that the whole area had been taken over by part-time farming.

Dr. Baptist asked if a decrease in markets for cereals would oblige us to shift towards animal products. Well, of course, our farmers have shifted towards more and more animal products, because they were more profitable, and part of that came during the inter-war years; the farmers who were producing cash grain and fibre crops were the worst off financially. The depression after the last war hit them the hardest. That is quite true. Now during the war years our upward spurt was first in animal products and in oil crops. There was a tremendous increase in oil crops, and in beans and peas, but also in the animal products. Then later, as the post-war emergency demand for food developed, we have given much more attention to wheat production. Our wheat production is tremendously expanded at the present time compared with immediate pre-war years.

THE DEVELOPMENT OF THE UNITED NETHERLANDS

THE ECONOMIC UNION BETWEEN BELGIUM, LUXEMBURG, AND THE NETHERLANDS IN GENERAL AND ESPECIALLY CONCERNING AGRICULTURE

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IT is my intention to put briefly before you a few facts and considerations about the development of the economic union which is already widely known by the name BENELUX, a name that tells very little by itself as it only represents the first syllables of the names of the three countries involved. It rather makes one think of a certain brand of soap. A Belgian senator proposed recently to name the union the 'United Netherlands', a name used in the Middle Ages for Belgium and Holland together, and personally I prefer this last name.

First I intend to tell you about the advantages of a union. Then I will give you some quantitative facts regarding production, commerce, and population of the countries concerned.

The economic union found its birth in an agreement between the governments of the three countries, which was made during their time of exile in London, September 1944. I shall outline the main contents of this agreement and that part which has already been put into operation. Attention will be drawn to some fundamental difficulties regarding the execution which are preventing a full realization of the economic union at the present moment.

Finally I shall mention some special problems of agriculture in the economic union.

If one goes deeper into the problems connected with the building up of the economic union, one cannot help but look back to the period 1815–30. During those days the best solution was reached, as then the three countries were united under one sovereign. Political differences brought the separation again. Yet the hope of becoming one once more was kept alive even though it was only in the economic field. It is, however, not surprising that this did not become a reality before the Second World War. The economic union was an unneeded thing at that time because of the then still-dominating free trade which existed during the latter part of the nineteenth

century up till the great depression. By free trade the idea of the economic union is almost realized. Under free trade the fruits of the spread of production can be reaped, each country producing and specializing in what suits her best. The condition for cheap industrial mass-production—the unrestricted outlet—has been met.

The position altered when in the years 1930–40 economic nationalism raised her head. This expression is really too weak. Compared with earlier times it became a seven-headed dragon. The once so much feared and strongly opposed head, namely duties, is now 'the most innocent'. Quantitative restriction, the import-licence, the monopoly levy, foreign-exchange restrictions, subsidies, coercive measures for consumption, are the new heads of the dragon 'protection'. Especially for the small, thickly-populated countries like Belgium and the Netherlands this international development was fatal, as they, dependent on international intercourse, were compelled to refine raw materials and to find a large enough market for their mass-production. It is no wonder that in that period one looked for economic *rapprochement*. This aspiration was expressed in the Ouchy pact between the Belgian–Luxemburg customs union and the Netherlands in 1932. It may be considered as a forerunner of the present customs union. At the time, however, it was considered to be a system of mutual preferential treatment. It was grounded on the 'most favoured nation clause', and objections were made, especially by England, to the execution of the Ouchy pact.

To-day the economic necessity to form large economic units is still greater than before the Second World War, in spite of the fine aspirations of the United Nations to search for a freer and wider way of intercourse in future throughout the whole world. The foreign exchange scarcity makes a healthy multilateral trade almost impossible. Apart from the import of primary goods, 'limitation' is the highest wisdom nearly everywhere.

The common fate of having had to endure war and occupation has brought our countries very much nearer to each other. The running hand-in-hand of two vital territories like Belgium–Luxemburg and the Netherlands is very promising under the present circumstances. The home market consists of 18 million consumers, while the overseas colonies and other areas of Belgium and the Netherlands are of great importance too. The economic union brings higher prosperity for the component parts if it makes a greater specialization of production possible, which must go together with increasing labour productivity. This again may mean larger specialization still in some branches of production, and in others the avoiding of a decline in

specialization which might be necessary by a further stringing off of international trade.

As far as agriculture goes, each district can set itself to produce such products as suit her soil best. It would be possible for industry to arrive at larger productive units because of the larger market. Also export industry has not got a proper footing without a certain home market.

The profit of an economic union between two or more countries can be found in obtaining a larger production in the united territories than would be possible in each country on its own.

The results of an economic union will be all the better when production in each country separately is the more nearly complementary, which arises from the differences in the natural circumstances of production in the different countries. The still widely spread notion is that Belgium–Luxemburg are pre-eminently industrialized countries, while in the Netherlands agricultural production and trade as well as navigation should dominate. If this were so, the complementary character of both their economies would seem very favourable, but that notion indicates very little knowledge of the matter. Belgium has also very important agricultural production, and in the Netherlands, in between the two world wars, industry visibly developed and is still due to develop in order to absorb the large increase of population.

The industry in both countries is on the whole of different structure. There are competing branches, but many industries have also a complementary nature. Belgium–Luxemburg has a basic metal industry, while Holland is more orientated on metal-consuming industries, for instance, shipbuilding, machine-building, electrical apparatus, &c.

As far as textiles go, it happens that the Belgian spinning capacity is considerably larger than weaving capacity, while in Holland it is just the other way round. In Holland the ready-made-clothes industry is more developed than in Belgium. In Belgium again the chemical industry is of far more importance than in the Netherlands, while in Holland the food industry (dairy products, jam- and gin-factories, &c.) has assumed large proportions. Looking at it more closely one gets the impression that the integration of the industries of both territories has a fair chance.

An important question is the further industrialization of the whole territory of the economic union. The increase and decrease of the population plays a very important part in it. Prophecies about the future populations are rather risky if one bases oneself on a continuing

development of the birth-rate, as this often presents one with great surprises. A safe prognosis for the near future, say, 1950–9, can, however, be made as to the probable supply of new labour, for all the man-labour which will by then have become available has already been born. An analysis of these facts teaches that very likely in Belgium a small decrease of the total man-labour can be expected in the named decennium, but in Holland one must count on a yearly increase of quite 35,000. This means that the total available man-labour in Holland in 1959 will be about 10 per cent. higher than in 1950. If a considerable emigration does not take place, this increase will have to be taken up by the industries, as in agriculture no place can be found. This means that Holland will become an increasingly industrialized country, while in part the labourers can probably move to the south of the union. With reference to agriculture, the arable farming shows very few points of difference, apart from the fact that in Holland the growing of quality-products like seed potatoes and sowing-seeds comes in the front line. The difference with Belgium lies in the cattle section and the horticultural section. The total pasture area and the number of dairy-cattle and pigs are much smaller in Belgium. Horticulture is also larger in Holland and is practised more intensively than in Belgium, but on the other hand the fruit area is larger in Belgium. In Belgium dairy-cattle are solely and horticulture dominatingly producing for the home market; even cheese is very little produced indeed. On the other hand, horticulture and animal production are directed in Holland largely to export. The imports from Belgium into Holland of agricultural products used to be of little importance, but Belgium was before the war, after England and Germany, the largest buyer of Dutch agricultural products, especially cheese.

It is, however, far from the truth to say that with the economic union Holland would not have any agricultural products available, like butter, cheese, condensed milk, bacon, and eggs, for third countries. It is very interesting to have a closer look at the total import and export figures of the customs union between Belgium–Luxemburg and the Netherlands before the war. The value of the total imports was about equal at that period in both territories. The exports of Belgium–Luxemburg were just about the same as the imports. The Dutch imports were considerably lower. The deficit on the Dutch balance of trade could in those years be made up by income from navigation, international commerce, and foreign investments. From the export figures we note that the export of agricultural products was in Belgium–Luxemburg less than 10 per cent. of the total exports,

while it was round about 30 per cent. for the Netherlands. In the Netherlands the value of the exported agricultural products was about twice the value of the imported ones, but, on the contrary, in Belgium–Luxemburg the value of the imports of agricultural products was only covered for one-half by the exports.

Then just a few words about the total imports and exports in the whole territory of the economic union, naturally leaving out the goods-intercourse between Belgium–Luxemburg and the Netherlands. How intensive the part that the combined territory Belgium–Luxemburg and Holland takes in international trade can be concluded from the fact that if an economic union had been there before the Second World War, this union would have been placed as number 4 on the list of countries just behind the United States, England, and Germany. In international trade the union would have stood on the same level as France.

I sincerely hope I have given you a rough picture of the structure and the importance of the economic life in both territories. The figures I have not dared to give you in the text can be read in the appendix.

During the Second World War, when the liberation was already in sight, the long-since-cherished wish for nearer collaboration in the economic field between Belgium–Luxemburg and the Netherlands was fulfilled in principle by concluding a customs agreement between the governments of Belgium, Luxemburg, and the Netherlands.

Before the First World War the abolition of the mutual duties, with, of course, the unavoidable equalizing of the duties on goods from third countries as well as unity in internal trade taxes, would have made the three countries into one country. But already in the years 1930–40 the matter was not as simple as that any more. The quantitative import restrictions were far more serious hindrances than the duties, and so was the licence tax. It was therefore not superfluous for the London agreement of September 5, 1944, to state that measures would have to be taken to form the most favourable stipulations for a complete and lasting economic union. It seemed that the governments were convinced that a customs union as a first step could be very valuable but not of so very much importance in itself.

Unfortunately, circumstances were not favourable immediately after the liberation for an early realization of a real economic union. Belgium had the great luck to be liberated very quickly in the autumn of 1944 without much damage to her production apparatus. Had the daring offensive near Arnhem reached the contemplated plan, the

Netherlands would have been liberated at about the same time as Belgium and very likely with just as little damage. However, it happened otherwise. The never-to-be-forgotten dreadful winter of 1944–5 brought famine and plundering on a large scale. At the time of liberation almost every industry had stopped work in the Netherlands. Only at a very slow tempo was it possible to bring the complicated machinery of the economic life into action again. Holland had to start from a much lower level than Belgium with production, and on top of that she could not start until fully three-quarters of a year later. It is therefore not surprising that the Dutch production could not hold pace with the Belgian from the start. It is a great drawback for the realization of the economic union that circumstances in both countries were, immediately after the liberation, so far apart, because the integration of the economic life in both countries was hindered from the first. The difficulties at the start of the food-supplies, production, traffic, normal supervision of authority, and application of the law, took every bit of the energy, so that it seemed as if the economic union had sunk into the limbo of forgotten things.

Not until the spring of 1946 had the immediate worries been so far removed that it was possible to hold a conference of the Belgian, Luxemburg, and Dutch Ministers with the sole aim of reconsidering the customs union made in London.

In the year following the liberation public opinion had had time to consider the importance of a customs union and its ultimate aim, the economic union. This was necessary, too, as the customs union made in London had been made up without consulting the representatives of the people. It had to be proved yet whether the London agreement was more than a wave of emotion originating from a common fate in war-time. In the leading circles of political and social life in Belgium–Luxemburg, as well as in the Netherlands, the customs union and the economic union as well found a favourable response. During the Ministerial Conference in April 1946 there also appeared to be a good deal of agreement about the direction to be followed. They wanted to realize the customs union in as short a period as possible. For this it was necessary to revise thoroughly the provisionally framed London tariffs. Therefore the council for customs matters was instructed to do this with the greatest possible speed. In the meantime, I am pleased to say, this has led to success. Though the Dutch tariff was the lowest, Belgium had quite a moderate tariff, too, before the Second World War. The new union-tariff has now become an average of the two. The original London

customs union completed by the revised tariff has now been accepted in Belgium and Holland by the houses of representatives of both peoples.

When at the time of the Ministers' Conference in the spring of 1946 the views of the economic union were considered, it was only right that the necessity was felt that the problems which accompanied the welding together of two fairly independent economies would first have to be studied. The council for the economic union was entrusted with this job, and it has now studied for about a year the problems in different committees.

The following fundamental difficulties appeared to exist:

Firstly, Belgium–Luxemburg and the Netherlands have a separate foreign-exchange régime. The restrictions in the monetary field are just now the most serious hindrance to a free intercourse. Abolition of the currency frontier, which would mean free exchange possibilities of Belgian francs and Dutch guilders, is shipwrecked on the difficulty that the Belgian foreign exchange position is better at the moment than that of Holland. On top of that, Belgium has a quite different policy with her foreign-exchange holdings than Holland. In Belgium a free hand is given to import all that is needed, whether the goods are essential for her economy or not. In the Netherlands they are forced to follow a different course with their imports and they use the available foreign currency only for very primary needs of the economy.

Secondly, the provision of goods in Belgium is far wider than in Holland. In the Netherlands many goods are still rationed which may be had free of coupons in Belgium or Luxemburg. For instance, textiles are free of coupons in Belgium, while they are very keenly rationed in the Netherlands. This situation in the goods sector corresponds naturally with the monetary side named first.

Free intercourse between the two countries would mean that the Belgium–Luxemburg market would be deprived of large quantities of goods for the benefit of the Dutch needs. It is quite reasonable that this sacrifice cannot be expected.

Thirdly, the trends of the prices and wages also diverge in both territories. The retail prices are about 15 to 20 per cent. higher in Belgium than in the Netherlands. The wages are, however, only 10 to 15 per cent. higher.

The prices fixed by the governments concerned for agricultural products are, with the exclusion of sugar-beet, considerably higher in Belgium than in the Netherlands.

The larger supply of goods in Belgium came along with a less

severe wage- and price-policy than was the case in the Netherlands with very few available goods.

To prevent big shocks in economic life it is, however, desirable that by the putting into operation a free intercourse of goods, prices and wages in both territories should not run too far apart. Prices will therefore have to be directed as much as possible to the same level in both territories. Possibly a saturation of the Belgian market will make the prices come down considerably, or perhaps in Holland they will start to allow higher prices and wages. Of course, it would in the end also be possible to meet each other by altering the exchange rate of franc and guilder.

At present this last problem is, however, not very urgent. The economic and financial position in both territories will very likely first have to be brought into balance and will have to be nearly alike to enable them to take the important step towards the installation of a complete economic union.

From the three named problems it is clear that in the economic union the same level of economic and financial policy will in a great measure have to be followed. The taxes will, as far as the total amount goes, not have to be too far apart for the different industries and groups of persons, as that might force an artificial migration. The social provisions for labourers will have to be about the same. Very likely it would even be necessary to unify the commercial laws.

It is clear that in the economic union only joint treaties can be effected. A council for the trade agreements was called to life for this purpose. At the moment the co-operation in this field has, however, been restricted to joint action on the I.T.O. conference and at Paris in connexion with the Marshall Plan.

The interference of the authorities in internal economic questions must also be in tune with each other. In Holland a certain degree of planning has already been brought into action. If a new industry wants to settle somewhere it must have a licence for settling as well as an assignment for raw material and the plant. This guardianship of the authorities is due partly to scarcity of foreign exchange and goods, but it is also due partly to certain political views. Concerning this there is a more liberal opinion in Belgium, and, of course, it will be necessary to agree here as well. Yes, it will in my opinion even be unavoidable in the long run that Belgium, Luxemburg, and the Netherlands will have to pass on part of their political independence to the union institutions if the economic union is to function properly.

Regarding agriculture the following important items may be mentioned.

At first sight there is no very great difference between agriculture in Belgium and Holland. Neither country grows sufficient corn for home consumption (bread and feeding-stuffs), but there is intensive horticulture and stock-breeding. The difference is that in Belgium–Luxemburg they mostly produce for the home market, while Dutch farming is to a great extent a 'refinement industry' for export. Before the Second World War this export was, in order of importance, shipped to England, Germany, Belgium, and other countries.

During the period 1930–40 Belgian agricultural industry was well protected by duties, licence taxes, and quantitative restrictions. Just now it is rather feared in Belgian agricultural circles that with the economic union the Dutch will flood them with agricultural products if it turns out that, as in the years 1930–40, export to other countries encounters serious difficulties. On top of that it is thought in Belgium that in the Netherlands the cost of production is less than in Belgium. There is, however, some optical illusion in that, for the whole level of prices is higher in Belgium than in Holland. It is a remarkable thing that before the Second World War the prices of the most important agricultural products were in Belgium often just lower than in the Netherlands. It is also true that in the Netherlands milk production per cow and the return of many crops were somewhat higher than in Belgium; this, however, does not as a matter of course mean lower cost of production.

To safeguard Belgian farming against the dangers from the Netherlands the Belgians have proposed to allow only in limited measure freedom of shipping agricultural products. Imports would then be allowed only as long as the prices for certain products were above a certain minimum at home, which would have to be fixed beforehand. This price would then have to be necessary in any case for the maintenance of a certain profit of the home farming. On these grounds an agreement was made on May 9, 1947, between the three Ministers of Agriculture, which was only intended for the transition period until the economic union had become a reality. With this agreement the possibility is there to get a free exchange of further-to-be-stipulated products, provided that a minimum price level in the receiving country is not brought into danger. In the treaty, signed on July 1 and which is to last for two years, between Belgium and Holland, commercial intercourse has already been extended, largely based on quota and in the spirit of the economic union. For some agricultural products free exchange has been accepted, on condition, however,

that the balance of payment is not seriously pulled to one side by it. The exports and imports in the free section will have to keep each other as much as possible in balance.

A start was made with fruit, vegetables, flowers, and ornamental shrubs. Already Holland has received a large quantity of cherries from Belgium, for which they hope to pay with vegetables. It has been clearly shown that in practice a free exchange of goods with observance of the minimum prices brings many difficulties. Firstly, it was shown to be far from easy to fix acceptable minimum prices at both ends. Sometimes the inclination was to fix the minimum prices so high that they were practically prohibitive for imports.

The import from third countries was also a complication, as that should naturally not take place at prices lower than the fixed minimum prices of the union partners. It is also in practice more difficult than one would suppose to find out by an unambiguous and rapid method whether the prices at home have gone below the fixed minimum price; it is especially very difficult for horticultural products.

Such a limited system of import is only acceptable for a transition period, for the sake of preventing disturbances on the home market.

The most important problems of agriculture in the economic union appear to be in the area of economic policy. In Belgium as well as in the Netherlands protection of agriculture took place before the Second World War by a certain amount of internal governmental regulations, but in both countries in a different way and in a different measure.

Though the prices for agricultural products are now higher in the world market than those obtaining for the producers in their own country, it is yet expected that within some years west European farming will again not be able to do without protection. That is why this subject is of such great importance.

In both countries measures were taken to keep up home agriculture. The keeping up of Belgian agriculture, however, turned out to be quite a different matter to that of Holland. In Belgium the farming served mainly the home population with agricultural products. Belgium, too, had a predominant industrial export, while a large part of the need for agricultural products was covered by import.

In Holland a large part of the total export consisted of refined agricultural products, and one of the purposes of the Dutch agricultural policy was to keep up the historically grown exports. While in Belgium they could suffice by refusing the import of too large quantities of foreign agricultural products and by neutralizing too

low prices for them with the aid of duties, Holland was set the task of trying to lose as little ground as possible on the export market, which was already shrunk through conditions and limitations placed on foreign exchange by the governments of the receiving countries.

In short, one can say that, besides the mutual distinguishing mark to keep up farming, the Belgians also had the purpose of keeping their expenses of living as low as possible, while the most important aim of the Dutch was to keep up their position in the export market for agricultural products.

In Belgium bread-corn and feeding-stuffs were before the war allowed on the home market against prices of the world market. The home growing of corn was supported directly by extra allowances per acre or per 100 kilos. For the remaining agricultural, horticultural, and animal products a considerable protection was given with the help of duties, licence taxes, and quantitative restrictions.

A quite different system was in vogue in the Netherlands with a view to the large export of refined agricultural products. Here the foreign market was to a certain extent kept apart from the home market. This enabled the consumers at home to buy their food at prices based on the home costs of production, while the export of animal products took place against prices based on the world market for feeding-stuffs. This Dutch system is often called 'the monopoly system' in accordance with the juridical form under which it was executed. These monopolies have been given to central organizations which are under government control. For the import and export of agricultural products one requires the consent of these organizations. They were fairly passive as far as imports and exports went, but made the stipulation that for import a levy had to be paid which was very near to the difference in prices of the world market and home market for the same or directly competing products. A restitution was given on the export of animal products which was equivalent to the levy on the import of feeding-stuffs.

It is clear that in the economic union there must be unanimity regarding the interference of the State in agricultural matters. If bread-grain was allowed on the home market at the prices at which world-market grain entered Belgium, it would be impossible to raise monopoly price differences in the Netherlands, unless the barriers between Belgium and Holland were kept up, and in that case the economic union would not be a reality.

Farming circles in Holland are strongly supporting an indirect

protection by import levying, because of the fear that a direct support from the exchequer would not be lasting. The Belgian system of direct support, as it took place in the growing of corn, is not enthusiastically received in the Netherlands. Agriculture in Belgium has still got to decide its point of view. Some favourable opinions for the Dutch point of view have already been heard. It is nevertheless quite a different question whether the industrial circles in Belgium will agree to the expenses of living being tuned to the internal costs of agricultural products.

The great difficulties before the Second World War of selling the agricultural export products brought the authorities in Holland at last to limit the production. This went so far that in the Netherlands a maximum number of poultry, pigs, and cows was allowed on each farm. To control such the following measures were taken: when still very young each pig received a metal disk, with a number on, in one of its ears, while calves were branded, and so on. Horticultural production was dependent on special cultivation licences.

There is no need to say that this great interference of the authorities with farming was far from popular in the Netherlands, but, as little else could be done, the farmers swallowed it. They could remain far more liberal in Belgium; there they are shy of meddling deeply in production as well as in trade. One must even fear that, if a meddling of the authorities were to take place in Belgium as happened in the Netherlands before the Second World War, it would be very difficult to execute the measures there. As far as planning goes, Belgium and Holland will also have to come to an agreement. Very likely the Netherlands will have to pass on to simplifying their system and to granting the farmers more liberty.

Summarizing, one may say that a great deal of profitable and preparatory work has already been done. The regular contacts between officials and industrial experts of the three countries have given a sphere of mutual confidence.

Yet there remains a lot to wish for in the co-ordination of the economic policy of both territories. They are too often contradicting each other. For instance, in Belgium, with her already high level of prices and wages, the authorities decided in July of this year to abolish the subsidizing policy on food. In Holland food is also subsidized very heavily, but there they do not see how they can do away with it just yet, unless they bring the policy of steady wages and prices into danger. Mutual consultation about this kind of problem would be of great importance. In a second conference of

the Ministers of the three countries, in May 1947, it was decided to hold such a high-level conference every three months in the future.

The economic union has not yet become a reality because the basic conditions have not been met sufficiently at this moment. As long as Belgium–Luxemburg is still ahead of the Netherlands there will naturally be very little inclination in Belgium–Luxemburg to share that advantage with Holland through an early realization of the economic union. Holland will have to try to work off the arrears as soon as she can so that the 'Dutch virgin' becomes a 'desirable partner'. Though love is not quite wanting, yet the economic union remains largely a 'marriage of convenience'.

The link-up of Belgium–Luxemburg and Holland into the United Netherlands is not aimed against other countries. It may be considered as a first step towards an economic fusion of Europe. Before the Second World War the Lowlands bordering the North Sea tried to approach the Scandinavian countries for closer economic collaboration. This succeeded in the Oslo pact which unfortunately never had a chance of being put into practice. During the considerations at the Paris conference in connexion with the Marshall plan, the thought of forming a European customs union was also put forward. This is quite in the spirit of the Union between Belgium–Luxemburg and the Netherlands. The first step ought to be followed by many more. There is only a future for Europe when the different countries arrive at the fullest measure of economic integration.

APPENDIX I. *Area under Cultivation* (× *1,000 Ha*)

Arable crops	*1929*	*1938*	*1945*	*1946*
THE NETHERLANDS				
Grain crops	435·3	561·8	530·6	603·9
Pulse crops	62·2	51	56·6	43·1
Flax	19·2	20·7	9·4	12·4
Sugar-beet	55	43·5	18·2	44·7
Potatoes	182·2	90·7	133·7	141·2
Permanent pasture	1,283·8	1,336·5	1,118·7	1,192·5
Greens and fruit	60·7	44·3	63·8	66·5
Flower crops	1·2	1·5	1·1	1·2
Tree crops	2·9	2·6	2·8	3·1
The rest of area under cultivation	185·7	297·8	232·9	271·4
Total area under cultivation[1]	2,288·2	2,360·4	2,167·8	2,380
BELGIUM				
Grain crops	606·6	..	531	..
Seed-pulse crops	12	..	22	..
Flax	24·9	..	24·3	..
Sugar-beet	52·9	..	38·3	..
Potatoes (main-crop and earlies)	152·5	..	90·6	..
Permanent pasture	714·5	..	741·5	..
Greens and fruit	105·5	..	102·9	..
Flower crops	0·9	..	0·6	..
Other crops (including tree crops)	9·5	..	14·2	..
The rest of area under cultivation	213·2	..	188	..
Total area under cultivation[1]	1,892·5	..	1,753·4	..
LUXEMBURG				
Grain crops	56·4	58·8	42	45
Pulse crops	2	0·7	0·8	..
Flax	..	..	..	..
Sugar-beet	..	..	..	..
Potatoes	17·2	17·2	8	8
Permanent pasture	26·6	26·8	..	..
The rest of area under cultivation	57·8	57·6	..	..
Total area under cultivation[1]	160	161·1	50·8	53

[1] Excluding timber.

APPENDIX II. *Survey of the Composition of the Livestock* (× *1,000*) *in the Netherlands and Belgium*

	Cattle	*Pigs*	*Horses*	*Sheep*	*Poultry*
THE NETHERLANDS					
December 1939 .	2,817	1,553	322	312[1]	32,805
December 1946 .	2,222	1,062	355	340	7,480[2]
Decrease − / Increase + .	−21·12%	−31·61%	+10·25%	+8·93%	

[1] Counted in Dec. 1940. [2] On Jan. 1, 1946: 3,500.

	Cattle	*Pigs*	*Horses*	*Sheep*[1]	*Poultry*
BELGIUM					
January 1, 1940 .	1,600	856	246	355	..
January 1, 1947 .	1,652	776	262	217	5,484[2]
Decrease − / Increase + .	+3·24%	−9·34%	+6·56%	−38·83%	

[1] Counted May 15, 1944. [2] 1940 unknown. On Jan. 1, 1946: 3,575.

	Cattle	*Pigs*	*Horses*	*Sheep*	*Poultry*
LUXEMBURG					
October, 1939 .	107	155	18	9	..
October, 1945 .	111	88	15	9	..

Difference between numbers of livestock, 1946

	Cattle	*Pigs*	*Horses*	*Sheep*
The Netherlands . .	2,222	1,062	355	340
Belgium	1,651	776	261	217
Difference . . .	571	286	94	123
In per cent. . . .	25·68%	26·96%	26·33%	36·08%

From this it appears that: (1) the livestock has recovered less in the Netherlands than in Belgium; (2) even since the Second World War the numbers of livestock are a good deal larger in the Netherlands than in Belgium.

The increase of the livestock, particularly the number of pigs, is retarded in both countries by the shortage of fodder.

Appendix IIIA. *Total Imports and Exports of the Netherlands and Belgium–Luxemburg, 1931 and 1938*

Products and years	The Netherlands				Belgium–Luxemburg			
	Imports		Exports		Imports		Exports	
	Weight ×1,000 m. tons	Value ×1 million gld.	Weight ×1,000 m. tons	Value ×1 million gld.	Weight ×1,000 m. tons	Value ×1 million gld.	Weight ×1,000 m. tons	Value ×1 million gld.
1931								
Crop products	3,850	198	729	45	3,753·6	178·7	648	48
Livestock and livestock products	41·1	29·8	523·4	259·3	166·7	121·6	66·2	71·4
Horticultural products	58·7	9·6	525·7	89·7	75·7	7·8	101·3	15·2
Fishery products	15·4	4·4	177·4	24·8	83·1	10·5	41·3	4·1
Other products	71·3	5·1	109·5	8·4	102	3·2	5·2	0·6
Total agricultural products	4,036·5 = 14%	246·9 = 10%	2,065 = 12%	427·2 = 30%	4,181·1 = 11%	321·8 = 19%	862 = 4%	139·3 = 9%
Total of all products	29,899·5 = 100%	2,500·8 = 100%	16,819·3 = 100%	1,426·4 = 100%	38,675·7 = 100%	1,653·5 = 100%	24,619·4 = 100%	1,603·3 = 100%
1938								
Arable crops	2,261·5	142·8	565·4	39	2,803·5	177·2	279·3	48·5
Livestock and livestock products	27·6	18	400·4	184·3	160·2	102·7	52·5	58
Horticultural products	34·2	4·4	384·6	67·2	108·1	9·9	61	9·2
Fishery products	9·2	2·6	143·6	13·6	53·6	6·2	9·6	2·4
Other products	1·2	0·7	329·4	10·4	203·3	4	2·8	0·3
Total agricultural products	2,333·7 = 10%	168·5 = 12%	1,823·4 = 13%	314·5 = 30%	3,328·7 = 11%	300 = 21%	405·2 = 2%	118·4 = 9%
Total of all products	22,778·9 = 100%	1,414·8 = 100%	14,429·4 = 100%	1,039·2 = 100%	31,554·5 = 100%	1,436·3 = 100%	22,007·6 = 100%	1,346·9 = 100%

Source: Annual statistics of the import-, export-, and transit-trade of the Netherlands.
Monthly bulletin of the trade of Belgium–Luxemburg.

These statistics show the remarkable fact that the agricultural imports of the Netherlands amount to 11 per cent. of the total imports, whilst those for Belgium amount to 20 per cent. A very great difference is present, too, in the agricultural exports, namely, the agricultural exports of the Netherlands amount to 30 per cent. of the total export value; for Belgium these amount to 9 per cent.

Appendix IIIb. *Total Commercial Inter-trading of the Netherlands to Belgium–Luxemburg, 1931 and 1938*

Products and years	Imports						Exports					
	Weight × 1,000 m. tons	Percentage		Value × 1 million gld.	Percentage		Weight × 1,000 m. tons	Percentage		Value × 1 million gld.	Percentage	
		of agric. products	of total products		of agric. products	of total products		of agric. products	of total products		of agric. products	of total products
1931												
Crop products	104	83	2·53	5·1	54·1	2·58	312	63·2	5·39	14·2	24·7	8·4
Livestock and livestock products	1·9	1·5	0·05	1·9	20·1	0·96	40·8	8·2	0·7	33·2	57·8	19·65
Horticultural products	16	12·8	0·39	2	21·3	1·02	44·2	9	0·76	2·3	3·9	1·34
Fishery products	2·3	1·8	0·06	0·3	3	0·14	66·6	13·5	1·15	6·4	11·1	3·76
Other products	1·1	0·9	0·03	0·1	1·5	0·07	30·3	6·1	0·52	1·4	2·5	0·84
Total agricultural products[1]	125·3	100	3·06	9·4	100	4·77	493·9	100	8·52	57·5	100	33·99
Total of all products	4,103·7	..	100	196·2	..	100	5,795·2	..	100	169·1	..	100
1938												
Crop products	15·2	65·1	0·41	1·1	23·1	0·68	186·2	44	3·91	16	42·3	15·18
Livestock and livestock products	2·5	10·7	0·07	3	61·9	1·82	2·7	0·6	0·06	12·5	33·1	11·86
Horticultural products	4·5	19·1	0·12	0·5	11·2	0·33	36·7	8·7	0·77	2·9	7·7	2·74
Fishery products	0·7	2·9	0·02	0·1	1·4	0·04	53·1	12·6	1·12	3·9	10·4	3·72
Other products	0·5	2·2	0·01	0·1	2·4	0·07	144	34·1	3·02	2·5	6·5	2·34
Total agricultural products[1]	23·4	100	0·63	4·8	100	2·94	422·7	100	8·88	37·8	100	35·84
Total of all products	3,707	..	100	162·2	..	100	4,762·6	..	100	105·7	..	100

[1] Most products added together.

Source: Annual statistics of the import-, export-, and transit-trade of the Netherlands.

APPENDIX IIIc. *The Total Traffic of the Combined Countries*

Products and years	Imports						Exports					
	Weight × 1,000 m. tons	Percentage		*Value* × 1 million gld.	Percentage		*Weight* × 1,000 m. tons	Percentage		*Value* × 1 million gld.	Percentage	
		of agric. products	*of total products*		*of agric. products*	*of total products*		*of agric. products*	*of total products*		*of agric. products*	*of total products*
1931												
Crop products	7,187·6	94·6	12·2	357·5	71·2	9·4	961	41·6	3	73·8	14·8	2·8
Livestock and livestock products	165·1	2·2	0·3	116·3	23·2	3·1	546·9	23·7	1·7	295·7	59·2	11·1
Horticultural products	74·1	1	0·1	13·1	2·6	0·3	566·8	24 6	1·8	100·6	20·1	3 8
Fishery products	29·7	0·4	0·1	8 2	1·6	0·2	149·8	6·5	0·5	22·2	4 4	0 8
Other products	141·9	1·8	0·2	6·7	1·4	0·2	83·2	3·6	0·3	7·4	1·5	0·3
Total agricultural products[1]	7,598·4	100	12·9	501·8	100	13·2	2,307 7	100	7·3	499·7	100	18·8
Total of all products	58,676·2	..	100	3,789	..	100	31,539·8	..	100	2,664·4	..	100
1938												
Crop products	4,863·6	93·7	10·7	302·8	69·3	11	643·3	36·1	2·3	70·4	18	3·1
Livestock and livestock products	157·8	3	0·3	116·4	26·6	4·2	447·7	25·1	1·6	226·9	58·1	10
Horticultural products	101·1	1·9	0·2	10·9	2·5	0 4	404·4	22·7	1·4	73	18·7	3·2
Fishery products	9	0·2	..	4·8	1·1	0·2	99·4	5 6	0 4	12	3·1	0·5
Other products	60	1·2	0·1	2·2	0·5	0 1	187·7	10·5	0·7	8	2·1	0·4
Total agricultural products[1]	5,191·5	100	11·3	437·1	100	15·9	1,782·5	100	6·4	390·3	100	17·2
Total of all products	45,863·8	..	100	2,745·3	..	100	27,967·3	..	100	2,270·2	..	100

Source: See Appendixes IIIA and IIIB.

[1] Most products added together.

Note 1: This combination has been performed, by the different systems, as follows: the imports and exports of the Netherlands have been diminished by the imports out of Belgium and diminished by the exports to Belgium according to the Netherlands statistics.
The Belgian imports and exports according to the Belgian statistics have been diminished by the imports and exports out of the Netherlands according to the Netherlands statistics.

Note 2: For the whole territory of the customs union the agricultural imports in 1938 would amount to 16 per cent. of the total imports and the agricultural exports would amount to 17 per cent. of the total exports.
The improved character of agriculture in the union territory appears from the fact that the weight of imports amounts to 11·3 per cent. of the weight of the total imports, whilst the weight of the agricultural exports is significantly less, namely, 6·4 per cent. of the total exports.

APPENDIX IIID. *The Netherlands—Foreign Trade*

Imports and exports by branches of industry of which the goods are products[1]

Branch of industry	*1938*			
	Imports		*Exports*	
	1,000 m. tons	*1 million gld.*	*1,000 m. tons*	*1 million gld.*
1. Mining and peat-digging	9,986	137	6,298	46
2. Agriculture, cattle-breeding, fisheries, forestry, and hunting	4,067	416	1,791	258
3. Manufacture of food-stuffs and luxuries	687	61	1,316	234
4. Manufacture of earthen-ware, cement, glass, lime, and bricks	1,689	27	159	7
5. Chemical industries	3,228	137	3,575	105
6. Wood, cork, and straw-working industries	1,288	70	57	5
7. Paper industry	94	20	267	22
8. Textile industry	88	87	80	78
9. Clothing industry	6	29	1	3
10. Leather, oil-cloth, and rubber industries	17	24	15	13
11. Metal industries, ship-building, and coach-building	1,539	372	535	229
12. Graphic industries and applied art	3	10	5	9
13. Other branches of industry	87	25	330	30
TOTAL	22,779	1,415	14,429	1,039

Source: Yearbook of the Netherlands and Statistical Yearbook for Belgium.

[1] The imports and exports by post and the imports and exports of gold and silver coins and bullion, as well as of unset diamonds, are not included.

Belgium–Luxemburg. Special Trade by Commodities Groups in 1938

Description	*Imports*			*Exports*		
	1,000 m. tons	*1 million fr.*	*1 million gld.*	*1,000 m. tons*	*1 million fr.*	*1 million gld.*
Live animals	9	28	2	5	67	4
Liquors and food-stuffs	3,772	4,677	290	603	1,132	70
Raw or partially manufactured stuffs	26,994	12,557	779	17,174	9,781	606
Manufactures	654	5,335	331	4,187	10,461	649
TOTAL	31,429	23,579	1,402	21,969	21,441	1,329

Conversion into Dutch money at the rate current in 1938 (1,000 fr. = gld. 62).
Source: Yearbook of the Netherlands and Statistical Yearbook for Belgium.

PROBLEMS OF PEASANT AGRICULTURE IN THE BRITISH WEST INDIES

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THE history of the British West Indies differs from those of most other British tropical colonies, and it is impossible to appreciate the present problems of peasant agriculture in these islands without reference to their historical background.

The total area of the British West Indies is 7,700 square miles and the present population 2½ millions. Reference to a large-scale map shows that the islands are scattered over a wide expanse of sea. The use of the collective term, the British West Indies, tends to obscure the fact that the islands are divided into ten separate governments. Jamaica, which has the largest area and population, is nearly 1,000 miles from its nearest British West Indian neighbour. St. Kitts, Nevis, Antigua, and Montserrat constitute the Federation of the Leeward Islands, but each has its own legislature. Dominica, St. Lucia, St. Vincent, and Grenada make up the Windward Islands and have a Governor in common but no federal legislature. Barbados and Trinidad and Tobago complete the list of governments. The subdivision of the group into many separate governments has important consequences, the one of immediate importance being a lack of uniformity in policy concerning peasant agriculture. Each has pursued a policy of its own, and until recently there was no machinery for securing a regular interchange of experience and knowledge. I propose, therefore, to abbreviate my paper by restricting my remarks mainly, though not entirely, to the Leeward and Windward Islands.

The Leeward Islands were settled by the British early in the seventeenth century;[1] the Windward Islands, by contrast, were acquired by conquest from the French late in the eighteenth century. The British West Indies have been regarded so long as the stronghold of the plantocracy as to obscure the fact that the pioneer settlements consisted of smallholdings on which Englishmen and their families cultivated indigo, tobacco, and cotton with their own hands. 'Modern' sugar works were soon introduced into Barbados (1642) and the Leeward Islands. The smallholders were unable to meet the heavy expense of constructing sugar works and purchasing the horses or

[1] St. Christopher (St. Kitts) was first settled in 1623.

cattle to work the mills.[1] Moreover, Europeans were found incapable of the strenuous manual tasks in field and factory, and negro slaves from West Africa were rapidly substituted. The smallholders were bought out, and the land passed into the hands of a relatively few magnates who quickly amassed great fortunes. Thus from a very early stage 'King Sugar' and the plantocracies dominated the economic development of the islands.

The British West Indies differ from most other parts of the British tropics in that there is no large indigenous population. The aboriginal inhabitants, the Caribs, were few in number but fierce and warlike. Many of them were exterminated or deported, and most of the survivors were merged by miscegenation into the general population. The slaves were torn from their tribal associations in West Africa, herded together like cattle, and set to work in gangs. Their customs and languages have virtually disappeared. Hence the planters did not have to contend with local systems of land tenure, subsistence agriculture, and social and religious customs. The pioneer planters adopted the system of agriculture then current in England, and this proved so profitable that the revolutionary principles of rotational farming and alternate husbandry had no repercussion in the British West Indies.

The British West Indian islands were acquired during the time when Britain was trying to build up a strong self-sufficing Empire, and they fitted exceptionally well into that conception. They supplied sugar, which was previously obtainable only from foreign countries; they made little demand on the manpower of the mother country; they made the West African slave trade highly profitable and employed large numbers of British ships and sailors. The 'sugar islands' became the pampered pets of the old colonial system and were valued far more highly than the British North American colonies.

The modern history of peasant agriculture dates from 1838, for prior to that date the great majority of the population consisted of slaves who were mere chattels which could be bought and sold. The slaves lacked the civil status necessary for the acquisition of land. Nevertheless most of the slaves cultivated land on their own account and for the following reason. The slave-owner required a much larger number of slaves to reap and manufacture his crop than he did for the cultivation of cane during the remainder of the year. He was responsible for feeding his slaves, and found it necessary to import

[1] The original sugar-mills had two vertical wooden rollers which were rotated by horses or, later, cattle attached to sweeps. Cattle-mills gave way to windmills and windmills to steam-mills.

part of the rations from North America and England. Most planters possessed some land which was unsuitable for sugar cultivation and this was allotted in small gardens to the slaves in order that they might grow some of their own food. After emancipation in 1838 the ex-slave-owner was no longer responsible for feeding his labouring population; nor, on the other hand, could labourers be compelled to work for any particular planter. The plantation owners therefore offered these gardens to worthy labourers with the object of securing an elastic and amenable supply of labour. This link between wage-earning and the occupation of land persists to this very day, but the system does not provide a satisfactory basis for peasant agriculture, nor, of course, was it ever intended to do so. The labourer has no security of tenure and can be dispossessed at the whim of his employer.

The Act of Emancipation conferred civil rights on the bulk of the population and, in particular, removed the barrier which had hitherto prevented them from purchasing land. But all the land in the older colonies, the Leewards, had long ago been alienated to the planters, and even in the less highly developed Windwards practically the whole of the land suitable for agriculture had passed into private possession. Hence provision for peasant agriculturists largely depended on the dispossession of private owners. Now the policy of the local governments, the plantocracies, and the Imperial Government was to maintain the staple industry, sugar. The planters required a large and elastic supply of labour, and impediments were therefore placed in the way of the acquisition of smallholdings by the labourers.

But the sugar industry was subjected to a number of political blows during the nineteenth century, one of the most far-reaching being the Equalization Act of 1846. Up to that time colonial sugar had enjoyed a preference in Great Britain, a prohibitive tariff being levied on foreign sugar. Provision was made in 1846 for the reduction and eventual extinction of the preference accorded to British sugar producers. Many planters succumbed to the consequent fall in the price of sugar, and some sold off their estates in smallholdings. These planters were compelled to dispose of their properties by force of economic circumstances, their plantations being inferior in soil, climate, or accessibility to those which survived. Consequently those who managed to acquire these smallholdings started off with a grave handicap.

Some sugar planters, notably in Montserrat and Nevis, survived by adopting the share-cropping system. They divided their fields

into small plots which were cultivated by the labourers in the staple crop, at first sugar and later cotton. The share-croppers were tenants at will and enjoyed no security of tenure. The plots were non-residential, and the crops were shared equally between the landowner and the cropper. The landowners resumed the cultivation of their estates with wage-paid labourers immediately the price of sugar or cotton rose to a profitable level. Thus share-cropping was adopted merely as a desperate financial expedient to enable the landowner to retain his property and to secure an income during depression. It is clearly not a satisfactory basis for peasant agriculture since the landowner desires to resume the role of planter at the earliest possible opportunity. Share-cropping is merely a system of paying wages in kind instead of in cash.

Two of the Windward Islands, Dominica and St. Lucia, were taken over from the French in an undeveloped state. They had been set aside as reserves for the warlike Caribs. They are very hilly, thickly forested, and have a very high rainfall. Dominica, for example, has some parts which boast an annual precipitation of over 300 inches of rain a year. Most of the land is consequently unsuitable for arable cultivation. There is uncertainty in these two islands as to the ownership of land. Part of the land was allocated during the French occupation, some during the British occupation, and some since; but there is no land tax and no registration of titles, so that even bona fide occupiers possess no valid title. This confusion has permitted labourers to go into the interior of the islands where they practise a system of shifting cultivation, much to the detriment of the soil.

Cash tenants are also represented in the West Indies. A few ex-planters have rented out their estates entirely in smallholdings. The tenant is usually required to grow the staple crop of the island, and as the landlord normally markets the crop on behalf of his tenants he possesses a ready means of securing his rent from the proceeds. The tenant has no security of tenure and rarely possesses a written lease, but it has become customary for the landlord to pay compensation for growing crops. The one promising feature of this system of tenure is that the landlords obviously prefer to be landlords rather than planters.

In brief, there are many peasant agriculturists in the British West Indies holding land on very unsatisfactory systems of land tenure.

The bulk of the peasant proprietors are concentrated in the island of Grenada, where their rise was due primarily to the failure of the sugar industry during the latter part of the nineteenth century. The

topography of Grenada is unsuited to the centralization of sugar manufacture, with the result that the small sugar factories succumbed one after another. At that time, however, the infant cacao industry was enjoying great prosperity arising from the pursuit of free trade in Great Britain and the rise in the material welfare of the people resulting from industrialization. The sugar planters were unable to finance the change from sugar to cacao with wage-paid labour, for they had no financial reserves. A cacao seedling takes five years to come into bearing and from fifteen to twenty-five years to reach full productivity. The planters therefore employed some of their ex-labourers as contractors, each to plant and to bring into bearing an acre or two of cacao.

The contractors were entitled to grow 'ground provisions' (food crops) on the land and to sell them, and they were given preference for any wage employment that the planter had to offer. At the end of the contract—usually five years—the contractor was paid an agreed amount for each cacao tree in good health, and with that small amount of capital he was enabled to pay a deposit towards the purchase of a small plot of land on a derelict sugar estate or in the hills. Consequently there exists in Grenada a large body of small peasant proprietors.

By 1896 the British West Indies, still wedded to sugar, were on the verge of economic collapse. The Bourbon cane, then the only variety of consequence, rapidly succumbed to disease, and the competition of bounty-aided beet sugar from Europe reduced the price of sugar in the United Kingdom by 50 per cent. between 1882 and 1896. The West India Royal Commission, which was sent out in 1896–7, recommended the settlement of the labouring population on the land as peasant proprietors as being the best and, indeed, it appeared, the only solution of providing for the livelihood of the labourers. The Government of St. Vincent immediately implemented the recommendations of the Royal Commission, but other governments were slow to emulate that example. The Royal Commission had no hesitation in recommending the compulsory acquisition of land, and the Government of St. Vincent assumed this power, but purchases were confined to estates which had 'practically ceased to be cultivated'. Other governments used properties which had come into their possession for other purposes, or purchased more or less derelict properties in the open market. Practically all the land made available for peasants had either failed under plantation systems or had never been devoted to the production of cash crops. Peasants throughout the West Indies are generally handicapped from the very

outset by soil of low fertility and steep slopes which render the soil especially liable to erosion.

The Royal Commission recommended freehold tenure, the only form in which the peasants had any confidence. The impecunious island governments considered it obligatory to recover their expenditure on the purchase, survey, and layout of the land from the peasants, and they therefore required applicants to pay a substantial deposit, and the remainder of the purchase price was to be paid by a varying number of annual instalments. This insistence on a deposit defeated the aims and recommendations of the Royal Commission, because at that time no agricultural labourer, then earning from 6*d.* to 7½*d.* per day for only three or perhaps four days a week, could possibly accumulate the £4 to £13 which was the sum required as a deposit. Consequently the smallholdings passed into the hands of artisans and other persons of substance, most of whom already owned or cultivated land on their own account. A large number of the peasants, particularly in St. Vincent, Nevis, and Jamaica, acquired the money for the purchase of their holdings by their earnings abroad. The man whose life's ambition was to acquire and settle on a piece of land in his own country had first of all to exile himself in order to earn money with which to pay the deposit.

The holdings were small, most of them from 3 to 5 acres; and generally too small, after subtracting useless land, to afford whole-time profitable employment for the peasant and his family. The size of the holding was adjusted not to the needs of the family, as the Royal Commission had intended, but to the length of the peasant's pocket. Despite the limitation in size, the great majority of these peasants found it necessary to incur debt in order to pay the deposit, and they embarked on the development of their holdings financially ill-equipped to weather the long lag between expenditure of effort and receipt of reward, which is characteristic of so many systems of agriculture. One redeeming feature is the absence of indebtedness for social and ceremonial purposes. Debt incurred for social extravagance is common, as we heard yesterday, among Indians both in India, in the West Indies, in Fiji, and indeed wherever Indians may settle; it is common also among West Africans in West Africa, but there is practically no debt for such extravagant purposes among West Indians, the main reason being, I imagine, that they are unable to borrow. Most of these peasants found it essential to continue in other occupations in order to meet the cost of purchasing and developing their holdings, so that agriculture remained a part-time means of livelihood and not a mode of living.

The great majority of the allottees continue to live in villages, partly because of the social amenities which the village provides, particularly water, but also shops, school, church, playing-ground, &c., and partly because they could not afford to erect a new house on their holding. This separation of the home from the land has very important consequences. The animals are kept, mainly for purposes of safety, near the village home, and the manure which they could manufacture is not available for applying to the land. This separation makes it very difficult for the peasant to adopt a system of mixed farming, the complementary use of crops and livestock. Generally the holding has been built up in fragments, a bit here and a bit there; just the opposite of what has happened in India, where the holding has been broken down into fragments by customs associated with the law of inheritance. But the economic consequences are the same. Ninety per cent. of the parcels of land that we examined have no residence upon them, and this provides conditions which are ideal for the predial thief. Food crops in particular suffer, because they can be consumed by the thief; they do not have to go through any form of processing or to any market; and they are very difficult to identify.

Peasants to-day grow only a very small proportion of their food requirements. Most of them concentrate on a single cash crop, mainly, I think, for the following reasons: first, they are familiar as labourers with the cultivation of this staple crop; secondly, it offers them an unlimited market at some price (perishable local food crops, such as sweet potato, may become unsaleable during a glut); and, thirdly, they must have cash to pay their instalments and to buy food and clothing. But this concentration on a single cash crop has many undesirable features, especially when it happens to be a crop such as cotton, which must be kept cleanly weeded and which is grown on hilly slopes subject to heavy tropical rainfall. There is less objection to sugar-cane, which is a grass and has many admirable agricultural qualities. Sugar-cane has been cultivated successfully in the West Indies and without any rotation for at least 300 years, and yet yields are now higher than ever before. Nearly every single cash crop exhibits wide seasonal variation in labour demands, and this reduces the profitable occupation of the peasant's manpower and thereby reduces his earnings.

There is not a single peasant among the 700–800 families we examined who uses a plough; not because the peasant is insensible to the value of this labour-saving device, but because the soil is too steep, too stony, or too stiff to be worked by an animal-drawn plough. Not a single one of those peasant families grew any crop for his

livestock, because it is possible to keep them alive on waste-land and roadsides, and he is under the necessity of flogging his arable land in order to secure the cash to meet his obligations. Most of these peasants eke out a miserable existence.

Little manure, either organic or inorganic, is used, and soil erosion is reducing year by year the area of land which is fit for agricultural purposes. The populations of most islands are already dense, and in Barbados it exceeds 1,000 per square mile, all dependent, directly or indirectly, on a single industry, sugar. If present trends continue, the populations will double within the next forty years. On the other hand, most of those countries which formerly welcomed West Indian immigrants have now bolted their doors. The population problem in the West Indies overwhelms all others in importance and appears insoluble. It is imperative that further degradation of soil should be prevented, and steps must be taken to increase output, both per acre and per man-year. Crop yields on peasant holdings are extremely low, and usually average little more than half those obtained on plantations, due largely, of course, to the inferior soil or climate.

There is no doubt that the productivity of these peasant farms can be increased. The peasants, as a rule, are hard-working and skilled in the various agricultural operations, but they are defective in their powers of organization and management. The Imperial College of Tropical Agriculture has recently set itself the task of remedying these defects. We have accumulated a great deal of knowledge from individual experiments concerned with varieties, cultural methods, fertilizers, &c., and by means of economic surveys. Our present problem is to integrate this information into practicable and profitable peasant farms. We have started four experimental farms out of the eleven types of arable farm we have planned. Each farm is to be worked by a resident peasant family. This family will be paid wages for all the work which its members perform, and they will receive, in addition, an incentive bonus in the form of a percentage of the crop. We regard it as essential that the members of the family should be paid wages because they will be required to follow our instructions, and will not be permitted to work in the manner which they consider most profitable. Some of our errors of organization and management have already revealed themselves, and others, doubtless, will soon come to light. When we have rectified these errors and have evolved practicable and profitable types of farms, we shall then proceed to establish demonstration farms, which we hope the peasants will emulate. These demonstration farms will differ from the experimental farms in only one respect: a demonstration farm must never

be the scene of any experiment. Everything practised there must have been proved by experiment and trial before it is demonstrated.

There is one particular aspect of these investigations into peasant agriculture to which I should particularly like to draw your attention, since I have made it the guiding principle of my work. I refer to team-work. We, as agricultural economists, can contribute much to agricultural progress; so can the agronomists, geneticists, soil scientists, entomologists, mycologists, and other specialists. But there is a tendency in many institutions for each specialist to work in a watertight compartment. The main advantages of the division of labour are sacrificed by such lack of integration. I regard our work on cacao as a classic example of the benefits of team-work. I gladly acknowledge that my own work on cacao would have come to an early and inconclusive end had it not been for the co-operation and inspiration of the soil scientist and geneticist. We hope that a similar approach to the problems of peasant agriculture will enable us to solve the major technical problems.

But there are other and, in some respects, more difficult problems to be solved before we can claim to have laid a firm foundation for a prosperous peasant agriculture. We consider it essential, for example, that the peasant family should live on its farm, and that the farm should be undivided and not fragmented. We claim the following advantages for residential, undivided farms. First, they will eliminate the considerable amounts of time and energy now wasted in journeying between the home and the various parcels of land. Secondly, they will reduce the need for riding- or pack-animals such as the donkey, which are now required to transport the peasants, their food, tools, and their produce between home and land. Thirdly, livestock could be kept on the farm, and their manure could be manufactured and applied to the soil; this would remove the main impediments to mixed farming, which many authorities regard as the most satisfactory solution of the problems of peasant agriculture in the British West Indies. Fourthly, since the tools and implements will not have to be carried to and from the land, the peasant will be able to use a wider and more efficient variety than the universal cutlass and hoe. Fifthly, the wife, instead of having to neglect her home and children to work on distant parcels of land, or to neglect the land in order to look after her family, will be in a position to take part in the farm chores without neglecting her other duties. Sixthly, the family living on its farm will be able to give attention to crops, particularly in the kitchen

garden, at critical periods of their growth, when, for example, watering may make the difference between a crop and no crop. Seventhly, a compact settlement of residential peasants will be able to take effective measures to stamp out the curse of predial larceny. Finally, close settlement of peasant families will facilitate community efforts for the organization of marketing, both buying and selling; co-operative credit; public services, such as water, roads, &c.; playing-fields, shops, churches, and all the other amenities which, we feel, must be taken from the village to the land settlement.

The peasant family must also be assured of security of tenure. Hitherto the peasant has considered unrestricted freehold as the only secure form of tenure, but the absolute security which is afforded by freehold tenure has degenerated into licence, and, in particular, it has failed to prevent the serious degradation of soil by erosion. Moreover, it has already made possible the fragmentation of holdings, with all its attendant evils. We consider that freehold must give way to leasehold, primarily because the typical peasant unit of 3–5 acres does not constitute a suitable topographical unit for anti-erosion structures. We claim that the landlord, whether state or private, must be made responsible for the maintenance of all anti-erosion structures which affect more than one holding. We propose to offer security of tenure by a long lease, say, 21 years (the precise number of years is unimportant), which would be renewable after the first 11 years for a further period of 21 years, and so on, provided, of course, the peasant observes the rules of good husbandry and remains in beneficial occupation of the farm. He would be entitled to nominate one member of his immediate family to succeed him, and he would be entitled to compensation for any unexhausted improvements when he leaves the farm. But he would not be entitled to sub-let or to encumber his lease or to transfer it. His lease should be surrendered only to the landlord; this proviso is designed to prevent that speculation in leases which has become a major problem of land tenure among Indians in Fiji.

This revolution in peasant agriculture in the West Indies will necessitate the provision of capital on a scale vastly greater than heretofore. Governments have either been unable or unwilling to face up to this commitment, with results which we considered disastrous to the peasants and to the community. We are emphatically of the opinion that expenditure on housing should be kept low, and that we should be generous, even extravagant, in providing capital for the equipment of the farm. If we provide him with the means of attaining a higher standard of living, then better housing will become

an expression of achievement, and not a millstone of debt around the neck of the peasant.

In reply to questions, Professor Shephard said:

Mr. Dawe has asked what types of diversified agriculture could be practised on these small peasant farms? We have drawn up plans for eleven different types of peasant holdings, each designed to answer a number of important questions. Every one will have a house, a kitchen garden, one or more cash crops, some livestock, and fodder grass, but varying emphasis will be placed on the main sources of income. The holdings will range in size from a small market garden to a dairy farm. Some will be worked entirely by manual labour, others with the aid of draught animals, and still others with mechanical implements. One of the holdings will be irrigated. Later, if we can secure the necessary funds, we hope to experiment with holdings on which orchard crops will furnish the main source of cash income. I shall be pleased to supply details to any interested person.

Dr. Ackerman asked: Will there be government controls of leasehold tenure? The answer is: 'Yes.' The development of land settlement in the West Indies depends almost entirely on government initiative. In the past government has sold land outright in small and uneconomic holdings to the peasants, and in thus attempting to solve a problem for this generation has created problems which will be insoluble for future generations. We recommend that the tenant on a government land settlement should have freedom of action in respect of details but must conform to a satisfactory system of agriculture. We have not attempted to experiment with the proportionate profit farms such as they have in Porto Rico, but there is one collective farm which has been started as an experiment in Jamaica, and I hope that an account of it will be published in *Tropical Agriculture*. Our major problem is to secure money for experiments. We ourselves had to put up £100 to start the first experimental peasant holding.

Professor Thomas's question was about the use of demonstration farms. I had better quote the question in his own words: 'As I understood them you first of all had experimental farms, then when the experiment has proved a success, that is reproduced on demonstration farms. Do I understand that the demonstration farms are also owned by the state or by the college, because if so it seems to be quite different from the development in this country, where now we seem to be leaving the conception of demonstration farms altogether but carrying out demonstrations on farms of the best farmers?'

I am glad this question has been asked, because it enables me to point out that the problem of extension work in the British West Indies differs materially from that in the United Kingdom. Most of our peasants have imitated the only system they know—the plantation system of monoculture—without the financial resources of capital and credit essential to that system. Moreover, monoculture, with its seasonal variation in labour requirements, implies defective use of the peasant's main resource, namely, family labour. We therefore are faced with the problem of evolving systems of farming and types of farm suited to the resources of the peasant. We have to ascertain which crops should be grown, what livestock should be maintained, how the land should be divided between cash, food, and fodder crops, what areas of land typical peasant families can profitably manage, what capital is required, and a host of other questions. In brief, we have to begin *ab initio*, and the order will be: First, individual experiments with crop varieties and livestock; second, the integration of the knowledge thus acquired into experimental holdings; and, finally, when we have satisfied ourselves that the experimental holdings are practicable and profitable, the establishment of demonstration holdings. You, by contrast, already have well-established and, at the present time, highly profitable types of farms, and your main purpose is to demonstrate modifications and improvements within these systems. We agree with you that the successful farmer is the best extension worker.

Professor W. G. Murray asked what was happening in the plantation economy; was it gaining or losing in comparison with the peasant economy ?

The general trends are towards the two extremes, namely, large capitalistic companies and peasant farmers. The old plantation system is breaking down in some islands. When a plantation is handed down for many generations from father to son it eventually passes to a son who has no aptitude for farming. Moreover, families in the West Indies have usually been large, and ownership passes to an ever-increasing number of individuals, most of whom make it a custom to draw heavily on the plantation for their living, and sooner or later the plantation becomes heavily overburdened with debt. The manufacture of sugar, still our principal crop, is best effected in very large and costly factories, and there has been a tendency towards the aggregation of family plantations into large limited liability companies holding up to 25,000 acres of land. On the other hand, governments, politicians, and public opinion have encouraged the establishment of peasant holdings.

In reply to *Mr. Holmes*, I have no figures on the comparative efficiency of the sugar-cane as compared with the beet, but I can supply you with a mass of figures for sugar-cane and cane sugar. It takes about 40 tasks or man-days to produce 1 ton of cane sugar in the British West Indies. In Hawaii, where the industry is completely mechanized and most of the cane is irrigated, the labour requirements are even less.

Pre-war it cost about £12 f.o.b. to produce a ton of sugar in the British West Indies. Sugar-cane could be bought there for as little as 11*s.* per ton delivered to the scale. The cost of producing sugar-cane in Barbados during the 1944–5 season averaged £1. 1*s.* 4*d.* per ton and the cost of manufacturing sugar £3. 17*s.* per ton. The factories recover 1 ton of sugar from about 8·3 tons of cane. The cost of production therefore totalled about £12. 14*s.* per ton of sugar. Allowances for depreciation should be made at the rates of 3*s.* 6*d.* for the plantations and 17*s.* 6*d.* for the factories, per ton of sugar, bringing the total to £13. 15*s.* per ton. The average price paid for sugar-cane was £1. 7*s.* 1½*d.* There have been substantial increases since 1944–5 in rates of wages and in the prices of cane and sugar. The sucrose content of sugar-beet is generally higher than that of sugar-cane, but the price to be paid for sugar-beet in 1948—about £5 a ton, I understand—seems fantastically high. There is, in fact, no comparison between the economics of beet and cane sugar.

SPECIAL AGRICULTURAL PROBLEMS OF THE CLOSE ECONOMIC CO-OPERATION OF COUNTRIES

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BY close economic co-operation between two or more countries I mean here more than mere co-ordination of economic plans or substitution of co-operation for competition in the economic intercourse of nations. To me the term means that although these countries remain politically separate and independent units, the circulation of goods and services is subject entirely or mainly to laws and conditions of internal trade instead of those of foreign trade.

Since partly import duties and the like, partly currency regulations, are the means which cause the differences between home and foreign trade, evidently it is in these economic sectors that the barriers have to be removed, either partly or wholly. The latter case is a customs and monetary union of the type of the former Austro-Hungarian monarchy.

A full removal of trade barriers is not very likely in the present economic system. It presupposes an historical development or a different conception of nations and their inter-relations from what is customary to-day. As may be seen from the few available instances, countries insist less on customs duties than on the autonomy of their currency. Even the simultaneous and total abolition of duties in the intercourse between countries is inconceivable to-day because of the far-reaching consequences. But no duties and, if separate monetary systems remain, appropriate regulations governing their relations is the situation towards which closely co-operating countries must tend. We may look, therefore, at the problems attendant on the assumption of a customs union.

What is to be gained by this arrangement? The most important gains are: Firstly that there is no interference with the movement of the productive forces, nature, labour, capital, from one country to another, thus obtaining their best possible combination for the various productive purposes; and, secondly, no obstacles be made to extending the market within the common area as far as competitive power reaches and purchasing power allows. Increased productivity, reduced costs, economic progress, and higher standards of living are the results. And since prospering countries are better suppliers and

customers in general there is also a gain in close economic co-operation for third countries.

Clearly more gain is to be expected if the co-operating countries are of different structure. Removal of trade barriers will be advantageous for both, first in the sphere of production, but also in providing additional markets for their products in the industry and population of the other.

Besides this complementary side there is also a competitive one. It would be impossible to find two countries of such different structure that there would not be some more or less parallel industries. The latter naturally look first not at the complementary but at the competitive consequences of the removal of trade barriers. If they have more or less even chances in production, mainly from the cost point of view, then they may take the new situation as an impetus to keener but nevertheless fair competition. But if the chances differ greatly, then opening the gates may mean destruction of, or at least a difficult and costly adaptation for, some industries.

So when weighing up the possible consequences, both sides, complementary and competitive, must be considered. This is one thing that cannot be emphasized too much. The other is that close economic co-operation is not of the liaison kind which lasts only as long as it is pleasant and may be dissolved after some time. It may be compared more to a marriage of the olden times, i.e. one contracted for life and indissoluble, or dissoluble only after a long, painful, and costly procedure. As time passes, the economic structure of one or both countries may greatly alter as a consequence of the economic developments started by close co-operation. Only after this change has taken place is the common economic structure of the co-operating countries shown in its true and lasting shape, and it may happen that then the proportion of complementary and competitive elements will be quite different from what has been assumed at the start. The consequences of such international agreements must be considered from the long view.

So much may be said in general of countries of different structure. The other case is that of countries which show more likeness than contrast in their economic structure. Then, of course, removal of customs barriers opens the way for mutual competition, and the damage caused by it can be compensated only by the gains from close co-operation in foreign trade and co-ordination of production. But then for this purpose no abandoning of customs is necessary, since it can be achieved by synchronized economic planning and agreements on foreign-trade policy.

Now let us consider all this from the agricultural point of view. The angles from which we must look are given by the economic characteristics of agriculture[1] as contrasted with those of industry. And to make our comparisons between countries more concrete let us take Czechoslovakia, Rumania, and Hungary as examples. Of these the first is a more industrialized country with a well-developed agriculture which seems to have the highest costs among them; Rumania is an agricultural country which, though rich in industrial raw materials, has a less-developed industry than Hungary; the latter's agriculture, though less favoured by nature, is on a higher level and seems to produce with higher costs than that of Rumania; in comparison with Czechoslovakia, Hungarian agriculture has one advantage, that of abundant and cheaper labour, but though she has more and better soil, her climate is certainly less favourable.

So Czechoslovak–Hungarian co-operation may represent what we may term the case of complementary countries and Rumanian–Hungarian co-operation that of competitive ones.

In both cases what does industry do in the co-operating state? It combines, for instance, Rumanian minerals with Hungarian factory equipment and skilled labour, concentrates production in the most suitable regions, and achieves by it reduced costs, improved quality, &c. But the Hungarian farmer cannot combine Hungarian soil with Czechoslovakian climate or with cheaper Rumanian labour. Non-transferability of productive forces prevents agriculture making a new and more reasonable division of production within the extended economic area. Since soil and climate are absolutely bound, and also capital and labour are less transferable than in industry, bad soils will continue to be cultivated, cattle to be bred on the pastureless plains, &c., though there are much better regions in the other countries.

Then, again, there is the mixed non-specialized character of farm production; this, too, is a hindrance to rationalization which would require to produce everything exclusively in the most suitable regions with all the means available for the product. Preliminary conditions and possibilities of specialized production in agriculture vary but are always more limited than in industry, and in any case they are moderate in the Danube valley.

But if this is so, then for agriculture one of the main advantages of close co-operation is lost, namely, that of increased productivity and reduced costs by the most suitable combination of productive means. As for costs, there is another thing. There are quite a number

[1] See, for example, Seligman, *Economics of Farm Relief*.

of agricultural products of which Czechoslovakia has a larger import than the export surplus of Hungary. In the case of close co-operation it would be reasonable for Hungary to increase her production of these products and to diminish that of others for which there would be no such good market. But Czechoslovakia could perhaps import these products at lower prices from Argentina or Canada and she would co-operate only on the basis of comparable prices, which means that Hungary would be compelled to reduce prices. To do so would require increased production in order to decrease cost units.

But even if there were a sufficient number of farms on which the farming system could be changed accordingly, it would still remain questionable if the increased production had the same cost-reducing effect as it has in an industrial plant. The proportion of constant and changing costs being different from industry, the marginal point of costs and prices may be comparatively fixed and the effect of diminishing returns would set in. Hungary could then supply Czechoslovakia only at a higher price than she had been paying and even at a price higher than the former Hungarian one. Whether this was discussed before or left to reveal itself only after the agreement, it would scarcely promote good understanding between these countries.

One result of free trade over the borders is a more or less equalized price-level in the respective countries. This raises the problem of the sub-marginal producer. In the case of Czechoslovak-Hungarian co-operation there would be Hungarian manufacturers, in the case of Hungarian–Rumanian co-operation there would be Hungarian farmers, who could not stand the lower prices caused by the competition of foreign producers with lower costs. In industry these sub-marginal producers vanish and the labour employed by them may look for jobs in other industries. In agriculture the sub-marginal producers may persist for a long time, and their number may reach tens of thousands; governments are compelled to defend them by special measures instead of accelerating the process of elimination which would be desirable from purely economic considerations. The simplest and most frequent way of protection is to maintain a price-level which makes production profitable even for those who with the normal price-level would fall out. This would merely be frustrating one of the main advantages of close co-operation, namely, production at reduced costs.

Although a comparison of costs in agriculture is always doubtful there is no question that the Hungarian farmer produces with lower costs than the Czechoslovak, and with higher ones than the

Rumanian. If Czechoslovakia would absorb all of the agricultural surplus of Hungary then the uniform price-level in both countries would stabilize somewhere near the Czechoslovak price-level and the Hungarian farmer would profit, whereas a certain number or all of the Czechoslovak farmers would lose by the removal of trade barriers, the purpose of which is specifically to protect the home producers against lower foreign costs. In the case of free trade with Rumania the same would happen to the Hungarian farmer. So both cases would start adaptation processes the end of which can hardly be foreseen. But one thing may be taken for certain. The flexibility of labour supply to demand is less in agriculture than in other industries; and this the more, the less raw material resources are available to develop industry and thereby to take up the population which in our case would become surplus in the new situation. The country with higher costs would be forced to retain as much or nearly as much population in agriculture as before and to let their standard of living fall.

What, then, would be the compensations for this latter agriculture? There may be two. If this process is accompanied by an even greater fall in industrial prices—which may be assumed in the Czechoslovak–Hungarian case and perhaps even as well in the Hungarian–Rumanian case—then this could be a compensation. But whether it could counterbalance the losses, this again depends on many circumstances; for instance, if agriculture uses proportionately few industrial commodities then the advantage of lower industrial prices is moderate.

Another compensation would be the extended market offered by the growth of industry. Here the transportation charges, the remarkable differences between market and farm prices, and the great variety of the latter, come into consideration. Further, if there are several industrial centres there may be several independent markets, i.e. provided one centre is far enough from the other so that the transport costs prevent market prices of agricultural products on one market influencing prices on the other. The stimulus given by an industrial growth in some parts of the co-operating area may thus help some farming regions but may be indifferent for others, and it may happen that the latter are just those who claim compensation for the competition of the foreign farmers. It may happen also that this latter is the very group of farmers which profits by the dislocation of industrial centres. All this depends on the geographical position of the rising industrial centres in relation to the different farming belts.

Examples of uneven chances for agriculture of an industrial growth may be found in the history of the U.S.A. There certainly were periods when the increasing capacity of the western regions started a very favourable development in the nearer agricultural regions without, however, being of any use to the farmers in the Middle West. And it should be remembered that there were times when western Germany imported while East Prussia was compelled to export grain, because the transport costs between the said regions within Germany were greater than the difference between the tariff-protected import prices in western Germany and the prices obtainable by export from East Prussia to Sweden. Similar situations may arise when abolition of duties changes the market position of agricultural regions, and it may happen that the same region which bears the impact of lower prices also suffers by an impaired market position.

So we see here that the special characteristics of agriculture may neutralize some expected results of close economic co-operation, or even cause trouble where according to the rules and laws of economics advantages should, and in industry in fact are bound to, follow. Therefore in any particular case special care has to be given to these problems.

Let us take a glimpse by way of example at the Danube countries which now figure in international discussions as one of the regions in Europe that ought to be integrated economically.

Of these six countries Hungary is situated in the centre and the others, Austria, Czechoslovakia, Rumania, Bulgaria, and Yugoslavia, are grouped round it, all of them, except Bulgaria, having common frontiers with Hungary. This geographical position explains why the discussions about economic integration of the Danube countries all take Hungary into consideration. With about fifty-fifty economic structure she also holds a middle position between the two groups, Austria and Czechoslovakia being industrial and the other three agricultural countries. She is much more industrialized than Rumania and Yugoslavia, but nevertheless an agrarian country compared with Czechoslovakia and Austria. It is perhaps because of this middle position that the possibility of her co-operation is discussed in both directions; with the more industrialized western neighbours as well as with the more agrarian eastern ones.

Complementariness is fullest in relation to Austria. We may elucidate this with some figures in the table on p. 349. These are, of course, for the pre-war period and for different years, but nevertheless may be taken as characteristic.

Table showing the Extent of Complementary Economy in Danube Countries

	Hungary	*Austria*	*Czecho-slovakia*	*Rumania*	*Yugo-slavia*
1. Earning agricultural population percentage of total earning population	50	26	39	79	77
2. Woodland in percentage of total area	12	35	31	22	31
3. Arable land, gardens, orchards, vineyards in percentage of cultivated agricultural area	73	45	63	79	58
4. Meadows, pastures in percentage of the same	27	55	26	21	42
5. Percentage of total livestock counted in cattle units:					
Cattle	52	80	79	59	59
Horses	27	11	14	27	20
Pigs	17	8	6	6	5
Sheep	3	1	1	8	11
6. Agricultural products in percentage of total imports	13	38	28	4	7
Agricultural products in percentage of total exports	69	7	11	41	60
7. Value of coinciding goods in percentage of total Hungarian agricultural export and of total Austrian agricultural import respectively	92	82	..	..	..
8. Item 7 in relation to Czechoslovakia	72	..	41	..	..
9. Value of coinciding goods in percentage of total Hungarian and of total Rumanian agricultural export respectively	67	..	..	77	..
10. Item 9 in relation to Yugoslavia	65	..	..	..	72
11. Hungary's part in Austrian agricultural import percentage	23	..	..	..	..
12. Austria's part in Hungarian agricultural export percentage	..	25	..	..	..
13. Item 7 in non-agricultural relation between Austria and Hungary	55	57	..	..	..
14. Austria's part in Hungarian non-agricultural import	..	20	..	..	..
15. Hungary's part in Austrian non-agricultural export	12	..	..	..	..

The figures refer generally to the middle 1930s. They reflect the situation caused by energetic development of agriculture in Austria and of industry in Hungary. Before this happened, complementariness was still greater. But even in the later period if Austria had bought all her agricultural import needs from Hungary, Austrian imports would have absorbed from meat 79 per cent., from potatoes 33 per cent., from eggs 61 per cent., from flour 60 per cent. of total Hungarian exports; and the production of some of the most important Hungarian agricultural products would have had to be increased to cover the total Austrian import needs, so, for example, of vegetables with 60 per cent., of cereals with 27 per cent., of fruits with 70 per cent., of pigs with 158 per cent. of Hungarian exports of these commodities.

In the non-agricultural sector Hungary's absorbing capacity of Austrian export goods is smaller, so that in the event of close co-operation Austrian industry would remain more dependent on the world market than would Hungarian agriculture. But it is significant that Hungary could take up 70 per cent. of Austria's wood export, setting aside, of course, differences in kinds of wood needed by Hungary and produced by Austria.

In any case, considering only the economic conditions there is a sound basis for close co-operation here. The social consequences would consist in frictions caused by the adaptation process. These would be much deeper in Hungarian industry than in Austrian agriculture, but there is a chance of mitigating them by transformation of a significant part of Hungarian industry into *agricultural* industry in which Austria would feel no competition, having no raw materials of agricultural origin.

What is the position with regard to Czechoslovakia? The significant figures may be found in the preceding table.

Though this series of data is less complete it shows quite another picture. It may be seen that roughly 50 per cent. of Czechoslovak imports consist of goods of which there is practically no export from Hungary. To this may be added that there are only a few (and from the Hungarian point of view relatively unimportant) goods of which Czechoslovakia could absorb more than 30 per cent. of the export surplus: pigs, eggs, lard, straw, legumes, &c.; still less which would require an increase of Hungarian production to cover the total Czechoslovak import needs: fruit, oil-seed, tobacco, flax, maize.

This, too, was otherwise before Czechoslovakia began her self-supplying policy in about 1930, where the effects have been more significant than in Austria, which means also that the process of

adaptation to the situation created by close co-operation—in fact, a process of restitution—would be more painful. This may be assumed also on Hungary's part, since there is in Czechoslovakia a well-developed agricultural industry and Hungary would have competition in those very branches of industry where her main chances lay.

That is not to say that there is no possibility of close co-operation but certainly it would be less close and less harmonious than with Austria.

But it is the co-operation between Hungary and her two south-eastern neighbours that is much more spoken of. This is conspicuous since here the situation is quite the reverse of the western neighbours (see table, p. 349). Instead of complementariness there is a great conformity in the economic structure, though Hungary has progressed far more in industrial development. This seems to be in contradiction to the fact that in Hungarian export the share of agriculture is larger than in that of the other two countries. But if one adds to the agricultural products those of forestry, then the Hungarian percentage remains unchanged, because Hungary has no such export, whereas, for instance, the Rumanian figure would jump up to somewhere near to the Hungarian one.

On the non-industrial sector it is in forestry that either of the two countries could complement Hungary. As for agriculture, there are, of course, remarkable differences which would offer possibilities of complementing each other but for that non-transferability of means of production mentioned above. But the similarities of agricultural structure prevail.

The outlook of a possible co-operation between these countries points towards export, since their interests regarding commodities as well as markets are identical to a great degree.

The hopes set on the co-operation of these three countries or two of them are based mainly on industrial development. Rumania and Yugoslavia are rich in minerals and Hungary has bauxite in a quantity which places her in the second place in Europe when Soviet Russia is excluded; there is much wood in the two south-eastern countries, oil in Rumania, &c. Now industry is governed by the law of diminishing costs, and young industries particularly need extended and protected home markets, since they cannot compete on the foreign markets. This would be offered by the total population of about 35 million, of which in the beginning period more than a half would be agricultural.

There is no question but that an industrial population which would be rising in numbers and purchasing power would improve essentially

the market conditions of agriculture. But it is problematic whether the agriculture of all three countries would profit by this improvement in the same measure. The agricultural prices would have to be maintained at the level of the highest, i.e. Hungarian, costs; in other words, Hungarian agriculture would be in the precarious position of the marginal one.

In case of depression it would require sacrifices to keep her intramarginal at a price level at which the other two agricultures still could live without sacrifices. It is inconceivable that those sacrifices would be borne—within a customs union—by Hungary alone; this could be achieved only by restoring barriers. On the contrary, since the main mineral resources are situated in Rumania and Yugoslavia, most probably the main centres of industry would develop there, and therefore a considerable if not the greater part of the burden would be a charge on the industry of the latter countries. The charges would result in higher industrial prices. Imagine the implications: Yugoslav and Rumanian industry have export difficulties, the farmers there pay higher prices, the workers live on a lower standard owing to high prices in industry as well as in agriculture, and all this just to save the Hungarian farmer from ruin.

This shifting over of economic burdens is troublesome enough within one country with more or less national solidarity; but it seems quite unbearable with different nations.

And where does all this trouble come from? From the fact, first, that Hungary is poor in mineral resources when compared with the other two; second, that these others have for the most part just as much agricultural resources as Hungary; and third, that Hungarian agriculture has considerably higher costs. The last fact may be eliminated by time when industrial development in Rumania and Yugoslavia raises agricultural wages, and increasing food demand puts into effect the law of diminishing returns. But clearly the latter presupposes that all the export surpluses of all these countries will be absorbed by increased home consumption. This seems to lie rather far ahead, and therefore this dangerous transition period may last long.

And even when it is over, trouble will not be over. Assuming that the industrial centres will develop at or near the mining centres, the best markets will be in Yugoslavia and Rumania. This may be very good for them, but takes off one of the assets of close co-operation from Hungary.

And so on and so on; one difficulty in agriculture after another. Of course, there is a great deal of assumption and doubtless much

error in all this. All that has been said here is not by way of prophesy. It only hints at some special aspects of agriculture which are likely to be forgotten too often in the discussion of close economic co-operation.

It is the more important to reiterate this again and again as in some way or other close economic co-operation of the Danube countries is absolutely necessary and only a question of time.

URBANIZATION OF LOW-STANDARD RURAL FAMILIES

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THE need for a common and unmixed perspective in an appraisal of the socio-economic area—urbanization of low-standard rural families—prompts a quick review of the desirable ends for population adjustments in any economy and in the world at large. The objectives, from the standpoint of the individual family, must include: access to at least minimum quantities of goods and services; opportunities to live richer and fuller lives; and freedom from persistent moral stress. The objectives from the standpoint of a particular social group or country must include the above with full recognition that maintenance of national integrity and world security will affect the general level of living at any given time. Land tenure, land use, taxation, and fiscal policies should be such that no particular social group is burdened more than others when viewed in terms of the objectives for the individual family. Obviously the human aims of urbanization or de-urbanization must go much beyond a dollars and cents evaluation of standards of living. The aims can best be summarized by the statement that there is no limit to the level to which it is desirable for the human race to raise itself. Specifically there must be opportunities for better living and the raising of a new generation equipped for better living than the present one. Food, housing, health, education, and security are the concrete things from which this better living can be the result.[1] The criteria, then, for the consideration of urbanization or de-urbanization are: will such population adjustments increase the real income of individual families and groups of families in a particular community or particular economy, and will they lead to richer and fuller lives? Four major sets of conditions must be considered: one, a mature economy in which the use of resources and real income in rural and urban types of employment approach a par-level concurrently; two, a transitional economy shaken by technological advancements; three, a restorational economy shafted through and through by catastrophe; and four, an economy with only embryonic developments. Secular, cyclical, and irregular influences will affect the immediate ends of urbanization differently

[1] J. D. Black *et al.*, *Farm Management*, p. 89. The MacMillan Co., New York, 1947.

in each. All are important in the world of to-day, and much of the security of the world of to-morrow depends upon an improved lot for low-standard families in each of these sets of conditions.

CONCEPTS

Before proceeding it should be explained that urbanization is dealt with in this discussion as a phase in the main type of shift from agriculture into other lines of employment. A completely defensible definition is not provided for the term 'urbanization'. The implied concept is that urban families do not derive their livelihood directly from the land, and that they live as a part of a concentration of people that is large enough and so organized that the public and private services commonly associated with urban living are provided. Low-standard families are considered to be those whose level of living is below the minimum requirements considered to be desirable for buoyant health and adequate shelter, education, and security with full recognition of differences in systems of values to be found in various countries. No attempt is made to treat the mixtures of opportunities and problems associated with employment shifts within rural areas and between part-time and full-time farming.

IN A MATURE ECONOMY

Here the concept of a mature economy is one in which the real income on farms reflects an efficient utilization of the trade techniques of the times, and the real incomes are roughly equivalent to those of the general levels of incomes in other lines of endeavour. The main core of the American Corn Belt provides, perhaps, the best example of a significant part of an economy wherein the resources on farms are used nearly as efficiently and almost as fully as those in urban concentrations. Sweden presents another example of relatively mature economic conditions. Such a balance in adjustment is a prerequisite to maximization of the social and private net product with a minimum of inconsistency between the two. There remains under such conditions a fringe group in both urban and rural situations who could use their limited skills and energies to greater advantage in other fields of employment. These maladjustments, however, are of the kinds inherent in any society where there are dynamic influences such as simple technological advancements and changes in consumer tastes occurring at irregular intervals. Likewise these maladjustments may stem from cyclical swings in business activity. Elements within a mature and competitive economy normally will have auto-corrective tendencies in so far as secular

shifts in economic activity are concerned. The providing of complete information, the full development of educational processes, and a minimization of restraints such as labour union restriction of entry into particular trades, should provide a framework within which the balance between the urban and rural segments of such an economy can be maintained satisfactorily by individual choice without direct group or governmental action. Even though an economy is a relatively mature one in the sense of rural-urban balance it cannot operate in isolation. It is tied inescapably into the agriculture and the economies of other countries, all of which show interdependence and subjection to powerful common influences in spite of institutional barriers and short-run manipulations.

IN A TRANSITIONAL ECONOMY

Generating forces from technological advancements which strike at the foundational combinations of productive agents often set up a chain of economic adjustments which modify greatly the usual relationship between real incomes in rural and urban communities. By so doing these new technologies precipitate a transitional phase in economic progress which may last for a generation and more. Specialization by occupation and then by areas and regions grew out of technological advancements and the development of trade. The necessity for people to live close to the land to obtain food, housing, and shelter has been lessened as an ever-increasing proportion of the human race has moved through the several stages from 'direct appropriation' to the highly developed types of economies in the present-day western world. Frequently the social costs of this progress have been unduly excessive with the unsteady gyrations which have resulted from unguided and often misunderstood trial and error changes. Concurrent and aftermath adjustments often include shifts from urban to rural employment. But the net trend has been towards urbanization. In the United States the proportion of the labour force engaged in agriculture pursuits has declined steadily at the average rate of $\frac{1}{2}$ per cent. a year for the past century.

On the farm, the simple technological changes which can be easily fitted into established production practices and farming systems normally cause more than a ripple of adjustments. For the most part they add to the returns to each factor of production as well as to the social net product. Examples are the development of hybrid corn, the introduction of disease-resistant crop varieties, and the direct application of ammonia to intertilled crops as a source of nitrogen. Such changes increase the productivity and the returns to land,

labour, management, and capital as long as market gluts are avoided. Generally the magnitude of a given simple technological change or an irregular sequence of them is not large enough to stimulate large-scale population adjustments.

Of much greater significance are the complex technological changes which are economy-shaking in nature. They alter the basic combinations of productive agents. The effect may be to change either the capacity or the efficiency of one or more factors of production for the others. The return to individual units of one factor, e.g. labour, may be increased because of added productivity, but the aggregate return to labour may be lessened. New potentialities are attained for the enhancement of the social net product. The production organization as it matures with the new technologies in use would reflect a new set of resource combinations, new levels of real income, a revamped value structure for fixed investments, and eventually the striking of a new balance between urban and rural populations, if an implicit assumption of manpower mobility is accepted.

The cotton-south in the United States is now in the throes of a transition caused by complex technological changes centred mainly upon the shift from mule to tractor power, and the development of the hill drop planter, the flame cultivator, chemical defoliation, and mechanical cotton-pickers and strippers.

Prior to the introduction of the all-purpose tractor during the late twenties, the primary considerations on cotton farms and plantations were the most economical use of mule power and man-labour in relation to the acres of cotton which a family could chop, hoe, and pick. Commonly during the period 1932–6 the share-cropper families on Delta plantations averaged from 2·7 to 2·9 workers per family. They worked an average of 166 days per year and received net incomes averaging about 200 dollars per worker, excluding perquisites, or about $1.20 per day. Generally a family with from two to three workers would have 12–14 acres of cotton.[1] These were the conditions under which mechanization began its development in the alluvial areas of the southern states.

The improved all-purpose tractor can be used for tillage and row-crop cultivation, to expedite field-work at critical times, to harvest small grains and hays, and to work heavier types of soils more effectively. The size of adapted tractor equipment and the added flexibility with tractors for power greatly increase the amount of work which one man can do for some field operations but not for others

[1] E. L. Langsford and B. H. Thibodeaux, *Plantation Organization and Operation in the Yazoo–Mississippi Delta Area*, Bureau of Agricultural Economics, U.S.D.A., May 1939.

in the prevailing farming systems. Notable exceptions are thinning a thick drill of cotton to a stand, controlling grasses and weeds with available equipment and practices, and harvesting cotton. The farmer choosing between mule power and tractor power under such circumstances has had this question to answer: Will it pay to mechanize tillage and cultivation for row crops and tillage and harvesting for small grains and hays when it is essential to have enough resident labour to pick most of the cotton? Without the resident labour it is necessary to assume a high risk in obtaining the services of transient workers at picking time. With efficient tractor–manpower combinations, only the drivers and the service and management personnel are needed except for short seasons. On a plantation with 750 acres of cropland, five three-plough tractors could replace 32 mules; but such a complete shift would involve very high production risks if dependence were placed upon the labour from these five resident families and from migratory hands and workers from town for hand chopping, hoeing, and picking 450–500 acres of cotton. The current arrangements then hinge upon complex arrangements with share-cropper and day workers for partial mechanization.

It is difficult to conceive of ways in which returns over costs can be at reasonable levels with mechanization where cotton yields are less than 200 lb. of lint per acre, corn yields at 15 bushels, and oat yields from 30 to 40 bushels. There are many, many farms in the eastern Cotton Belt where such conditions exist. They stay in cotton production because they can grow cotton with the least comparative disadvantage of any farm enterprise suited to the conditions as they have evolved. They are willing to continue to grow cotton even at this disadvantage because it is a high-valued labour-intensive crop which enables farm families to obtain some cash return for their labour and a higher cash return than they could get on a year-round basis for their labour on other crops or livestock.

Until major adjustments occur in size of farm and in the size and type of mechanized equipment now available it is unlikely that full mechanization would be feasible except on a small proportion of farms in the eastern Cotton Belt. The rate of mechanization and the rate of population adjustments, particularly in the south-eastern states, will be conditioned strongly by the price-level, employment opportunities available to cotton labour, and the existing wage-levels.

Mechanization has progressed far in such cotton-growing areas of south-western United States as the High Plains of Texas and other areas with limited weed-control problems and relatively small-growing, short-staple cottons. The High Plains area is characterized

by large-scale row-crop farming in which cotton and grain sorghums occupy about 80 per cent. of the cropland. Farming is done almost exclusively with tractor equipment and principally with four-row units. One man can handle 450 acres with four-row equipment, 150 acres with two-row tractor equipment, 180 acres with two-row horse-drawn implements, and 100 acres with single-row horse-drawn equipment with extra help for hoeing and harvesting in this area. Operators of family-sized farms grow from 150 to 250 acres of cotton on units of 300–500 acres of cropland.[1]

Cotton yielding 400 lb. of lint per acre could be grown with fully mechanized methods in the alluvial Yazoo–Mississippi delta with 15–30 hours of man-labour, depending upon the amount of hoeing required for weed control. With current production practices about 120 hours are required per acre. The importance of an 80 per cent. reduction in total man-labour requirements would be no greater than the accompanying effect upon the seasonal pattern of labour requirements. For example, at picking time the hours of labour with hand methods could be reduced from 80 to 90 hours to 4–4½ hours with the one-row, spindle-type picker. As such changes are made, investments of more than 50 dollars per acre will be required for farm machinery alone on minimum efficient-sized operating units. These changes as they come about slowly will be of such magnitude that they will generate a chain of fundamental adjustments from the south which will not reach a new maturity for several decades.

So far the process of mechanizing agriculture in cotton-growing areas has been the direct result of shortages of manpower growing out of Second World War conditions. The social effects have therefore been negligible up to now. The real contributions, however, of mechanization and the associated technological advancements will come only as the costs involved become sufficiently low to enable mechanization to push its way on to an ever-increasing number of operating units.

If this pushing process, which is in a strict sense a substitution of capital equipment for labour—conditioned by the development of new skills and managerial capacity—is carried to the point of providing an efficient agriculture in the south, then about one-third of the working population on farms in 1943 would not be needed in this efficient agriculture.[2] There is a real danger when one first looks at this

[1] A. C. Magee *et al.*, 'Information Basic to Farm Adjustments in the High Plains Area of Texas', *Texas Bull.*, 652, 1944.

[2] F. J. Welch, 'Cotton in the Agricultural Economy of the South', an address presented at the Cotton Research Congress, Dallas, Texas, July 1947.

statistic, in considering this one-third of the workers on southern farms in the United States as potential 'economic extras'. They can be so considered only in a temporary sense and only with reference to agricultural employment. From the standpoint of the economy of the south, of the United States, and of the world they represent another group of human resources to challenge the leadership in private lines of endeavour and in public agencies to find ways and means of utilizing efficiently their capacity to contribute to the social net product.

Within the south there are numerous water-power and physical resources with which this labour can be fitted into new industrial enterprises. It must be recognized, too, that in the cotton-growing areas the better portions of the farm-land have been used much more intensively, although with limited efficiency, than the agricultural lands of second and third quality. The development of these farm resources with these new technologies will require relatively large capital investments. The risk elements involved are probably greater than most of the present landowners will be willing to tackle. The potential owner-operators do not have the capital. Hence the need for a new type of 'venture funds' in the south.

The question is often raised whether employment—even in the poor agricultural areas—would provide a better living on the farm or whether transfer from one occupation to another would be merely a swap from one set of evils to another. Careful attention should be given to the possible effects of the introduction of new industries upon the individual family and its members.

A colleague, Miss Dorothy Dickens, of the Mississippi Agricultural Experiment Station, has compared the levels of living in families where the women have been employed in cotton textile mills and cotton-garment plants, with those of women who assisted in the production of one or more farm products offered for sale. All of the families studied were located in towns and small cities and on farms in poor farming areas.[1] Miss Dickens concludes that single industrial women had more cash to spend than single farm women, but their situation as compared with farm women was not always better. The garment plants studied had selected women with better education who were generally reared in families of somewhat better socio-economic status than were the textile women. The real income of the garment-plant women compared quite favourably with that of the farm girl

[1] Dorothy Dickens, *Some Contrasts in the Levels of Living of Women Engaged in Farm, Textile Mill, and Garment Plant Work*, Mississippi Agricultural Experiment Station Bulletin, No. 364, 1941.

whose family head was a farm owner. In Miss Dickens's appraisal the situation of the garment-plant women was much better than that of the farm girl whose family head was a non-owner. In this underprivileged, little-schooled class of non-owner farm-working sons and daughters is a large potential supply of white labour, but a supply that needs more training before it will be readily employable in industries. Unfortunately this is true for much of the coloured population also.

Ninety per cent. of the people employed in the textile and garment mills studied were reared in the county in which the plant was located, or in an adjacent county. In comparisons with census statistics it can be noted that daughters of white tenants had about a quarter of the chance of being employed that owner-daughters had. Supervisors in the garment plants particularly preferred young women because of the shorter time and expenditures involved in training. The young group learn more quickly and have a longer earning period. The dividing-line appeared to be at about 35 years of age.

When a new plant goes into an undeveloped area in the south they quite often use schooling as the main guide in their recruiting of personnel. They feel that little schooling goes along with other limited environmental factors of restricted backgrounds and experiences, and a lack of confidence and poise that such backgrounds give. The neediest quite often do not turn out to be the best workers. The earnestness or zeal which rural people have when they first enter into industrial employment often makes up in part for some of their other limitations. There is no reason to place too much dependence upon such enthusiasm. A much better alternative is to intensify greatly the education and training programmes, particularly in areas where local resources are not adequately supporting training programmes. It would appear in the cotton-growing areas of the southern United States that the higher the percentage of tenancy in a county the greater the difficulty will be of getting industries established, yet the greater will be the need.

The economic possibilities of balancing agriculture in cotton-growing areas with industry are of outstanding significance. They do not, however, and will not, represent a full solution to the problems of population adjustment growing out of technological transitions in the south. The process of out-migration which has been characteristic of the south for generations will have to continue as one of the main correctives and very likely at an accelerated rate, particularly from those sections which do not have favourable power supplies and physical resources.

IN A RESTORATION ECONOMY

The disruptions of the economic processes in highly developed economies by war ravages of industrial plant capacity, of transport and service facilities, of family groups, and of sizeable proportions of workers in the vigorous age-range group, makes havoc-mending truly a difficult job.

Before tackling the problem of urbanization under restoration conditions recognition should be given again to the fact that physical and human resources including power (and with allowances for differences in skills) must be utilized as efficiently and as fully in urban as in rural areas if the maximum social net product is to be realized. In the short-run period it is easily conceivable that de-urbanization of workers and their families would aid in restarting economic processes in some of the countries of western and central Europe. Often there is more opportunity to absorb displaced workers quickly in farming, lumbering, and some types of mining than in manufacturing and productive services. Adding to the total production of first-stage products, even with greatly diminished returns per worker, may do more to refill economic channels and to revive trade to gain needed exchange than to attempt to absorb too many workers in the reconversion process, to use too many of them immediately in housing and public works, and to see too many of them in standby positions waiting for the pipe-lines for goods and the need for their productive services to reach levels which would again mean full-measure contributions to the economy. Such de-urbanization would bring a greater share of the population closer to the food sources, and would tend to reduce somewhat the discontent which brews best in the concentrations of economic maladjustment, regardless of the causes. Under restoration conditions 'low standard' considerations must play a secondary role at first.

A quarter-century of economic restoration, development, and maturation is more nearly the setting in which human resource adjustment, in the sense of progressive elimination of low-standard families, can become the first consideration in war-ravaged countries.

Some of the more pressing human problems must, however, be dealt with at the same time as economic restorations are attempted. First among these are the multiple tragedies of forcefully displaced persons, particularly the children, adrift from family connexions. These must be placed in the resources pattern and in the hearts of countries in North and South America, in Africa, and possibly in Australia, where a substantial proportion of these people can be

given an opportunity for rehabilitation. Perhaps immigration with limited time restrictions would help where public opinion appears to be set against further immigration on a permanent basis, or hinging altogether upon selective immigration. There are thousands of displaced persons who would gain immensely in health, in release from moral stress, and in regained confidence from a ten-year sojourn in a country with relatively more facilities, although the problem of going elsewhere would have to be solved in the interim.

It is easy to get the impression that there is a real lack of common aims in organization and of 'follow-through' in handling this international problem. A more rapid solution could aid greatly in stepping up the rate of restoration of many western and central European countries.

It is self-evident that permanent immigration from some of the restoration economies would be desirable to improve the man–land-capital combinations in the long run as well as the alleviation of current food shortages. Selections in terms of urban and rural people with varying types of desirable skills might provide a more practical approach than the current tendency to think only in terms of numbers of people and of the exclusion of undesirables.

IN AN ECONOMY WITH EMBRYONIC DEVELOPMENT

There are a multitude of economic, social, political, and religious reasons why some of the oldest countries in the world must be considered to have economic development, in a modern sense, in a beginning or embryonic stage, e.g. China, India, Poland, Bulgaria. Each of these countries would like to look forward to the economic and social gains which accompanied the Industrial Revolution and the improvements in transportation and finance which were associated with it.

The United States was fortunate in that its Industrial Revolution came while the soil and other natural resources were still abundant.[1] Much of the capital needed to finance industrialization and mechanization came out of current income. In a densely populated country such as India, nothing is left over at the end of the year and capital accumulated very slowly. The accumulation of skill and of managerial experience likewise occur at a slow rate. Within the capacity of physical resources and power potential for industrialization then capital, skills, and management aids will need to be brought in from outside countries if rapid strides are to be made. In many instances institutional obstacles will have to be eliminated. Beyond the

[1] J. D. Black *et al.*, *Farm Management*, p. 125. The MacMillan Co., New York, 1947.

capacity of the industrial resources and a balancing in use with agriculture in any economy then out-migration is the only alternative left for improvements for low-standard rural or urban families. If borrowed capital, skills, and management are not forthcoming from outside resources then one way or another the accumulation must be made through long-term savings and training programmes. A century and more will be required for these accumulations to be made and utilized effectively to bring about sufficient transitions to make a substantial contribution to an urban-rural population balance with desirable standards of living in countries such as China and India. Social scientists seeking ways and means for human betterment and with the thought in mind that there is no limit to the level to which it is desirable for the human race to raise itself must interest themselves in exploring every possibility whereby the rate of improvements in these embryonic economies can be accelerated and their social net product maximized.

NEED FOR A HALF-CENTURY APPRAISAL OF RESTORATION AND DEVELOPMENT

Commonly the problems of optimum ratios of population to land and to industrial resources are viewed with a restricted time-period in mind.

The differences between the four fairly distinct sets of economic conditions outlined above require that population and resources relationships be dealt with first in terms of the particular economy. Then the relationship should be dealt with in terms of that economy as an interdependent along with the economies of other countries because of their tendency to move in unison as a result of powerful common influences and the necessity of utilizing mutual interdependence to advantage if better living is to be obtained the world around.

The serious war plight of so much of Europe and Asia prohibits the success of any fully fledged effort which might be made by surplus countries to fill economic channels in restorational economies sufficiently to get them back quickly to an efficient level of operation. Such approach of direct transfusion would require tremendous quantities of food, production equipment, raw materials, and often semi-processed products. This is the kind of an approach which might be accomplished in a short time if there were only two or three countries which had been thoroughly upset.

The practical alternative is obvious. Included steps are savings and borrowings to accumulate capital, recombination of rural and

urban production factors to increase efficiency, and the alleviation of the situation as much as possible through consumption controls. The dependence upon surplus countries should be to fill emergency gaps and to supply the items which it would be mutually beneficial for the surplus countries to supply from the standpoint of comparative advantage. Without a long-run viewpoint in which the restoration in the war-torn countries is developed in line with a desirable future pattern for agriculture in that country, then later difficulties from unbalanced urban-rural or agricultural–industrial allocations will present intensified problems of low-standard families.

The world surplus is not sufficient to lend substantial aid to both restorational and embryonic economies at once. The moral stress in most restorational countries reflects systems of values derived from high levels of living. The intensity of this moral stress and future contributions which these countries can make prompt dealing with their problems first, but in terms of a twenty- to twenty-five-year time-span.

As progress is made in restorational countries it is suggested that both the surplus and the partially restored countries, as they can, provide direct aid by providing capital, organizational or management capacity, and training for the development of skills for development of the embryonic economies.

For contributions in the first phase—restoration—the surplus countries must be willing to accept imports as partial check-offs. They should be willing also to accept contributions which the restorational countries make for development elsewhere as compensatory action. Such an arrangement would provide the original contributing countries with partial payments in goods and a second contribution to world betterment. The present surplus countries would need to contribute also to the embryonic countries. Original contributing countries would eventually share in the heightened plane of world trade and benefit from the increased business activity. The resultant restorations and economic development would do much to raise nutrition, housing, clothing, and health above desirable standards for a high proportion of the world population. In addition it would do much to engender a spirit of international co-operation which offers much for future maintenance of world security.

The plea here is not for acceptance of the above suggestions developed strictly from a qualitative analysis and a limited understanding of the problem. Instead it is a plea for a competent, objective, and courageous group of social scientists to set upon the job of charting a half-century course of restoration and development for the

free peoples of the world. Without such a perspective it is difficult to see how the short-run policies, spawned by expediency under different sets of economic and political conditions, can avoid adding to the aggregate number of low-standard families and in many instances worsening their plight. It will bear repeating that much of the security of the world of to-morrow depends upon an improved lot for low-standard families. The acute need for a long-term appraisal of opportunities for human betterment from an integrated approach to restoration in war-torn countries and advancement in under-developed countries is the challenge of the century.

THE APPLICATION OF SCIENTIFIC MANAGEMENT TO AGRICULTURE

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THERE seems to be some confusion among agricultural economists as to the meaning of what has come to be known as 'scientific management' in industry and as to the importance of applying methods of scientific management to farming. Is 'scientific management' to be considered a separate science? And, if so, which are the problems 'scientific management' has to solve in respect to farming? Is there any distinction between the methods of scientific management and those of that applied science, the name of which is familiar to all of us as 'farm management science'?

J. D. Black and his associates, in their recently published book on *Farm Management*, call special attention to the difference between industry and agriculture with respect to specialization by tasks. Concluding their discussion on that point, they state that 'scientific management' has been introduced much more on the larger estates of Germany on which much labour is hired and much of the work is done by gangs or crews, and more recently on the collective farms in Russia. But they finally concede that 'work simplification'—which has come to be used as a substitute term for scientific management in agriculture—may contribute much to easing the labour burdens of the family-size farmer too, and to increase the capacity of his labour force.

L. W. Ries, an outstanding German scholar, in his extensive work *Labour in Agriculture*, published during the Second World War (1943), blames farm management for having developed primarily along the lines of applied economics. According to Ries, treating the problems one-sidedly from the viewpoint of production costs resulted in an undue scarcity of studies dealing with the technical side of management. Likewise studies dealing with the human factor were neglected even more. That there is good reason for farm management being challenged on this ground seems to be practically admitted by A. W. Ashby.

In his paper 'Management in British Agriculture, with special reference to Management in Large-Scale Farming', presented to

the Eighth C.I.O.S. Congress in Stockholm this summer, Ashby says:

'During the last twenty-five years there have been a few British studies in management in the more technical sense in which the term is used in industrial management. . . . Studies of greater and wider interest in the financial structure and results of farming provided broader bases for critical and constructive approaches to problems of farm management and exercised far great influences on practices.'

In a preliminary report of his recent special investigation into systems of management in large-scale farming, Ashby states that research investigations more frequently apply their calculations to new crops and enterprises than to new techniques in already established enterprises. Perhaps a brief review of the development of scientific management as applied to farming may help us to settle this controversy.

There is no question that the application of scientific management to farming is much younger than the applied science of farm management; though the French claim to have started with it as early as 1600. According to them the beginning of scientific farm management goes back as far as Olivier de Serres, who is called the father of French agriculture.

There is certainly much exaggeration in what the French claim. At least we might as well argue that there is no reason why Thaer, Thünen, and the respective fathers of agriculture of divers nations should not be equally referred to as pioneers of scientific management. But there is some truth to be found in the French statement. The French, as a matter of fact, never developed a farm management science of their own as did the Americans, British, Germans, and other nations. Instead they got more interested in technical problems of management and this interest may be traced far into the past.

French investigations on the technical problems of management were for a long time distributed among different technical bulletins dealing with general agronomy, animal husbandry, animal nutrition, and so on. And thus they could not be of great value for building up a science of farm enterprise on an international scale.

But as soon as the principles outlined for industry by Frederick W. Taylor were recommended by the U.S.A. Interstate Commerce Commission (1910) and supplemented by Taylor's associates, including Henry Gantt, Carl Barth, Harris L. Cooke, and the Gilbreths, the French became eager to follow in the steps of the Americans. Their interest concentrated originally around business administration. It

was Henri Fayol who outlined and defined for the first time different functional groups in the operation of any enterprise, including both large and small family-sized farms. The functional groups he defined are: production, marketing, finance, insurance, accounting, and administration respectively.

Despite the great interest the French have in studies of technical management problems, they cannot pretend to have made the first organized effort to promote such studies for the benefit of agriculture. Instead, the Germans were the first. May I cite, certainly as an unprejudiced witness, a publication of the French Institute for Scientific Management of Labour, issued just after the Second World War, under the auspices of the French Government (Ministry of Agriculture)? There we find (p. 42) the interesting assertion that independent action of individuals was responsible for the realization of aims of scientific management in France as far as agriculture is concerned prior to the Second World War. Investigations were confined, respectively, to lowering costs of production by employment of machinery (started in 1915 by Dr. Javal and M. J. Fangeras), to analysing farm accounting results, and to developing labour-saving devices following the principles outlined by Frederick W. Taylor. Farm accounting research was initiated by M. Petit and Henri Girard and development of labour-saving devices was started by Professor MacRingelmann, both not earlier than 1926.

At the same time, we notice on p. 33 of the French publication mentioned above that Dr. Seedorf, University of Jena, Germany, at the close of the First World War had already called the attention of his country to the necessity to apply the principles of Taylorism to German farming. From application of these principles he expected much success in trying to allay the privations resulting from the war. And he then suggested the creation of a special Institute devoted entirely to research of labour methods along the principles advocated by Frederick W. Taylor.

Following the suggestions of Seedorf and due mainly to action on the part of Professor Falke, Leipzig, the first Experimental Station for Farm Labour was founded in 1920 in Pommritz, Saxony, and the second one in 1927 in Bornim, Prussia. Dr. G. Derlitzky and Dr. L. W. Ries became the leading scientists and heads of the respective Institutes. Problems concerning labour both from the business and technical viewpoints were to be studied.

May I remind you that a paper on 'Methods and Results of Research Work on the Efficiency of Human Labour on German Farms' was presented to this Conference on the occasion of its second meeting,

held in 1930 at Cornell University. That is where I find the following statements:

'Methods of job analysis have long been effectively employed in German industry. However, the possibility of employing similar methods as a means of increasing the efficiency of labour in agriculture has been overlooked by German farmers, and as I have learned since coming here [i.e. U.S.A.], by American farmers as well.'

And farther on:

'There are wide differences in the way in which the same farm operation is performed in different parts of Germany. This is true to a lesser extent in the United States. Some of these differences are due, of course, to differences in natural conditions. However, for the most part they appear to be largely due to the fact that farmers in the various parts of the country have merely become accustomed to performing a given task in a certain way, and continue to use methods which their fathers used before them.'

L. W. Ries, in his previously mentioned book, gives evidence enough for the correctness of the latter statement. We shall confine ourselves here to only one of the numerous examples he mentions.

Whether we shall perform the task of harvesting, say, wheat by using a scythe, a reaper, a binder, or a combine, will depend primarily upon which pays under given conditions. But taking it for granted that we choose the scythe as the most economical implement, we are still confronted with the problem of which of the diverse types of scythe should be used. According to Ries, Germany alone possesses about 1,500 types of scythe, differing in length and width of the blade as well as in the grip (handle). But of the 1,500 types, only two proved to be satisfactory and efficient under present conditions. All the remaining ones were just a survival from times long past when any region, and sometimes any village, developed its own type of scythe. Nevertheless farmers were still using all these types as their fathers and grandfathers used to do.

Examples of farmers sticking to old-fashioned methods, due to traditions that have become obsolete, might be multiplied almost at will. They are very common with the smallholder in the old settled countries. And at this point we raise the question as to whether methods outlined by Taylor and his followers correspond to the needs of farming in general or rather to large-scale farming!

I think the answer to this question has been partly given already. But in addition let us raise some other problems concerning primarily the management of smallholdings.

One of the weakest points in management of family farms in

practically any country on the European continent, a problem unknown to the Anglo-Saxons, is the considerable employment of farmers' wives and children in farming. In most cases they seem to be badly overworked. Unfortunately we lack investigations going deeply enough into this subject and at the same time covering a large enough number of farms to get a sufficient basis for generalization. But relying upon some research monographs from Würtemberg and Saxony and on some preliminary studies made in my department at Cracow, we may distinguish three lines in which farmers' wives used to be engaged. These are, respectively: first, looking after the farm livestock (cows, pigs, and poultry); second, home management, including cooking and taking care of the children; and finally doing some seasonal fieldwork, particularly at harvest time, along with some regular work in the home garden.

The percentage ratio between the three lines in question seems to vary considerably according to the size of the family. The more children the less fieldwork, of course, does not make one surprised. But what strikes one is that with the enlargement of the family it is not the upkeep of livestock which has to suffer. It is the home management and upkeep of children. Constant employment in the cow-barn apparently goes on at the expense of carrying out the main job of a wife with reduced time and less care. What should be undertaken to ameliorate these conditions and to improve the situation of the farmer's wife? Here is where the human factor enters and calls for at least as much attention as is being given to shortening hours of factory workers. And the problem lends itself to solution by developing the technical side of management to which rightly or wrongly has been applied the term 'scientific management'.

A somewhat related problem consists in seasonal fluctuations of labour requirements during busy work periods. These fluctuations may have a great effect on seasonal unemployment on the one hand and on seasonal overworking on the other hand. Careful studies of seasonal labour requirements of cropping systems and rotations in diversified farming areas—as demonstrated by R. Weber, Pommritz —may be of great assistance in the rationalizing of labour on small farms. Where no shifts in the acreage devoted to particular crops are practicable, such investigations help the agricultural instructor (county agent) to assist the farmer in figuring out whether it would be worth while in individual cases to employ a machine to reduce possible peaks of labour requirement. Similar studies may be directed towards increasing the efficiency of feeding and even of manuring.

The adaptability of methods of scientific management to small-

scale farming might be supported by further proofs. But let us not lose any time on discovering what—it may be said—has been discovered some time ago. Let us rather return to the general theme of my paper.

Using again as a reference the publications issued in 1945 by the French Institute for Scientific Management of Labour, we may confirm the following statements:

Following the first and second International Congresses of Scientific Management at Prague (1924) and Brussels (1925) respectively, and following the foundation of a permanent International Institute of Scientific Management, Belgium provided for a special agricultural section within her national committee. Several other countries followed, some of them even creating independent institutes for carrying out investigation on the principles outlined by Taylor.

In 1924 Russia started an institute of scientific rationalization of labour in the region of her most important sugar-beet plantations (Kiev, Ukraine). Here the physiological and hygienic side of labour rationalization seems to be of greatest concern.

In 1924–6 four northern countries, i.e. Sweden, Finland, Denmark, and Norway, founded special societies for initiating studies on technical problems of farm management. At the same time leading representatives of farm management of the respective four countries reached an agreement for mutual aid in carrying out investigations. Advancement of research on labour problems was made one of the prime objects of the agreement. Labour time studies, tool investigations, and labour efficiency studies, both in agriculture and forestry, were particularly encouraged by the Finnish association for promoting studies on the productivity of farm labour. The Swedish association for developing technique in agriculture assisted in carrying out similar studies. But it seems to be primarily interested in normalization movement and in promoting labour-saving devices and adaptation of modern machinery and electric power to small and middle-sized farms. The latter were the prime object of investigations carried out by the Swedish Institute of Agricultural Engineering, High School of Agriculture, at Ultuna, near Uppsala.

Due to Professor Adamiecki, a pioneer of Taylorism in Poland, a special agricultural section within the Polish Institute of Scientific Management launched in 1925 exerts a vivid activity. It is visibly manifested by adopting Adamiecki's harmonograms, corresponding to Gantt's charts in industry, for planning in advance current farm-labour requirements and later checking them up with labour which was spent for the particular job. Adamiecki's harmonograms are

certainly very useful in managing large-scale and experimental farms. And they have recently become subject to a considerable improvement by Jean Piel-Desriuisseaux, managing director of the newly created (1945) French Institute for Scientific Management of Farm Labour. Moreover, this improvement indicates that the harmonograms are capable of application to small-scale farming.

The pre-war activity of other national groups of the International Institute of Scientific Management was demonstrated on the occasion of the following five International Congresses of Scientific Management respectively: Rome 1927, Paris 1929, Amsterdam 1932, London 1935, and Washington, D.C., 1938. Some useful contributions to our knowledge of technical management problems were delivered at almost all of those meetings. But a careful study of the respective reports reveals that technical problems of management were constantly mixed up with business problems, which resulted in a gradual increase in confusion as to what should be called scientific management of labour as distinguished from farm management. And one becomes constrained to admit that such a divorce is quite unnatural.

And then we arrive at the Second World War.

The interest in purely technical problems of management rises along with the growth of planned economy and perhaps even more along with state intervention and planning directed by non-economic reasons like waging wars. With the Germans invading their neighbour countries and introducing to them the policies of a totalitarian state, we notice three points of prime interest with their scholars dealing in agricultural economics. These are respectively:

1. Building up of efficient chains linking the entire agricultural production to make it a really working wheel fitting into the system of a planned war economy.
2. Building up of a compulsory farm accounting system suitable for supervising production.
3. And, last but not least, introducing scientific methods to get the highest yields with a simultaneous material lowering of labour requirements enabling the economy to draw freely on the stored-up surplus power of human energy.

It is not a pure accident that Ries had become the head of the Labour Research Department within the Polish Scientific Institute of Agriculture in Pulawy under German Occupation. His standard work on *Labour in Agriculture* bears a signature which is an unmistakable proof that it was finally accomplished in occupied Poland. And the Introduction bears witness that it was done primarily for the benefit of Hitler's régime.

But Germany was not the only centre confronted during the war by technical problems and particularly by the labour problem. All belligerent nations were. Fortunately the Allies understood the necessity of making extensive use of the methods of scientific management. The war gave the latter a real opportunity.

'At the request of the War Department [we read in the paper "Progress in Industrial War Simplifications", presented by A. H. Magensen, H. B. Maynard, and D. B. Porter] thousands of officers and men in the South-west Pacific and Mediterranean theatres as well as in the United States were able to apply the principles of work simplification to the elimination of millions of man-hours of work in loading and unloading ships, warehousing in various depots, and welter of paper work, and substantial reductions were made in the time required in communications.'

And D. M. Braum, U.S.A. Department of Agriculture, in his report to the Eighth International Congress of Scientific Management, writes: 'During the war the farmer operated under tremendous pressure. This pressure came on the farmer from all sides.' How did he manage to face it successfully? 'The National Farm Work Simplification Laboratory established late in 1942 at Purdue University at Lafayette, Indiana, succeeded in developing a broad programme of farm work simplification.' The paper read before this Conference by a representative of the laboratory makes it superfluous to discuss here in detail what I call the renascence of Scientific Management methods in American agriculture.

We must wait and see which of the war experiences will prove to be of durable value under peace conditions. Some may fail. But we may reasonably expect that many of them will continue. Some reports presented to the International Congress at Stockholm are already demonstrating this.

But does this support the claims that study of technical problems of farm management and particularly of the labour problem—as Ries is emphasizing it—should be considered as requiring a separate scheme, divorced from farm management schemes? I do not see any reason why. Any improved technical method must formally be subjected to the judgement of how it affects returns, though not necessarily aiming at the highest returns, to the farmer as employer.

Thus I am rather inclined to call scientific management a movement—like the co-operative movement—a very important movement though it certainly has become, and what we as representatives of farm management schemes particularly learn from the scientific management movement is to investigate management problems less one-sidedly. Investigations into technical management problems

cannot be carried out exclusively for the benefit of the farmer as employer. Studies on benefits for the employee in a broad sense—including the farmer's wife and children—must go alongside.

I learned while in Sweden that one of the most important management problems they are confronted with there at present is the problem of substituting machinery for hand-milking on small farms. It certainly does not pay to use a milking-machine on a farm with a herd of five cows only, but it is the human factor—keeping the daughters on farms and allaying the burden of the farmer's wife—which nevertheless calls for it.

Rehabilitation of highly devastated countries may raise many problems to be solved by improving the technical side of management. In our country, for instance, milk has long been the cheapest source of protein feed for hog litters. But with dairy cattle at so low a level there is the great danger of infants being undernourished. Then shifting to fish-meal must be recommended even if it might be more expensive for a while.

Finally, I wish to recommend as follows: What has come to be known as applying scientific management in agriculture may become a separate subject of teaching like farm accounting, co-operation, and so on. And we can afford special institutes of scientific management to be run as in France. But study of the technical side of management should nevertheless remain an integral part of farm management schemes, and its methods must fit in.

THE USE OF MANAGEMENT INCOME DATA FOR COMPARISON WITH URBAN INCOME IN SWITZERLAND

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AS you know, Switzerland produced pre-war only 52 per cent. of the calories consumed in Switzerland. It was chiefly cereals, sugar, and fats which had to be imported in large quantities, whereas a surplus of cattle for breeding and above all a surplus of milk and cheese were produced. This caused depression of the market for livestock products which at that time made up three-fourths of the total revenue of Swiss agriculture.

Thus the pre-war agricultural situation was on the whole unsatisfactory in Switzerland. This was felt most of all by those agriculturists who had bought their farms at the end of the First World War at exaggerated prices and by this and other factors had got heavily into debt.

One of the two principal reasons for the over-valuation of agricultural land was the fact that the demand for farms in Switzerland far exceeds the supply, not only in times of prosperity but also in times of depression. A few words may suffice to explain this fact, which may possibly surprise some people. In Switzerland the meadow land and the arable land that admits of intensive cultivation is very small in comparison with the population; it amounts only to 0·7 acre per inhabitant. About the same acreage consists of alpine pastures, which can be used only during three months of the year. A similar area is covered by forest, and the rest, that is to say a quarter of the surface of Switzerland, is unproductive. The scarcity of productive land makes it all the more felt because the Swiss peasant is on the whole very attached to agriculture.

The second reason for the over-valuation of land is the rapid rise in the price of agricultural produce and of the profit yielded by agriculture during the First World War. Men who were not agriculturists and who bought farms only for capital investment also contributed to the rise of the prices of farms. In this way a misconception arose concerning the value of agricultural land. Some people recognized the danger of the rapid increase of prices, but their warnings

had little or no effect, for the Swiss peasant does not buy or rent a farm in order to work it for some fifteen to twenty years and to retire afterwards into private life with the money he has earned. The Swiss peasant acquires a farm to make it his permanent place of occupation and to create for his family a basis of existence. That is the reason why in times of great demand for farms he is prepared to offer an excessive price if, owing to the great number of applicants, there is no other way of getting a farm. Over-payment was encouraged by the facilities for obtaining money on credit. Experience shows that the farms bought with a high proportion of foreign capital suffered most from the sharp fall in prices in post-war times.

Thus the financial position of Swiss agriculture at the beginning of the Second World War was, generally speaking, as mentioned above, rather unfavourable, and many agriculturists cherished the hope of realizing high prices on food-stuffs during the period of great scarcity in order to recover and put some money by. But the Swiss authorities were not disposed to repeat the unfavourable experiences of the First World War. In those years the prices of agricultural produce had reached a comparatively high level, but on the other hand, at the end of the war, dangerous social tensions among the population resulted from this state of things.

The endeavour of the authorities to do everything in their power to keep prices as low as possible and to safeguard in this way a good understanding between the different classes of the population was supported by the great majority of the people of Switzerland. The leaders of the Farmers' Union declared themselves ready to be very moderate in their price levels for the duration of the war. They were conscious that it was in the interest of agriculture itself to avoid rises in prices and the revival of a ruinous valuation of landed property.

The result produced by this moderation can be illustrated by the following figures:

The prices at the farm for wheat amounted in the fourth year of the First World War (1918) to 33 Swiss frs. per cwt.; in the fourth year of the Second World War (1943) only to 26 Swiss frs. per cwt.

From 1914 to 1918 the rise of the wheat price was 180 per cent. but from 1939 to 1943 it was only 44 per cent. The corresponding figures for fat cattle are: 1·16 Swiss frs. per lb. live weight in the year 1918 and 1·05 Swiss frs. in 1943. The rise amounted in the First World War to 128 per cent. and in the Second World War (up to 1943) to 73 per cent.

The prices of fat pigs were 2·60 Swiss frs. per lb. live weight (1918) and 1·45 Swiss frs. (1943). The rise amounted to 348 per cent. in the First World War and 102 per cent. in the Second World War (up to 1943).

The prices of milk were 1·41 Swiss frs. per gallon in 1918 and 1·40 Swiss frs. in 1943. The rise amounted to 80 per cent. from 1914 to 1918 but only 38 per cent. from 1939 to 1943.

By this sacrifice and the extraordinary effort to increase agricultural production Swiss farmers hoped to avoid at the end of the Second World War that depression of prices which had overtaken them in the years 1921 and 1922.

To convince all the agriculturists of the justness of the scheme to renounce a full exploitation of the economic situation and to induce them to make at the same time a gigantic effort, the Swiss Farmers' Union, in November 1942, approached the Swiss Federal Council with the request that an official statement be made regarding the improving and the safeguarding of the post-war living conditions of farmers and agricultural labour. The claim then made by the Swiss Farmers' Union ran as follows:

'The Swiss Federal Council acknowledges the request of agriculture that managers in reasonably well managed farms bought at normal prices may claim an average labour-income equal to that for skilled workers as proved by the statistics of the Swiss Insurance against Accidents; moreover that farm labourers and fully occupied members of peasant-families shall receive the same wages as unskilled workers in industrial establishments. In addition a medium interest on the capital invested in agriculture is considered to be justified; the rate of interest not being below that paid by the peasant for his mortgage.'

The Swiss Federal Authorities have acknowledged this right of parity as a basis for the safeguarding of the Swiss peasantry in post-war times. Also the most important political parties and economic associations of Switzerland have agreed to these demands.

If the state's agrarian policy in Switzerland is to be based in future on the parity of agricultural and industrial wages, it means that the state is willing to guarantee standard prices for agricultural produce which allow farm labour to have an income similar to that of the industrial worker.

This principle is of paramount importance from the economic point of view, and it is obvious that it has been studied by commercial circles as well as by export industries. A little controversy developed on this subject between Dr. E. Geyer, Secretary of the Executive of the Swiss Society for Commerce and Industry, and the author of this

paper. The discussion was published in the Swiss *Review of National Economy and Statistics* [in German] (82nd year, No. 6, 1946, Stampfli & Co., Berne).

It cannot be denied that the demand for parity and the comparison of incomes of different groups of people present some difficulties.

As a matter of principle we have to ask ourselves if the guarantee of a certain standard income is justified at all. After the excellent paper we heard from Mr. Sayre, and after the excellent speech of Mr. Ashby, I do not have to deal with the fundamental questions of this problem. Also the scope of my paper is too small for such a study. But I wish to point out that the income of the industrial worker is largely guaranteed in Switzerland and in many other countries. This has been achieved either by adequate working contracts, by state-subsidized unemployment insurance, or by other social measures for the benefit of urban workers and—last but not least—by the protection of the labour market at the frontier. Since the introduction of a public control of prices in my country commerce also has introduced certain recognized margins. Lastly, industry too is protected against too heavy losses in times of crisis by state relief funds, by customs policies, and by unemployment insurance for industrial workers.

So the assent of the authorities to the claim for parity made by agriculture may be considered as a step towards social equality. But after all it is also important from a political point of view that a state should maintain a healthy and efficient peasantry.

In the demand for parity, such as has been formulated, no definite fixed income has been stipulated, but only parity. Accordingly agriculture expresses its readiness to contribute its share in times of an economic crisis.

As the demand for parity promises to the farmer only equal wages with the industrial worker there is no danger that this promise means a sinecure for the farmer or that he may in the future become slack in his efforts, lacking in his initiative and his activity to the detriment of national economy. In his own interest the farmer will do everything in his power to obtain from his land by his own efficiency and strenuous work more than has been guaranteed.

The demand for parity mentions distinctly that only the results of reasonably well-managed and not deeply encumbered farms shall be used as a basis for comparison. As the reputation for reasonably good management is not so easily acquired, the provisions against the abuse of parity seem to be sufficient.

In comparing incomes there arise not only questions of principle

but a number of practical considerations. There is, for instance, the question if it is possible at all to compare the incomes of different classes of the population. My answer is neither affirmative nor negative, for there is in every trade or profession a lot of values which cannot be assessed in figures; but if a comparison of incomes is imperative in the present case, we have to find a way that is as just as can be.

One thing is certain, one cannot simply compare the nominal wages of peasants and city workers with each other. One has to consider the purchasing power of the money they earn. The difficulty lies in finding a suitable basis for comparing the purchasing power of rural and urban wages. For the wants of the peasant and the structure of his cost-of-living schedule differ much from the habits of life and the cost-of-living schedule of urban workers.

We have therefore to settle the question of what kinds of consumption we have to compare. If we take the consumption of the peasant family the result will necessarily be different from the expenditure of an urban worker's family.

The reason for this difference lies in the fact that in the country the food which the peasant is able to produce himself makes up a considerable part of his consumption and so gives him a certain advantage over the urban worker. In urban districts, again, there are commodities and expenses which give the worker advantages over the peasant.

If we consider merely the cost of food, this item in Swiss peasant families comes to roughly half the cost of living, while in urban households it only amounts to about a third. So the disadvantage that working people in towns have also to bear the costs of transport and retail is not of such account as one would be inclined to suppose. Nevertheless it may be of interest to know that from 1944 to 1946 in Switzerland the charges of the middleman on food were 35 per cent. of the retail prices. In the U.S.A. this proportion amounts to as much as 60 per cent.

From calculations made in Swiss areas we reckon that the peasant's cost of living would only cover 82 per cent. of the expenditure for the same living standard in the town. If we make the same comparison of the purchasing power from the point of view of urban consumption, parity of income would only be reached if the urban wages were 12 per cent. higher than the rural wages.

It is obvious that these calculations are problematical, because on the one hand the question of the consumption structure applicable for such a comparison is in itself a debatable one, and on the other hand

no exact distinction can be made in countries like Switzerland between town and rural districts.

In order to circumvent these difficulties and to obtain a working basis which can be employed under any sort of conditions, the income of the peasantry should be compared only with industrial wages in rural districts. Proceeding in this manner it will be possible —at least for Swiss conditions—to exclude from the calculation the difference resulting from rural self-supply, for the worker in country districts is also in a position—at least to some extent—to produce his own food, or he can procure other food straight from the peasant at wholesale prices, i.e. at the same rate at which the producer has to place them to account.

Special attention must be devoted to the data used for such a comparison of labour income. In Switzerland there are no uniform statistics as yet concerning the wages of industrial workers. For this reason we were compelled in the above-mentioned demands to refer to the statistics of the compulsory Swiss insurance against accidents. These data might be further improved and supplemented by general statistics of labour incomes.

The detailed results of the farm accounting work undertaken by the Swiss Farmers' Union are taken as the basis for the calculation of rural incomes in Switzerland. Thanks to the exactness of the data received, this information is considered to be very reliable in spite of the comparatively small sample of only 4 farms per 1,000.

Nevertheless various details have in every case to be cleared up, as, for example, whether the farms included in the average are well managed and not heavily encumbered with debts. It is generally recognized that the farms under control are above average quality and under good management. The question of how much they are in advance of the rest can only be answered approximately, but we gather from certain investigations that have been made that the results are in general about 15 per cent. above the average.

Of course, it is indispensable for correct valuation of the labour income per day or year to know exactly the amount of work done by the farmer-manager and the members of his family employed on the farm. A further question is how much interest may be deducted from the net farm income to get the labour income. These details, however, are of a technical nature; they can certainly be cleared up without great difficulties.

Allow me in conclusion to make the following statement: In the pre-war time the labour income of the agricultural population in Switzerland did not even reach half of the income of industrial

workmen (1931–8, 27 per cent.). If it should be possible in the future to achieve a just adaptation of the two labour incomes this would mean a step of great importance. The flight from the land, so detrimental from a political point of view to many countries, might be arrested and, on the other hand, the improved rural living standard would raise the demand for industrial products. The result would be more stable and healthier communities. There can therefore be no doubt that the problem of income parity is worth a closer investigation.

In answer to questions by Dr. Dawe, Professor Hüni said that in the First World War the prices of agricultural products rose higher than the costs. The purchasing power of the income of the industrial worker weakened sensibly. In the Second World War, on the other hand, the purchasing power of the industrial workers' income remained closely on the pre-war level. Since 1946 it has been even a little above pre-war.

As to the question of the attitude of the industrial worker towards the demands of the farmer and the farm worker, I am glad to say that in Switzerland the attitude is generally good. This is to a great extent due to the fact that in Switzerland the factories are not concentrated in cities. Many of them are spread over the whole country. The industrial workers, therefore, have close contact with the farmers and with the farm workers. In general they do not deny that the farm worker works as hard as the industrial worker. The farm worker has no regulated working time. There are some recommendations, but the hours are not limited as they are in many other countries. Of course, we have also all kinds of people as farm help, but the demand for income parity concerns only the man with full working capacity. The industrial workers agree generally with his demand for parity.

In reply to questions by Mr. Witney, Professor Hüni said: First, as regards the proportion of farm population to total population, the number of persons regularly employed in agriculture in Switzerland is 20 per cent. of the total working population. Second, as to how many farm accounts are examined for the comparison of incomes, the books of 550 farms can be used since the war, that is, since the war imposed additional work on the farm family, as compared with 600 before the war. The total number of farms in Switzerland which provide a fairly full existence for the farm family is 140,000–160,000; the total number, including the part-time holdings, is 240,000. Third, as to whether there exists in Switzerland

an association of industrialists corresponding to the National Farmers' Union, there is a Swiss Society for Commerce and Industry. It is generally very anxious to have low prices for food, and the debate mentioned earlier on the farmers' demand was started from this Society. But I am glad to be able to say that Dr. Geyer, the Secretary of the Society, agreed with the principle of the demand, and the debate concerned mostly technical questions.

WORK SIMPLIFICATION IN AGRICULTURE

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EFFICIENT agricultural production involves intelligent management decisions in two broad areas: (1) what to do, and (2) how to do it. Knowledge in these two areas is an essential prerequisite to the making of intelligent decisions. Scientific advancement in the area of what to do has provided the knowledge or facts for much of the increase in the efficiency of agricultural production.[1] Of key importance are principles of farm organization, advances in plant and animal breeding and nutrition, and the substitution of mechanical power for human energy. Organized research and education in how to do farm jobs have been incidental to the advances in farm organization and production sciences. In fact, acceptance and use of discoveries of the production scientists are sometimes inhibited by the farmer's inadequate knowledge of *how* to use these innovations. The cultural lag between the time a desirable new technology is developed and the time when it is placed into general use is frequently greater than is generally realized.

Most farmers learn how to do jobs primarily through the apprentice system, or by trial and error. On the other hand, many industrial workers receive definite on-the-job instruction. Industrial engineers have established methods or motion and time study departments as a part of their programme of scientific management. These departments search out and teach workers easier, better ways to do jobs.

Could easier, more effective, and economical ways of doing farm jobs be searched out, developed, and put into use? For example, could work methods for caring for a dairy cow in 60 hours rather than in 140 hours a year be developed and taught? E. C. Young and his associates both in agriculture and industrial engineering at Purdue University agreed that the answer was 'yes'. Limited earlier studies both in the United States and in other countries[2] supported this

[1] In terms of man's efficiency, output per agricultural worker in the United States rose about 70 per cent. from 1910 to 1940. Almost half of this total gain occurred during the thirties. Further substantial gains have occurred since 1940.

[2] Notably the work of J. J. W. Seedorf and associates in Germany. See 'Methods and Results of Research Work on the Efficiency of Human Labour on German Farms', *Proc. of Int. Conf. Agr. Econ.*, 1930.

conclusion. Accordingly, in 1944, research and educational programmes in farm work simplification were established on a co-operative basis in twelve states.[1] As is shown later, these programmes have, for the most part, achieved their objectives.

Farm management research has long shown wide variations in labour accomplishment among individual farmers—even where resources, production rates, and enterprise combinations are comparable. This variation is due, at least in part, to differences in work methods used—how the job is done. Work simplification research therefore searches out, develops, and makes available for use the easiest, most effective, and economical way to do a job. The ultimate objective is to reduce the labour and cost of doing a job. As a means of achieving lower unit costs, work simplification attempts to:

1. Eliminate all unnecessary work.
2. Determine the easiest, most effective methods and sequences for performing the necessary work, recognizing that situations vary from farm to farm.
3. Determine the most convenient and economical combination of tools, equipment, and facilities needed for effective job performance.
4. Standardize, in so far as possible, improved work methods and establish standards of performance as a guide to other workers.
5. Apply improved methods, techniques, and standards of accomplishment by preparing instructions on how to do certain jobs most effectively, and developing and teaching the principles and guides for improving the work methods used on any job.

RESEARCH PROCEDURE

Agricultural economists and agricultural engineers have directed most of the work simplification projects in the United States. Most of these men received special intensive training in industrial motion and time study methods of analysis. They therefore have at their command the research techniques of economists and of motion and time study workers. This is reflected in the five-step work simplification research procedure which has evolved: (1) define the problem; discover, describe, and measure existing methods; (2) appraise the effectiveness of existing methods; (3) develop improved methods;

[1] This experimental research programme, headed by E. C. Young at Purdue University, was made possible in a large measure by a grant-in-aid from the General Education Board. Since 1945 work simplification activities in the various states have gone forward without outside financial assistance. Some twenty states are now doing research and educational work along work simplification lines.

(4) test conclusions; and (5) make proven developments available for general use. A brief explanation of the techniques used in accomplishing these five steps follows.

1. *Define the problem; discover, describe, and measure existing methods.* The obvious starting-point in research is the definition of the problem. The work associated with a crop or livestock enterprise has been the usual starting-point, although several studies have been narrowed down to one or more jobs.[1] Other studies now under way examine the performance of one function for all enterprises, as water distribution, grain processing, roughage storage, or feed distribution. This type of study is sometimes desirable because the economics of changing a work method can be evaluated for the farm business as a whole, and is not limited to one enterprise.

Having selected a job or series of jobs for study, the different work methods in current use should be inventoried and described. This is probably best accomplished through a work methods survey.[2] Enough records should be taken to familiarize the researcher with the work, the farmers' problems, and the variety of existing practices, equipment, and methods.

To collect data for the measurement of existing methods, detailed input-output case studies are made. Usually these cases are selected from the survey group to represent the different work methods known to exist. The total number of cases is usually small, as the objective of the analysis is to seek out and develop improved methods, not to establish a normal distribution.

An adaptation of certain motion and time study techniques is used in the collection of the data. Most of the information on the case studies is obtained by direct observation. If space relationships are important a layout sketch[3] is made. As most farm work involves the movement of a worker from place to place, process charting[4] is

[1] A job is any definite, complete piece of work such as milking or feeding cattle. It includes one or more operations.

[2] In a few studies, committees of farmers have been called together to describe and discuss work methods in common use. This technique may enable the researcher to discover variations in methods more quickly and easily than by making numerous farm visits.

[3] A layout sketch is a scale drawing of the arrangement of facilities involved in the work process (farmstead, building, or farm layout) which shows locations, arrangements, chore paths, and other space relationships.

[4] The process chart is sometimes called a job-breakdown. It is a chronological outline and description of the operations involved in doing a job. Distances travelled, quantities or kinds of materials handled, and time consumed are usually recorded alongside a brief word description of each operation. The original process chart is made by the researcher as he observes the worker or workers actually doing the job under study. A ruled sheet of paper with columns for time readings, operation description, distance, and notes is commonly used in making a process chart.

almost essential. On the process chart objective measurements of area (acreage, distances, dimensions), quantities (pounds, bushels, tons, gallons), and time are recorded as the work progresses. The work process is broken into subdivisions to the extent feasible for the work under study. That is, the process is divided into its component jobs. Likewise, the jobs are usually subdivided into individual operations.[1] Finally, on crew work or repetitive hand work, operations are sometimes further subdivided into work elements.[2] To obtain even more detailed data, original records are often made in the form of 16 mm. motion pictures. From these the process chart can be made. Each job may be analysed in as great detail as desired for time, travel, method, and accomplishment by projecting the film, one frame at a time, with a special projector.[3]

Using these techniques, the physical inputs and outputs—man-labour, equipment and machinery use, materials, and amount of work accomplished—are measured. If the farmer's actual monetary costs and returns (not just time, travel, and quantities) are to be reported, his equipment values, labour rates, building charges, materials costs, and product prices must also be obtained.

2. *Appraise the effectiveness of existing methods.* Effectiveness is appraised by comparative analysis of data collected and by checking methods used against tested principles of work economy. Comparison may be made on an input-output basis by calculating such factors as labour (time, machine work) per unit of output, travel per unit of output or per animal, and cost per unit. Advantages and disadvantages of different work methods which are not measurable objectively, as flexibility and ease, are listed. Quality of work may also be evaluated, perhaps by testing samples of the product. A comparison of the number and kind of work-elements entering different

[1] An act performed as a part of a job is an operation. To do the job of feeding the hogs, for example, these operations may be performed: walk to crib, fill basket, carry basket of grain to hogs, empty basket, return to crib.

[2] Work elements are subdivisions of complete operations. They are usually made up of as small a group of motions as it is possible to define in a few words or time accurately with a stop watch. A great variety of individual operations may be broken down into work elements, as: travel loaded, travel empty, work in place, unavoidable delay, avoidable delay, &c.

[3] Fundamental motions, therbligs, are found in this manner. A therblig is the 'true' work element from which all other elements, operations, and jobs are built. The term 'therblig' refers to any one of the eighteen elementary subdivisions of motions defined by the Gilbreths. While the motion-picture camera provides an excellent means of collecting data, its use for job analysis research purposes should be restricted to the filming of operations where greater detail is desired than can be accurately recorded from direct observation. Film analysis has been helpful in agricultural studies of hand harvesting, processing, and tobacco work.

methods of doing work may reveal some of the reasons for differences in accomplishment. Proportion of time consumed in delays, idleness, working in place, empty travel, and productive travel may be related to output.[1]

Such a comparative analysis of work methods may in itself provide farmers with data previously unavailable. It is essentially an extension of orthodox farm management techniques into detailed studies of individual jobs. The check-list analysis goes a step farther. The tested principles of motion economy, effective utilization of equipment, good layout, proper flow of materials, and good work sequence, in themselves may explain why one method is easier, quicker, cheaper, or more effective than another. By systematically questioning each work method, either by actually using check-list questions or by subconsciously applying the principles, the researcher compares observed methods with tested principles of effective work and good working conditions. Knowledge of the common-sense principles involved is more important than systematic check-list questioning. Printed check lists are available for this purpose.[2]

3. *Develop improved methods.* If the analysis goes no farther than to describe the most effective method found for doing a job and explains why that method excels, the better method may be transplanted to other farms. Usually, however, opportunities exist for improving even the more efficient work methods observed if creative thinking is attempted. In this creative work the researcher, from his observations, analysis, and knowledge of the principles of effective work, formulates hypotheses for the improvement of the better work methods which were observed. These three approaches are being used:

First, a new method may be developed from the better parts of methods observed. Comparative analysis usually shows that no one farmer performs all of the jobs in a process, or all of the operations in a job, in a superior manner. Farmer A does part of the work well, while farmer B has a more efficient method of performing another part of the work. Therefore it is possible to synthesize a new work

[1] An Indiana study of tomato-picking methods revealed that 70 per cent. of the expert picker's time was consumed in moving the hands from vine to picking container and from container to vine (hand travel loaded and hand travel empty). An improved method was developed to decrease this travel requirement. Faulty crew organization and work methods were responsible for individual members of a Kentucky tobacco harvesting crew spending as much as 75 per cent. of their time on 'avoidable delay'.

[2] For an industrial list see M. E. Mundel, *Systematic Motion and Time Study*, New York, Prentice Hall, 1946. For an agricultural adaptation see L. S. Hardin, *Study Your Own Farm Work Methods*, Purdue Exp. Sta. Circular 307, 1947, Lafayette, Indiana.

process or a new way of doing a job from the better parts of observed methods studied in comparative analysis.

Second, the routine check-list analysis often suggests possibilities of improvement. Innovations such as elimination of unnecessary operations or delays, combination of separate elements into a new operation, and sequence rearrangements usually suggest themselves after observation. These innovations may or may not have been observed on other farms.

Third, the need for non-existent facilities, equipment, or small tools may be suggested by the analysis. Equipment occasionally is invented or a device from another field is transferred in an attempt to develop a new, improved method of doing a job. Equipment conceived in this manner frequently enjoys rapid and widespread adoption because its design is based upon a careful analysis of the functions it is to serve and the area in which it is to operate. Agricultural engineers should assist with equipment and layout problems. Equipment developed in work simplification research has thus far been primarily small hand tools and facilities within buildings.[1]

4. *Test conclusions.* Proposed changes can be checked on a laboratory basis by developing a process chart for the new method and comparing it with the old. Synthetic charts for new methods often include some estimates. Estimates are usually limited to a few elements or small operations of a job, and the total time, travel, and cost requirements thus developed have generally given reliable indications of the possibilities of the new method.

If this 'synthesized' test shows the new method to have promise, a worker or workers are then trained in the new method. After practice, workers are timed while actually performing the work according to the prescribed new method. In this way supervised case-tests or controlled experiments prove or disprove the validity of the conclusions drawn.[2]

5. *Make proven developments available.* Improved methods have been carried to farmers on a demonstration basis, through motion pictures,

[1] In Kentucky a one-man plant bed board (for pulling or weeding tobacco plants), a new hook-type topping and suckering knife, a self-releasing hook for lowering tobacco, and an improved type of cutting and splitting knife have been developed. As a result of Florida celery studies, a new type of field crate, a crate-closing device, and a new type of packing table have been developed.

[2] In Kentucky, where tobacco plant pullers average around 1,200 plants per hour, a totally inexperienced worker, after one half-day's practice following the suggested procedure, pulled 1,560 plants per hour. An experienced worker, whose previous output was 970 plants, pulled 1,550 plants an hour using the new method. An above-average worker, whose previous average was 1,660 plants, pulled over 2,500 using the new method.

slides, and publications. Some demonstrations have actually been detailed 'before' and 'after' studies.

If the work involved is relatively uniform from farm to farm, as in hand-harvesting, definite step-by-step instructions may be distributed. Detailed instructions may be accompanied by working standards stating expected accomplishment per unit of time for the method described.[1] If farm-to-farm variation exists in physical facilities or in size and type of enterprise, suggestions and general guides to improvement may be given.[2]

BASIC LABOUR CONSUMERS

On analysis we find that most work may be classified under one of these three headings:

1. *Movement of worker from place to place.* By this travel the worker merely gets himself to the place where he does the work. Such travel is time-consuming, particularly in chore work.

2. *Movement of materials and equipment.* To produce a crop, equipment is moved to the field. The soil is moved over and over in ploughing, fitting the seed bed, planting, and cultivating. Fertilizers, seeds, and insecticides are moved too. When mature, the crop is moved off the plant to storage or to market. Movement of materials is the big energy- and time-consumer in agricultural work.

3. *Work in place.* In this type of work only part of the body is moved, as in milking a cow, cleaning eggs, and repairing machinery.

If farm work is made up of these three users of labour, what determines the worker's rate of output? Production rate on any job is broadly determined by the work method used and rate of worker activity[3] (assuming that amount and quality of resources are

[1] Examples: I. R. Bierly and E. V. Hardenburg, *Suggestions on How to Pick Up Potatoes*, Cornell Ext. Bul. 656, 1944, Ithaca, N.Y.

J. W. Oberholtzer, *Making Movements Count in Picking Tomatoes*, Purdue Ext. Leaflet 258, 1944, Lafayette, Indiana.

G. B. Byers, E. J. Nesius, and Earl Young, *Easier Ways To Do Farm Work*, Series of University of Kentucky Ext. Leaflets on Tobacco, Nos. 75, 76, 79, 84, 86, 90, 92, 1944, 1945, Lexington, Kentucky.

[2] Examples: R. M. Carter, *Modern Milking Methods*, Vt. Ext. Circular 111, 1944, Burlington, Vt.

J. W. Oberholtzer and L. S. Hardin, *Simplifying the Work and Management of Hog Production*, Purdue Exp. Sta. Bul. 506, 1945, Lafayette, Indiana.

[3] In collecting data on time requirements for different workers to compare and analyse work methods, rate of worker activity should be taken into account. Actual time requirements for defined methods are sometimes adjusted to 'normal' or 'standard' times by levelling. In taking the time record the worker's pace is rated in per cent. of normal. Normal speed is the unstimulated effort of a normally competent person doing a job correctly by a given method. Books on time-study explain the several rating procedures in detail.

held constant). Work simplification is directed towards easier, better ways of working, not towards working harder or faster. How fast a man works depends upon his skill, physical condition, effort exerted, and working conditions. But work methods may be changed regardless of the worker's rate of activity. Movement of the worker may be reduced or made easier. Materials handling can often be reduced, and perhaps mechanized. Arrangements may be made to maximize accomplishment while working in place. Types of changes which result in these improvements may also be classified.

CLASSES OF WORK SIMPLIFICATION CHANGES

A classification of possible changes which may be made to improve work methods systematizes the researcher's analysis. In this classification the higher the class of change, the greater is the number of desirable changes likely to accompany it.

Class 1. Changes in physical work. Such changes usually involve reductions in travel, elimination of unnecessary work, and use of easier hand and body motions. Also involved may be: fuller use of both hands; arrangements for less stooping, lifting, and carrying; greater safety and comfort for workers; changes in hours; provision of rest periods; adjustments in crew size; assignment of definite responsibilities to individual crew members; and better integration of man and machine work.

Class 2. Changes in equipment and layout. The kind or design of the machine, tool, or device may be altered to fit the job. Mechanical power may be substituted for human power, particularly in the movement of materials. Man's time should be used to direct the energies of machines or animals more powerful than he. In the United States man's time is generally too valuable to be used merely as a source of power—unless the job is too complicated, short, or unimportant to justify a machine. Equipment, supplies, and animals may be relocated for easier access and greater convenience. Building and fence locations and building interiors may be rearranged to decrease travel and permit improved work routines.

Class 3. Changes in production processes and practices. This involves rescheduling certain jobs to less busy seasons, increasing the timeliness of crop and livestock operations, and rechecking time-honoured practices as: fall versus spring ploughing; drilling versus checking; around-the-field versus back-and-forth planting; self-feeding versus hand-feeding; and hand stripping versus machine stripping with short, timed milking of dairy cows.

Changes may also include modifications in the product (form,

condition, quality) and changes in raw materials (seeds, feeds, fertilizers). Whether or not changes in the product or changes in raw materials should be made is largely a problem of general management. But if changes of the latter two classes are made, it is the job analyst's problem to follow through and study the possibilities of making improvements in the production process, equipment, and physical work. Most of the method improvements have been concerned with changes in physical work (class 1) and in equipment and layout (class 2).

RESULTS

The degree of success achieved by work simplification projects has varied widely, as would be expected in a relatively new field. Studies of repetitive hand jobs have generally produced readily applicable, quickly accepted findings. Studies of livestock work have necessarily proceeded more slowly because of the greater number of variables involved. Measurement of farmer acceptance and use of findings is difficult.

The success of some projects has been spectacular. In Kentucky studies of tobacco production and harvesting, improved methods that save from one-fourth to two-thirds of the labour previously required have been developed and tested. These improved methods were placed into use through an intensive educational programme. As a result, it was estimated that in 1946 the use of these improved methods saved 745,200 man-days of labour in the state of Kentucky alone. Even under the improved methods, tobacco production remains essentially hand work. Jobs are repetitive. This means that a specific improved step-by-step procedure can have broad general application.

Several states have undertaken studies of dairy chore work. In a 'before' and 'after' study on a 22-cow Vermont dairy farm, daily savings of 2 hours and 5 minutes of work and of 2 miles of walking, or about one-third of the time and two-thirds of the travel, were made.[1] Over a period of about a year's study, with gradual change, dairy chore time on a Minnesota farm, where 13 cows and 14 other cattle were kept, was reduced by 27 per cent., and about 37 per cent. of the travel was eliminated. The research procedure resulting in these significant accomplishments was in both cases approximately that outlined above. Four classes of changes were made. Virtually all of the changes either reduced the physical work, made it easier, or

[1] R. M. Carter, *Labor Saving Through Farm Job Analysis. Dairy Barn Chores*, Vt. Exp. Sta. Bul. 503, 1943, Burlington, Vermont.

more effective. Strictly class 1 changes included the establishment of new work routines more economical in time and travel, and reduction of the time the milking-machine was on the cows. Class 2 changes in equipment and layout resulted in additional changes in the physical work. New equipment—carts, brooms, shovels, forks—was developed or obtained after study of the job requirements. The Vermont farm's stables were rearranged and, in both cases, locations of feed, livestock, and supplies were changed to provide work centres, permit circular travel, and eliminate empty travel. On the Minnesota farm a production practice was altered (a class 3 change) by replacing hand stripping with machine stripping. Also on the Minnesota farm the product marketed was modified by selling whole milk rather than cream.

Once their importance had been discovered, some of these changes could have been made without a detailed study of the work. But because the entire process was carefully analysed, many changes, individually small but collectively large, were made which would have been overlooked in a less systematic study where only the more obvious opportunities for improvement were examined.

Work methods used by five efficient Indiana hog farmers were studied for a year. These farmers were able to produce 225 lb. market hogs in an average of 1·7 hours of work per head, compared with a state average of 5 to 7 hours. Thus they produced 100 market hogs (raising spring and fall litters) with a total of about 7 weeks (500 hours) less work than the average.

Study of haying jobs on 72 Vermont farms demonstrated that how a man works may be just as important as the equipment with which he works.[1] The 10 farmers handling hay the fastest used 62–85 man-minutes per ton to move hay from the windrow to the mow. These 10 farmers used all types and combinations of equipment. Other farmers, with similar equipment, used as much as 313 man-minutes per ton. A careful comparative study of hay-making methods has just been completed in New York.[2]

Significant improvements in methods of harvesting vegetable crops—celery, potatoes, tomatoes, green beans—have been made through the synthesis of good parts of methods already in use and the application of tested principles. For example, in Colorado an improved method of cutting seed potatoes was developed which utilized our knowledge of the effective use of both hands, gravity

[1] R. M. Carter, *Hay Harvesting*, Vt. Exp. Sta. Bul. 531, 1946, Burlington, Vermont.

[2] I. R. Bierly, *Comparative Hay Harvesting Methods*, Cornell University, 1947, Ithaca, N.Y.

feed, and drop-chute delivery.[1] This equipment, used in the prescribed manner, enables the average worker to increase his output on this job by 25 per cent. The investment required is 10–20 dollars. These studies have repeatedly emphasized the necessity of adequate job instruction if the potential savings of improved work methods are to be realized.

Essentially this research technique is being successfully applied to marketing and processing operations. Significant studies of celery wash-house and packing operations in Florida[2] and of Indiana tomato-canning factory operations have been completed. These two studies show that variations in efficiency and cost among these processing and marketing organizations are about as great as among farms. Through the use of work simplification research techniques, some specific reasons for these variations in costs and efficiency have been ferreted out. Improved methods, the full application of which would result in an overall saving of about 40 per cent. in labour, were developed in the Florida study. Comparable results were achieved in Indiana. This suggests that work simplification research techniques will have practical applications in marketing investigations equal in importance to the farm-work applications.

Many problems in work simplification research methods remain to be solved. Thus far, broad studies of work processes, planning of work routines, and layouts have generally been more productive than detailed analyses of work elements. This generalization, however, may be made. Careful work simplification analysis can usually cut chore time with livestock about one-third. Chore travel may frequently be reduced even more. Where hand work, rather than mechanical harvest, is still used, increases in output of from 20 to 40 per cent. may be expected.[3] Greater use of incentive wages appears desirable in agriculture. Increases in custom farming (hiring men and equipment by the job rather than by the hour or day) is a trend in this direction.

Work simplification research emphasizes the dynamic features of any job and develops a desirable questioning attitude towards precedent as a guide to adequate job performance. New emphasis is placed upon the importance of the individual as a factor in production.

[1] J. L. Paschal, G. H. Love, and W. A. Dreutzer, *The Double-Edged Stationary Potato Cutting Knife*, Colorado Exp. Sta. Bul. 493, 1946, Fort Collins, Colorado.

[2] M. E. Brunk, 'The Application of Work Simplification Techniques to Marketing Research', *Journal of Farm Economics*, vol. xxix, No. 1, Feb. 1947.

[3] E. C. Young and L. S. Hardin, 'Simplifying Farm Work', *Yearbook of Agriculture*, 1943–7, U.S.D.A., Washington, D.C.

It may well be that case studies have not been exploited to their full potential in agricultural research and teaching. The above outlined research procedure involving numerous detailed observations, adjusted or levelled for individual differences, may make case studies of broader use for research purposes. Many observations are taken on a few cases rather than the usual statistical approach of taking a few observations on many cases. Because of the great detail which is obtained, the analyst has the basis for reasonably accurate projection. In economic research in general, and in farm management in particular, we have traditionally described what has happened. Rarely have we projected our findings so that persons making current operational decisions could make maximum use of the results. Work simplification research potentially can bring interpretation of research out of the past and project it into the future. Specific suggestions can be made, and the importance of a particular method or practice may be measured and demonstrated. Thus the researcher may lead, rather than follow.

In summary, work simplification attempts to sift out the best of work methods already in use, evaluate them, and carefully analyse them for further improvement. At its best it goes beyond the actual experience of farmers to develop and test other possible improvements. In this way, operation and management information is developed which should be of value to all farmers irrespective of the efficiency or scope of their operations.

DISCUSSION

J. R. CURRIE, *Dartington Hall, England.*

I did not mean to take part in these discussions, as of necessity my time and attention at this Conference are preoccupied with other duties, but the subject and nature of Mr. Hardin's paper have so interested me that I cannot resist the temptation to say a few words on it.

I only wish that the techniques of which Mr. Hardin has spoken to us to-day had been evolved twenty years earlier, as it would have made some of our problems here at Dartington a little easier of solution. And the kind of problem I have in mind is typical of almost every farming situation in the world to-day. I particularly wish to make mention of the dynamic nature of those farming problems, with their changing emphasis on labour, capital, and general organization, as circumstances make changes desirable in a competitive world where supply and demand are seldom in perfect equilibrium for long.

When Dartington Hall was established, over twenty years ago, by the very nature of its objectives it set itself the kind of problems that farmers and others are continually having to face where efficient management is the goal. The survey of farming in this area, which Harwood Long and I carried out as a preliminary, gave us a clear picture of the agricultural situation in this district at that time, but it could only point to some of the desirable objectives, and could give little help in determining the exact nature of the improvements that could be effected, e.g. the layout of better farm buildings where capital expenditure could be made and justified to cut down labour costs, &c. At that time we did not know of any organized studies similar to those indicated in the discussions to-day, so I started on my own to carry out 'time and motion studies' of the more important tasks that have to be carried out on a dairy farm throughout the year. Incidentally, I did not like the term 'time and motion studies' with its tainted objectives, which was borrowed from industry and savoured too much of that harsh repetitive efficiency of the factory machine, but we were soon given a better one by John Maxton, who referred to them as 'observational tests'. We have continued to carry out these observational tests on every important aspect of dairy technique ever since, and I feel confident that this kind of method is necessary if we are to determine the best economic structure, combining labour costs and capital expenditure, to meet any farming situation, as in this way the functional relationships between the various factors are made clear.

Some examples of our experience in that connexion may be of interest. One of the first problems we tackled here at Dartington was to discover the most efficient way of producing 'clean milk', at that time designated as Certified Milk, that is, Tuberculin Tested milk containing less than 30,000 bacteria per c.c. There was only one producer of this quality milk in the county at that time, so we consulted various authorities from all over the country and ultimately made use of much of their advice. It was not possible, however, to get specific information on many points which interested us on the type and nature of cow-shed to build. Some of the questions we had in mind were as follows: Does the American yoke, confining the cow in her stanchion, really keep the cow clean? What are its limitations? Does it have any detrimental effect on the cow's yield through restriction of her movements? Since erecting and using a cow-shed with these, we have been able to study these points by the 'observational tests'. We find that the restriction does tend to reduce the yield of cows giving fairly high yields, say, of over 4 gallons of milk per day,

but that it is a satisfactory method of keeping the cows clean. Thus, by observations taken over a three-year period, we found that the heavy-yielding cows gave about 15 per cent. more milk when transferred from stanchions to a loose box where they had complete liberty, but we also found that it took three times more labour to keep the cows clean under the loose-box conditions.

Another example, although a simple one, may be of interest. We were advised to put in an overhead conveyor in one of our cow-sheds to remove the dung from behind the cows to a manure pit. When the operation of this was observed, we found that it took longer to clean the cow-sheds by this means than by the older-fashioned one of the traditional wheelbarrow. I might quote yet another and a more recent example of the value of this technique. As a result of the valuable work carried out at Minnesota on milk secretion, by a colleague of Professor Jesness, a new technique of milking called the 'Hot cloth' or 'Quick Milking' method has been widely applied in this country. We have found it to be a considerable improvement on the old method, but by the 'observational tests' we disproved some of the claims made for it. Many of its advocates here stated that it saved time in the cow-shed and therefore it was a way of doing with less labour. We found it to be nothing of the kind as, although the actual time of milking the cow was considerably reduced, the extra time taken in applying the hot cloth and keeping up the supply of hot water almost balanced the time saved in milking. The virtue of this system of milking does not lie in the time saved, but in the fact that the more rapid milking encourages the cow to give more milk. Now that we know the facts, it may be possible to invent or organize a better means of procuring the results of the hot cloth which will really save time. This is where the 'work simplification' technique is so valuable—it breaks down the labour requirement into its separate components and makes a thorough analysis possible of the various ways of doing a job.

There is still another experience of rather a different kind which I should like to relate while I am at it. In this country it is the custom of the head cow-man in a sizeable herd to do the machine-milking and for the second cow-man to do any hand-milking that may be thought necessary or expedient. However, the head cow-man needs his week-end periods off and his annual holiday. On these occasions it is usual for his assistant to take over the machine-milking. This arrangement gave us a good opportunity of studying the efficiency with which the machine-milking had been carried out by the different individual operators. As I expected, each man had his own particular

way of handling the machines, especially at the finishing of the operation and the order in which the cows in the shed were milked. I was very much surprised, however, to find the size of the margin between the best and poorest operators. The results indicate the importance of this, as comparing the best with the poorest operator there was a 10 per cent. margin. Strangely enough, the man responsible for this low result with the machine had the reputation of being the best hand-milker in the cow-shed. Clearly it is not the job of the 'observer' to pass comments and query the efficiency of the worker. On the contrary, the 'observer' must be scrupulous in being a detached observer. His presence must not be taken to indicate a 'policeman's' job, otherwise his observations will be distorted from the normal. But I was puzzled about this low record until, by the man leaving his job, I was given the opportunity of showing him the results of his handling of the machine. The reason was clear immediately, as he opened up a tirade against the use of machines for milking, or rather the abuse of cows by putting machines to milk them. As a result he had neither pleasure nor pride in their efficient handling such as he had in his skilful hand-milking.

It may be stretching the use of the work of simplification technique too much to suggest that this last type of problem should come within its field. It certainly raises a tricky situation. I am confident that the movements of different operators should be observed and analysed, but for the management to make use of the tests to set up comparisons between individual workers is undesirable because of the repercussions it would have on the general application of the technique. The men must not be made to feel that they are being spied on. Yet these personal factors are important. The case quoted, I think, is not an isolated nor an exaggerated one. Maybe the solution lies in other fields, say, that of the psychologist whose technique could more likely discover aptitudes and attitudes conducive to efficiency in the cow-shed. Speaking generally, I think it is very important that the right type of person should be chosen to work in the cow-shed, where the individual temperament of cows has to be studied very carefully to get the best results. From the records of herd output I have examined from time to time, I feel certain that much of the credit or blame for the output which has been put down to breeding and feeding could with greater truth be attached to management in its detailed forms. Further, if we can get some way of measuring these details, we will have gone a long way towards solving the problem. For my part I think observations and recording of differences will help us greatly.

I should like to mention another example of where we have used this method to good effect. Those who went on a tour of the Old Parsonage Farm and its buildings saw there our first efforts at providing suitable accommodation for bulls. The premises when erected there were built to the specifications laid down for good bull management. Observation tests, however, have clearly shown the weak points, and the improvements suggested from that experience are now incorporated in the layout at the Artificial Insemination Centre, which I hope those of you who are interested will have the opportunity of visiting. There you will find that the premises are so laid out that the bulls have the maximum freedom consistent with the safety of the stockmen, and manual labour is cut to the minimum. The results are quite striking, as the cost of keeping a bull (apart from depreciation, which also may be affected when we get enough data to determine it) has been reduced by 50 per cent.

One last reflection on the 'Work Simplification' technique, although there are lots I would like to say on the subject in relation to outside field-work, and especially on the efficiency of substituting implements and machinery. This aspect may not be so important in America as it is here, where we are more in the transition stage between the horse and the tractor. In tackling this problem I have tried to devise my own method of study, but so far I have to admit I am stumped. My problem is to get at the real basis and assess the comparative efficiency of different implements, whether horse or tractor, in relation to the job they are supposed to do.

It is easy enough to measure units such as acres ploughed, cultivated, sown, or reaped, but it is only part of the problem. The other and more difficult, and possibly more important, part is the effectiveness of the operation. We know all too well from experience how much the tilling operations have to do with the subsequent crop output. I agree that good farming is an art, but the science side of it goes a long way before the art side becomes operative, and it is that important fraction that I should like to be able to measure effectively.

I am looking forward with great interest to seeing the results of further studies which are being carried out along these lines in America.

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In the brief time that remains I would like simply to list a few additional thoughts with respect to the topics discussed by Dr. Schmidt and Dr. Hardin. These have mostly to do with the definition of terms, and with the delimitation of the field of work simplification or scientific management.

It is not unusual for different members of a group of economists to use different terms to describe the same thing. But sometimes this leads to unnecessary confusion. Without pretending to put words in the mouths of either of the previous speakers, I would like to try to relate one to another several of the terms that have been used.

1. *Management.* This is the function of organizing and operating a business unit for the greatest continuous profit. In exercising this function, a manager in every decision is faced with choosing between alternatives; so the function is largely one of appraisal, within the limits of his understanding, of the best application of the laws of the combination of factors and of diminishing returns.
2. *Farm management.* 'Management' as applied to a farm business.
3. *Scientific management.* Connotes a more exact appraisal and choice of a course of action, but the distinction is one of degree, not of kind.
4. *Scientific management of labour.* This limits the concept to one of the factors of production and again connotes a rather sure and exacting process. As Dr. Schmidt pointed out, studies of the 'technical part of management' must go along with studies of labour management.
5. *Work simplification.* Management of labour to maximize output per unit and to make the work easier, apparently synonymous with 'scientific management of labour'. This is the newer term, but it has an advantage in its self-defining quality.

The question is sometimes raised as to why so much emphasis should be placed on labour, as is implied in the 'scientific management of labour' or 'work simplification', when labour is only one of the factors of production. The answer is implicit in the measure most commonly used to provide an index of the success of farm operation—namely, the return to the operator for his labour and/or management. Generally speaking it is the return to the operator that determines his and his family's level of living. The other factors of production, and hired labour as well, are combined with the family labour in such measures as to return the maximum payment for the labour and management of the farm family. The extent to which the proper combinations are made at any one time, or adjustments are made in the light of changing price-cost relationships for the several factors, is, of course, subject to the ability of the manager to appraise alternatives adequately and make the right decisions. Obviously the ability of farmers, as of others in this regard, varies widely, even assuming that all are equally well informed.

It is well also to recognize that work simplification in agriculture is not a new field, except perhaps as a field for formal research. In fact, work simplification in agriculture is as old as the desire of farmers to find easier ways to do their work. Farmers have always been seeking better methods. All that work simplification does is to provide for a more systematic approach to the problem and enable the researcher after some experience to appraise the effects of a new practice or procedure on time requirements before it has become a general practice on farms. This fact is probably of no great significance to research workers, but it is of considerable importance to those who expect to work directly with farmers in this field.

It is appropriate to recognize the relationship of work simplification to other methods of study and fields of work. The techniques of time and motion or travel studies provide detailed measurements that reveal reasons for efficiency or inefficiency in use of labour. But to the farmer who is operating a farm, the new methods, arrangements, or techniques that are developed must ordinarily show promise of reducing costs per unit of product, or enable greater output per unit of labour, or at least make the necessary work easier. To the extent that costs enter into the picture as an important consideration, the detailed work-simplification studies must be related to studies that will also provide cost measurements.

As management specialists, we are seldom trained to exploit fully the possibilities of mechanical power as a means of improving work-methods. Thus at least to this extent it is important that we work closely with engineers in our studies. Also we are not ordinarily trained to evaluate a new practice or method in terms of its effects on animals or plants, or their productive capacity over a period of time. So it is also important that we work with scientists in these fields. In fact it appears that the most effective procedure is to have specialists in management, engineering, and the other production fields working together as a team, so that all phases will be adequately considered.

Concrete suggestions of improved methods will aid materially in jogging the imagination of farmers. But farmers will always have to fit the suggested methods into their own situations. And there are so many farmers with different situations that the success of work simplification in farming will be determined by the extent to which we can arouse the imagination of farmers and thus get them to think through their problems anew.

THE AGRICULTURAL PROBLEM OF GREAT BRITAIN

J. A. SCOTT WATSON

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I UNDERSTAND that at your opening meeting Lord Huntingdon spoke to you about our emergency programme, which, of course, is of a short-term nature. What I have been asked to do is to try to give you the economic and historical background of the food problem that is facing Britain to-day, and to try to draw, in very broad outline, the principles of our long-term agricultural policy. That is a big task. I suppose that, to deal with the subject properly, I should have to go back to about 2400 B.C., when the first farmers arrived in this country, and work up from there. I am not going to ask you to cast your minds back quite so far, but I think I ought to say a little about the period that began on the eve of the Industrial Revolution, because a great deal that concerns our position to-day is based on things that happened a long time ago.

Let me try to give you a picture of this little country as it was 200 years ago. The population around 1750 was about 7 millions, and it had been increasing only very slowly for the preceding 200 or 300 years. Historians have argued a good deal as to why the population should have been so small and as to what had been keeping down the rate of increase. It is quite certain that the birth-rate was very adequate. If you look up old family papers of those times you will find that somewhere between eight and a dozen was quite a normal family. And you will find that there are few accounts of major famines. If we had been living in 1750, only the older amongst us would have remembered the last serious dearth, which happened in what we, in Scotland, called 'King William's years' and which fell just before the end of the seventeenth century. The fact was, of course, that the incidence of many fatal diseases was vastly greater then than it is now. Smallpox was perhaps the worst, but diphtheria carried away great numbers of children; there was typhoid fever; tuberculosis was very common, and so forth. The population was kept down by a high death-rate and a very high infant death-rate. It happened, however, that medical knowledge began to increase very fast soon after the date that I have mentioned. We got, first of all, a rather crude inoculation against smallpox. Then followed a general

improvement in sanitation, which cut down the death-rate, and more particularly the infantile death-rate, very greatly. The picture that you can piece together for 1750 is one of a very reasonably well-balanced and fairly prosperous economy. We still had between 4 and 5 acres of potential farm land for each head of the population, which, according to all the estimates, is ample to support a good standard of life: and we were more than self-sufficient in all our basic foods. We did import certain things—we were beginning to import substantial quantities of tea, and we had long been importing spices from the East—but our basic foods were produced at home, and in good seasons we had a surplus for export. We had very flourishing domestic or cottage industries—more particularly woollens. For a long time, indeed, we had exported our raw wool to Flanders, to be manufactured, but by 1750 the bulk was being manufactured at home, and we were selling quite large quantities of woollens and other less important commodities for export. The standard of nutrition seems to have been very adequate.

But now the population began to increase very rapidly, and in the next hundred years it trebled; it rose from about 7 millions in 1750 to about 20 millions in 1850. That represented the achievement of medical science, and, as has happened elsewhere, the doctors' success resulted in a challenge to the farmers. On the whole, our great-great-grandfathers rose to the occasion very well. During these hundred years, when the population was trebling, the level of production pretty nearly kept pace with the increase in the numbers of people that had to be fed. It is true that the standard of nutrition, in the scientific sense, deteriorated during the century. But the deterioration was not, in the main, due to a shortage of food; it was partly due to fads and fashions and misunderstandings about food, and partly to the redistribution of population. People were concentrating in towns because of the Industrial Revolution, and many of the new towns were situated in quite barren parts of the country. Obviously, before the days of railways, there were difficulties in the supply of milk, green vegetables, and fresh food to the urban populations. That was one cause of malnutrition. The other one was the very misguided fashion for white bread. The upper classes had long had white bread, made out of pure wheat, and it was the ambition of others to have the same—perhaps largely a matter of pride and prestige. But the rich had a balanced diet, including a very large meat consumption, whereas the working population, having little meat, little milk, little in the way of fresh vegetables, suffered greatly by the change to white flour. There were some bad seasons in the 1780s, and temporary

scarcity, but there was little anxiety about the long-term supplies until the 'hungry forties'. I sometimes think that future historians, if they use the phrase, will have to say just which forties they mean. Anyway, the 'hungry forties' became a proverb. The fact is that British farmers were just beginning to fail to keep abreast with the growth in the demand for food. They had kept up the fight for a long time. We had our inclosure movement, when a great many very inefficient little family farms were swept away to make room for large-scale commercial food production. This change was not universal, but in the grain-growing districts of the east, and later on in the highlands of Scotland, the big fellows came in, producing cereals and meat in the lowlands, wool and lambs in the mountains. We all know that the inclosures caused a good deal of social injustice and a good deal of human misery, but the change was good from the point of view of volume of production.

Next, some of our major improvements were simply copied. In 1750 our farmers looked to Holland and Flanders for improved methods of farming. Red clover was one introduction that had a very marked effect on the fertility of our soil; the cultivation of roots and the proper winter-feeding of stock were learnt from Flanders also.

Another thing that happened after 1760 was that in those areas where wheat was not easily grown—for instance, in the wet north-west of England, the western part of Scotland, and throughout Ireland—potatoes became the staple calorie food. Potatoes took the place of bread as the staff of life.

British farmers, we think, learnt the value of lime from the Romans, but a new and important discovery was made in England about 1820. Our farmers would not have said that they discovered the importance of phosphate in plant nutrition, but they found that bones, on much of our land, had a very remarkable effect. The introduction of phosphate fertilizers was a very notable step of progress. Also we had some quite notable plant selectors, farmers who picked out better varieties of crop plants, cereals particularly. Again we had our Bakewell and the Collings and all the other pioneer livestock improvers. By these various means and others, production more or less kept pace with the growth of population. To take one example of what these improvements meant in terms of yields, the best estimate that can be made of our average yield of wheat, in 1750, is about 15 bushels an acre. And by 1847, when Wilson made a rather careful estimate, the average was about 22 bushels. Our yield to-day, of course, is about 31 bushels, but this is obtained from a smaller

acreage of the better soils. We have no official statistics going as far back as the forties, but MacCullogh's estimate for 1847 approached 4 million acres. This is more than we had in the seventies, when official returns gave about 3¼ millions. We are growing 2 million acres to-day. Thus in the forties the emphasis was very largely on cereals and potatoes; the dairy herds were still small. Sheep flocks were large. The output of vegetables and fruit was quite small.

What finally upset the precarious balance between food supplies and requirements was the weather and the sudden appearance of potato blight. 'The rain rained away the Corn Laws' and Late Blight was the prime cause of the Irish famine. The Corn Laws had been based on the assumption that we could remain substantially self-supporting. When we had great abundance in this country, plenty of cheap wheat at home, then the duties automatically went up and thus shut out foreign wheat. When we had short crops and prices rose, the duties automatically fell. It has often been said that the Corn Laws were imposed by the landed interests, and it is true that most of the members of the House of Commons in those days had their main stake in agriculture. But it is also true that in the forties there was no really considerable source of grain imports. It was argued at the time that, if you allowed an occasional flood of imported grain to swamp the market, then low prices would deter farmers from expanding their production, so that the country would, in the long run, be worse off. But the Corn Laws were repealed and we became a free-trade country. It is worth noting that Europe split on this question of tariffs. We and Holland and Denmark and Belgium went (not all at the same time but ultimately) the same way. We admitted grain duty-free and, in the long run, we got the advantage of cheap imported feeding-stuffs, and were able to expand our livestock industry. France and Germany never took that course. They went on as we had been doing before the 1840s, with Corn Laws based on the idea that they must remain substantially self-supporting, and that they must not depend on cereal imports from the low-cost producers in the new countries. Incidentally, after all the bitter controversies and all the predictions of ruin to British agriculture that would follow the abolition of Corn Laws, the Corn Laws were abolished, and no disaster followed. The volume of imports remained quite small, and prices remained high for another generation. Agriculture was extremely prosperous—indeed, we reached the very hey-day of our prosperity in the sixties and early seventies of last century, after a quarter of a century of free trade. That period, the sixties, we still look back to as the Golden Age of

farming. And certainly the big-scale tenant farmer, producing grain and meat, had a very good time. In areas of large arable farming like Lincolnshire the farmer drove his carriage and pair, ate late dinner, and cracked his bottle of port. His old grandfather must have turned in his grave. Anyway, high rents were paid, high profits were made.

Prosperity lasted until about 1875, and then things took a different turn. Really large areas of virgin land of one sort or another began to be broken up, and wheat was abundant. Rather earlier Australian wool had begun to arrive in quantity, and imports seriously affected the incomes of sheep-farmers. Farming took a very heavy knock in the eighties and nineties. It was difficult to adapt the industry to the new conditions, and those who were stubborn, and refused to change their ways, broke. If you go down into Essex and talk to the old people, they will tell you about the old gentlemen-farmers who dined late and had their bottle of port and drove their carriages and pairs, and determined, in the eighties and nineties, that they would go on growing wheat in spite of the Americans. They went bankrupt, one after another. Some of the farms lay derelict for a year or two, but very few went out of cultivation altogether, even on the very strong clay land which had been very largely devoted to wheat. What happened was that my hardy countrymen from Scotland came down in droves, with a very few hundred pounds in their pockets, told a story to the bank and a story to the landlord, took over the farms and lived in the kitchens of the big farmhouses, did two men's work themselves, and gradually built up Essex farming on new lines. The new lines involved a major change of emphasis, away from grain-growing on to milk production, away from the basic food crops to fruit and vegetables, and, with cheap imported feed-grain, a marked development of poultry- and pig-farming. Such adaptation was getting along fairly well by about 1900, and the worst of the depression had passed. My own recollections go back to that time, on a tenant farm in eastern Scotland. Only the very best corn-land was left under corn. Pastures were being improved, milk production increasing, and there was a return of confidence. That lasted up till the First World War. Then we had a short burst of wild inflation, and then a crash. Those who had speculated mostly went bankrupt, those who had not mostly survived, though often by a very narrow margin and by severe sacrifices of their living standards. The depression was, on the whole, less severe in this country than in the food-exporting countries, but things were bad enough. By this time our population had reached 45 millions, and our potential farm-land had long ago been fairly completely exploited. Indeed, it had been

over-exploited, because a good deal that had been brought in during the forties and fifties had become submarginal by the nineties. In the period between the wars we were producing in terms of calories about 34 per cent. of our food. In terms of money values the percentage was higher—about 40 per cent. This was because we were concentrating on the high-value commodities and importing chiefly the cheaper sorts of foods.

Despite the obvious difficulties, we expanded production very considerably during the war. It is difficult to put this expansion in terms of a simple figure because the make-up of our dietary changed considerably. But the physical volume of output, at pre-war prices, may have risen from 34 to 45 per cent. The increase in terms of calories was greater. Some of the calculations that were made during the war were in terms of shipping tonnage saved, which had little to do with nutritional or money values. At present, of course, we are thinking of money values, and particularly of our balance of payments. In this respect our position has greatly changed.

During the long period when Britain was the leading industrial country in the world we not only shipped abroad large quantities of what you might call consumption goods—textiles, pottery, and what not—but also vast quantities of capital goods. For example, we built the Argentine railway system and retained the ownership quite largely in British hands. By such means we built up very large overseas investments, and during the present century we were living, to a considerable extent, as *rentiers*. We have been obliged to sell most of these investments during the war or since. That is one important point.

A second point is that we had, up till 1914, a very large share in the world's carrying trade. But we lost the great bulk of our tonnage during the war; that source of income is therefore largely gone for the time being. Again, we did a very large insurance, banking, and financial business; that has declined very much.

We are, then, in a very great difficulty; we have lost a very large proportion of our overseas income, whereas we are still dependent on other countries for a very large proportion of our essential foods.

The plan that Lord Huntingdon put before you is a four-year plan. It is a matter of necessity under present conditions, but it is, in its very nature, an emergency programme.

I would therefore like to talk now about our long-term agricultural policy, bearing in mind not so much the immediate crisis as the long-term future, based on the idea of trying to do what is reasonable from the world standpoint.

Part of this new policy is embodied in our Agriculture Act, which you can study. But before that Act was passed we had settled certain rather important matters of long-term policy. The first question we asked ourselves was how to make British agriculture more efficient. That, as we see it, is a question of more education, more research, and a better extension service. We have planned a considerable expansion of our farm institutes, colleges, and university departments. We have set ourselves an immediate target of providing some 10 per cent. of entrants to the industry with, at the least, a year's technical education. On the research side we have, at one time or another, played a notable part. But during the latter half of the nineteenth century, from seventy-five onwards, nobody seemed to care very much about British agriculture. It was a side-line. We were bound, we thought, to depend on other countries for our food; we could get our food cheaper by exchanging manufactures for food. From the seventies onwards we definitely fell behind in provision for research. We have been doing better lately, and we have a considerable plan of expansion—a vegetable research station, an animal breeding research organization, a major expansion of our grassland research work, and various other schemes. Indeed, we have, for the first time, thought out a comprehensive research organization.

Thirdly, we have reorganized our extension service; that has been my particular job and perhaps you will excuse me if I speak in a little detail about it. We have had an extension service of a kind, in certain counties, for about fifty years. About 1891 several counties appointed what you in America call county agents, part of the cost being borne by the central government. Twenty years later we came to the conclusion that these field-men—all-round useful agriculturists—required support in the way of a laboratory service from soil chemists, entomologists, mycologists, &c. So we set up, in a number of universities, little teams of advisory scientists. Next, during the Second World War we made the discovery (which has been made in many countries) that extension services can be made much more effective if the salaried officer can have the support and co-operation of the progressive farmer. The point is that the inefficient farmer will accept from a successful farmer advice that he would not have accepted from a paid extension worker. The third major step was therefore to set up our present committee system.

We have now reorganized the Advisory Service on a national scale. We have done so partly because we found it impossible to provide, county by county, the service that was needed so long as we depended on local funds. Some counties are rich and progressive,

others are poor or unprogressive or both. We tried, indeed, various means of encouragement, but we were driven to the conclusion that it would be better that extension should become a state service, paid for entirely by the central government.

Another consideration was this. Farming is becoming more and more complex and more and more scientific, and the time has gone by when one man can act as a know-all adviser and tell every farmer all that he needed to know. We have therefore increased the degree of specialization in the service, and have created posts for pasture specialists, machinery experts, and many more. Our county advisers and district officers are now in very much the same position as the general practitioner in medicine; they can deal personally and immediately with certain problems. But in a great many cases they must call in the specialist.

This co-operation of the Advisory Service with local committees, this increase in the degree of specialization, and the placing of the service on a national basis, are three of the main changes that have been made.

The fourth is the setting up of a number of what in America would be called 'out-stations'—what we are calling Experimental Husbandry Farms. We have in the past been restricted to a few main experiment stations, like Rothamsted, and to experiments carried out on the ordinary commercial farm. We are setting up about a dozen experimental farms to test out, under a variety of soil and climatic conditions, new varieties and strains of plants, new fertilizers and systems of manuring, new methods of grassland husbandry, and so on. One way and another we believe that, in time, the Advisory Service will greatly help to raise the efficiency of our agriculture.

Now what more do we need? Of the various principles underlying the Agriculture Act I can mention only three which I think are fundamental. The one is that agricultural efficiency depends very much on security of tenure for the good farmer. We have been struggling with this question of the tenure of agricultural land since the seventies, and many people, including visitors from overseas, have said that we had found a solution even before this last Act. As things stood before the Act the tenant had the right to have his rent fixed by arbitration; if he was farming the land with reasonable efficiency he could not be evicted without being given compensation for disturbance. All the improvements that he made in the way of liming, applications of phosphates, sowing of pastures, and so forth were paid for when he left the farm. Security of tenure, with compensation

for improvements for the good tenant had long been the basis of our law. But there were one or two remaining difficulties. Let me just mention one. A farmer goes to the landowner and says: 'I am very anxious to turn over to dairying, and therefore I want a cow-shed and a water supply, in order to be able to produce good milk.' But the landlord says: 'I do not want this to be a dairy farm', which may be reasonable or it may not. Under the old law there was nothing more to be said. The farmer could indeed put up the cow-shed, but if he did so without the landlord's concurrence he sacrificed his right to compensation when he left the farm. Under the Act there is an appeal, in such matters, to the County Agricultural Executive Committee. It is for the committee to say whether or not the cow-shed is a reasonable proposition. If they decide that it is reasonable, the tenant can erect it, and the landowner is bound to take over and pay compensation when the tenancy ends.

The second new provision is security of price. I assume that you know our scheme of price-fixing, with its four-year forward guarantee of floor prices in the case of livestock products. The object is to ensure price levels which will provide a margin of profit to the efficient producer. It is not very difficult to establish the cost of production of a particular commodity by the reasonably efficient producer. What is more difficult is to predict the quantities of various commodities that will be produced under a given price schedule; we may, for reasons that have to do with seasonal conditions, get too much of one commodity and too little of another. And there is an admitted risk that we may encourage high-cost production, in this country, of things that we ought, in reason, to import. But I think most of you would agree that, in the past, untold harm has been done, to consumers and producers alike, by periodic depressions in farming, and that it is sound, in principle, to try to ensure that needed food-stuffs should command prices that will enable the farmer to maintain his soil and his plant in good productive condition. We must, I suggest, take long-term views about this long-term business of food production. Anyway, that is the philosophy behind this scheme of guaranteed prices we are planning to keep the farming business reasonably profitable, in order that we may keep our land in good condition.

Next we come to the medicine inside this sugar-coated pill. The outside is security of tenure and security of prices; the inside is composed of sanctions against bad farming. This is only fair. Another point is that, in a country like ours with a very limited amount of land and a considerable number of people who want to

use land for other purposes than food production, we must, as we see the matter, ensure that good farm-land is used to grow food. Obviously the operation of these sanctions presupposes that committees will have the courage to deal faithfully with bad farmers and bad landowners. I hope they will, and I believe they will be encouraged to do so because they are not the final authorities; there is the right of appeal to a tribunal; so that they will not feel that they themselves will be finally condemning farmers to lose their land. Much, however, does depend on the spirit with which the Act is operated by the committees.

I have attempted to sketch our long-term policy. Meantime we must do our utmost to restore our balance of payments, and we must continue to guide and encourage our farmers into dollar-saving forms of production. Our goal must be increased production of things for which we have, at present, to pay in hard currency.

As I said, we were producing before the war 40 per cent. of our food, reckoned in money values. We want to do 50 per cent. better than that by 1951. But we have certain fairly clear ideas as to what we ought to do in the long run. For instance, how much wheat ought we to grow, in a world where normal trading has been restored? Several people have made estimates, and most have got an answer of the order of 2 million acres; in the seventies, before there was much in the way of overseas wheat, we were approaching $3\frac{1}{2}$ million acres. Our four-year programme of $2\frac{1}{2}$ millions goes beyond what we think is good farming. We would rather, as farmers, grow 2 millions than $2\frac{1}{2}$ millions. We are growing more potatoes than we should grow if good farming were our sole object. On the other hand many of our small men would very willingly continue to produce pigs and poultry at the full levels envisaged by our four-year plan.

We have no doubt that our emergency measures are essential to our survival. Our plan is not, I assure you, a piece of economic nationalism. We shall be willing, when conditions permit, to co-operate in framing an overall plan which will provide, in the most efficient way, the essential food that the people of the world require.

Professor McBride: I would like to ask to what extent your agricultural advisory system goes into the problems of marketing with the farmers.

Scott Watson: Well, our marketing policy is not really drafted yet. It is not certain whether the Ministry of Agriculture or the Ministry of Food will have the job of taking care of post-war marketing. At

present marketing in the old sense is almost non-existent. Beef steers are sent to a grading centre and graded; they are then weighed, and the cheque for payment is sent from the Ministry of Food. Wheat can only be sold through an authorized merchant who is acting as the agent of the Ministry of Food. Thus our home marketing position is something that we would have regarded before the war as quite abnormal. What the future is nobody knows. Our advisory officers are, of course, prepared to handle matters of grading and packing—i.e. they give advice on preparation of material for the market; but marketing policy is still very much in the air. We have, as you know, certain producers' boards like the Milk Marketing Board, but they are at present working as parts of the Ministry of Food.

Norton: I understood Mr. Watson to say that before the war you were producing one-third of your food, and it was stepped up during the war. Now this new plan aims at producing 50 per cent. How much increase is the 50 per cent. over the present position?

Scott Watson: It is 20 per cent. If 100 is taken as the pre-war level our goal is 150; if 1944 (which was our peak year) is 100 our goal is 115; if 100 is our present level our goal is 120.

Reme: I got the impression you are going to pay the agricultural advisers entirely from state funds, and I wonder if you would comment a little further on that. Some of us feel that one of the strengths of agricultural education services over a long period of time is to have the counties or the local authorities pay a proportion of the total cost of services, the feeling being that where something is got for nothing there is not the full appreciation or effectiveness.

Scott Watson: Well, that argument was put to the Luxmore Committee which first made the recommendation that the Advisory Service should be nationalized. There is something in it; there are numbers of people who really appreciate a thing only if it costs a bit of local money; but it did seem to this committee that there was a balance of advantage in nationalization, and in meeting the whole cost from the state. We had tried the other way; for a long time the state was paying 60 per cent. of certain items and 75 per cent. of certain other items, and asking the county to do the rest. But there were one or two counties which did just nothing; and we feel that we cannot afford to have any counties doing nothing in the way of extension work.

Schmidt: I am not entirely satisfied with your statement that you are going to cover about 50 per cent. of your demand by the production of your own country, compared with about 30 per cent. in

pre-war times. I am very anxious to know how the proportions will work out for the different foods, particularly bacon, eggs, butter, and some other animal products that you used to import. I have calculated that my country, Poland, would be able (if our agricultural policy does not prevent the farmer from expanding production) in about two years to cover all your demands for bacon, calculated in pre-war figures. I do not think it would be possible with eggs and butter, as we will still be short of them. But as in our case with bacon, some other countries may be able to do it with butter and eggs.

Scott Watson: I hope I made it clear that this goal of 50 per cent. of our food requirements is a special effort to meet special circumstances. We cannot see at present how we are going to be able to buy more than 50 per cent. of our food from overseas—how we are going to pay for it. I had this same problem put to me in Canada. I happened to be up in western Canada at the time when we were trying to persuade the Canadian farmer to go into bacon production on a bigger scale; I said how good the Canadian bacon was, which happened to be very true, and how very important it was during the war, when we were cut off from Danish supplies, which was also very true; and they listened very respectfully. But somebody said: 'Well, this is all very well. We are very happy to let you have bacon just now, but we would also be very happy to know that we are building up a permanent market for bacon.' What could I say to that? The best that I could say was that we like their bacon very much; we would gladly eat twice as much as they were sending then, but how, after the war, were we to pay for it? That is my answer to Poland also. If you can think of goods that we can supply to you and which you would take in exchange for the bacon, we will be very happy indeed to eat Polish bacon.

Lee: You said that the Agriculture Act gave powers to eject inefficient farmers from their farms. In that case would the farmers if they were also owners consider it an infringement of their rights of property.

Scott Watson: Not all farmers, of course, do accept the position, because we have quite an association of dispossessed farmers. I believe they claim more than a thousand members, and certainly they could claim that number because far more than a thousand farmers have been dispossessed during the war. Also we have a minority of people who are continually saying that we are going to the dogs in this country, that we have got a dictatorship, and that these committee members, decent fellows as most of them are, have

a lust for power, and like throwing their weight about and telling farmers where they get off. I do not think that is a true picture. If in the opinion of a district committee a farmer is not doing a good job—is falling far short of the possible production from his farm—they report him to the county committee. The county committee send down, perhaps, their chairman and two other members to have a good look round. They may agree that the state of affairs is very bad; in that case (unless the man had been warned before) they would place him under supervision for a year. If there is some improvement at the end of the year, he may be supervised for another year. But he would be warned that if there was no improvement at the end of the year his tenancy would be terminated, whether tenant or owner. There is, however, an appeal to a tribunal, in order to avoid any risk of local jealousies or local spite having had some bearing on the decision. These appeal tribunals consist of good technical people, with a legal man as chairman, and the farmer or the landowner has a right of appeal to these before his notice becomes effective. I do not think that it can be fairly said there is anything dictatorial about the procedure; there are sanctions, but there are also reasonable safeguards.

DeGraff: We have been hearing something about an expanded rural housing programme, and I find myself a little bit uncertain about its relation to the long- and short-term aspects of your drive for efficiency. You point out that you do not know just how much of the current programme is going to be a long-time affair. In the States we have found that with expanding efficiency in our agriculture we had more than enough rural housing. That is true over most of the States although not in all areas, of course. I am further impressed by the fact that a house in England is a pretty long-term proposition. We surely have seen that in the short time we have been in England. Further, as we were told this afternoon that the amount of lumber to be used in a house is very limited, I presume the house for the most part will be constructed of masonry, again indicating that it will be a rather long-term affair. We further saw on a farm in Hampshire that with economy in the production operations the amount of labour used was very materially less than I gather that it is on many English farms. One of the things that has impressed me, and I think some others of the Americans, is that labour is still used much less efficiently in English agriculture than it is in agriculture in the States.

Now, as you follow a programme of long-term efficiency aiming at a 20 per cent. increase in your agriculture, how much additional

manpower are you going to need in English agriculture? How many of these additional cottages now proposed around the countryside are going to remain there as a permanent asset to English agriculture, to the British economy? Perhaps the same effort of labour and materials for construction of farm cottages might better go into export industry with which to buy Polish bacon, if not American eggs.

Scott Watson: This housing business is very difficult. It is true that on many farms the manpower requirements have been cut down very largely by the introduction of tractors, combine harvesters, and so forth, and you will find farms that formerly employed 10 or 12 men now running quite satisfactorily with 4 or 5. That must be kept in mind quite clearly in relation to housing policy. I think the answer is this: we have a great number of extremely unsatisfactory workers' houses in the country; let us make do with these for the time being; let us put up some good houses which are going to last; and let the old wretched little cottages fall to pieces in due course. Some decent new houses will attract the sort of men we want to work on the land, and later, if we find that our labour requirements are going down, knock the old cottages down, or we might take them down, stone by stone, and send them to America!

Norton: This question is purely for my information. I understand that these county agricultural committees consist of farmers and have administrative responsibilities. You also have local county advisers who are the general practitioners of your Advisory Service. What is the relationship between the local county advisers (not the specialists at the regional centres, but the local men) and these county agricultural committees?

Scott Watson: The arrangement is quite simple. Our district officer, who takes care of about a thousand farmers, works with the district committee. In certain matters he is their servant. They have certain work to do, and he acts as their secretary and their executive. The neighbourhood committee, as you would call it in America, is served by our district officer, who is a member of the National Advisory Service. Similarly the chief general adviser in the county is at the same time the executive officer of the county committee. You may say that all our people will be serving two masters; the fact is there is one man only in each county who has to serve two masters. He has to serve the executive committee and also his provincial director in the National Advisory Service. The rest of the county staff take orders from this one man. The provincial director attends the meetings of the county committee, and so we get co-ordination there at committee level.

This man combines education and administration, and the balance between the two is important. Given a proper balance the arrangement should work well. Suppose your district officer is giving perhaps 20 per cent. of his time to administrative work, checking up acreages and that kind of thing—he has an administrative reason for going to a farm. As he walks round with the farmer, some advisory question crops up, and he has an opportunity to gain the farmer's confidence. One of our great difficulties before the war, when we were purely advisers, was that about two-thirds of the farmers never asked us along at all. They did not think we could help them. We got our flood of inquiries from the really progressive men, who always wanted to know the very last word about everything, and we made no contact at all with the fellows who really needed the advice. We believe that the moderate amount of administrative work which we hope our fellows will do in the long run will be an advantage rather than otherwise, because it will give them a reason for visiting every farm every so often.

Jesness: The question I am about to ask is not one to which a specific answer can be given, and in that sense it is not a fair question. I ask it for the sake of trying to explore the longer-run situation we find ourselves in. I would like to preface the question by a brief explanation of some of the things that lead to it. I find myself disturbed to the point of pessimism over some angles of the past few days. So many of us have been very ready to give prompt explanations of why we are doing certain things and of the conditions that have led to doing those things. We have shied rather consistently away from exploring the longer-run consequences of some of the things we are doing. I am not asking you to indicate to us what the longer-run consequence is going to be, but what I would like you to do, if you are so inclined, is to indicate any line of thinking that may have been going on about how we are going to get back into a situation in the world when it may be possible for Great Britain to operate in a way which we might regard as more normal with respect to meeting its agricultural requirements. It is a very important question from this angle. I suspect that I probably have employed more hortatory efforts than any member of the American group with our farm people at home to impress them with the tremendous interest they have in world problems, and the tremendous responsibility they share in doing their utmost to find a way out of the world's difficulties. But I come face to face with the problem: am I going back to farm people and tell them that the United States must follow a policy of long-run investments; or at least temporary investments

for a longer run which will help restore the world, and then be faced with the prospect that most of the countries of the world, including Great Britain, are following policies which are inherently nationalistic in nature, which are going to make it extremely difficult for our nation—if we can get our people to accept the point of view—to follow out that line? It seems to me, in this case where we are becoming kind of interested in assuring everyone's security, that we are not giving all the weight we should to utilizing resources, or developing the most efficient sources of supply, for the satisfaction of human wants. Unless we do the latter we are definitely working in the direction of lowering the levels of living in the world. Could you indicate any line of thinking that may be going on to see how this programme which Great Britain has now embarked upon can be made to shift effectively over the longer run, that of building the better world that I think you and I would like to see?

Scott Watson: This raises a lot of very fundamental questions; such questions as: Should a little country like this have a population of 45 or 47 millions at all? I notice that an Australian immigration man has been saying that we ought to cut down our population to the extent of 10 or 15 millions by spreading them about other Empire countries. That is one thought about the future. Another one is that this economic jam that we are suffering from at present—I mean our particular crisis in Britain—is due to over-enthusiasm on our part. It is very hard, you know, to get the general run of people to believe, with all the money that there is about, that we are so very much poorer than we were ten years ago. That is one fundamental difficulty that we are up against. Everybody's wages are going up. Everybody thinks we now have an opportunity to work shorter hours and to get all the money we want by working these shorter hours. The bulk of our people have only quite recently begun to realize the fact that we are very much poorer than in 1939. Then, in this world everybody has his or her own particular schemes that they want to see carried through. I happen to have been a member of the Central Advisory Council on Education and most of my colleagues were professional educationists. We drew up a marvellous report containing a brave new educational plan; we said how essential it was that all the grubby old schools in this country should be knocked down and replaced with beautiful, well-lit, airy buildings. At the same time we said to people: 'You've had your houses knocked down and you've had your furniture destroyed, and we are going to see to it that your houses are rebuilt and you are supplied with lovely new furniture as soon as possible.' And we say that the

railway companies which have allowed their tracks and their rolling-stock to get into a deplorable condition should have their railways reconditioned as soon as possible; and we say that we lived pretty hard during the war and it is very important, from the point of view of morale, that we should get our few luxuries like pineapples and peaches as soon as possible, and so with other things. All that is the matter with this country is that we have been trying to do too much all at once, and we have landed ourselves in this muddle as a consequence.

If we had fully realized how poor we were, how hard we had got to work, and how bare we had to go on living for a few more years, I believe that we should not have been in this jam to-day. I do not think it is too late now. I believe we shall come back to a situation where we shall not be burdened with these fears of imminent starvation. I believe in time we shall restore our industry and build up our export trade. We are building shipping very rapidly, and I think we shall want to trade with the world at large as soon as possible. There are different explanations of the mess that we find ourselves in at this moment. I am only giving you my own personal one. We have attempted far more than was possible with our available resources. We have spent our dollar loan; people have to some extent lost confidence in our pound. But I do think the great majority of the people are realizing the situation now. We are not counting on any more help from anybody. We are going to see this thing through, and I believe not only that we can regain a reasonable standard of life but that we shall do so sooner than many people believe. I know that that is not answering your question, but I thought I would like to convey my own personal view about the position.

Bartlett: I want to raise one specific point about what was told us here about the purchase of farm supplies. We were told that nitrogen and potash were monopolies, likewise superphosphate, feeding-stuffs, and farm machinery. We had those same monopolies in the United States in the sense that there is an inherent tendency towards monopoly. The question is whether we tackle it or whether we dodge it. On the farm where I grew up, in a predominantly dairy section in north Vermont back in 1916, my father joined another group of farmers and organized a farm supply company for the purchase of feed, fertilizer, and seed. It nearly failed in 1920, and the board of directors of nine had to find their personal notes and were liable for the bills received. But out of this emerged the larger co-operative, the Eastern States Farmers' Exchange, which sells in that area now about one-fifth to one-quarter of the total supplies and

acts as a pace-setter in breaking up the fertilizer monopoly, the feed monopoly, the seed monopoly, and so forth. Then when I went to Illinois the big problem was oil and petroleum; farmers went into the co-operative purchase of oil supplies. At the present time in Illinois about 50 per cent. of all the farm supplies of petroleum and the like are purchased through the farm co-operative and about 50 per cent. are handled by Standard Oil, Texaco, Shell, and so forth. We have rigorous competition between those two groups, the co-operatives versus the private trade. In my studies of milk marketing which three years ago covered the country, among the things that we found was the large amount of inefficiency in the retail distribution of milk. In one large city we found that the largest dealer (one of the five largest in the country) used 3·09 hours of labour per 100 gallons of milk for plant operation, and in the same city a dealer handling one-fifth the volume used 1·46 hours of labour for handling the smaller volume of milk. The question which comes to me as I see this process of confiscation (you can call it what you wish) of the inefficient farmer is this: On grounds of equity on the one hand and of productivity of the economy on the other, are equally strong measures being suggested and followed through with your fertilizer monopoly? Are these other channels being explored so that the inefficient in the fertilizer business, in the feed business, in the farm machinery business, and among the milk distributors, are squeezed out in the same way as you are squeezing out the farmers? I recognize that your objective is food, but it seems to me that the problem is just a little larger than squeezing out the inefficient farmers.

Scott Watson: That raises several very distinct questions. One is, how far are farmers' co-operatives competing with merchants and manufacturers in this country? This varies a good deal from place to place; for instance, in Wales you will find a farmers' co-operative in almost every small village. There are reasons for that, partly that there is a large majority of small farmers who are really driven to co-operate. For example, the marketing of milk and the delivery of small quantities of fertilizers could not be handled successfully without co-operative societies. I happened to farm for my college in Oxford, and we were members of two co-operative societies, one of which had a feeding-stuffs mill and the other was just a trading concern. We bought fertilizers through one co-operative and the bulk of our feeding-stuffs through the other. I think the co-operative societies are very useful, if you put it no higher than that, in keeping the ordinary traders up to the mark. I am not quite sure about what

we mean by a monopoly. For instance, in the feeding-stuffs trade we have too many small merchants competing one with another. If you had gone around to small markets in the days when feeding-stuffs were abundant, you would have found that the number of people who were trying to sell feeding-stuffs was quite obviously wasteful. There was no question of monopoly. The thing was rather the other way—too many people competing for the available business. One or two of our farm requirements are getting into rather a small number of hands. For instance, the bulk of our compound and concentrated fertilizers are now manufactured by two large industrial firms.

The next question was: if you are going to demand efficiency from the farmer do you make a similar demand on everybody who is in any kind of trading or manufacturing business related to agriculture? It is not merely that food is the first essential for life; it is rather this: We are adopting a very special measure with regard to farming. We guarantee prices four years ahead. We give the good farmer security of tenure. Surely, in return for these benefits, we ought to insist that the land is not misused. You cannot put up that argument about a man who is trading in feeding-stuffs, or even manufacturing fertilizers. We are not going to guarantee his margin of profit four years ahead, and tell him that nobody is going to turn him out of his works. We cannot do that in general, and therefore we cannot in reason make the same demand for a standard of efficiency.

As regards milk marketing in this country, the consumers in the early days of the Milk Marketing Board said that the producers were running a monopoly. Producers under our marketing scheme did have complete control of the liquid milk supplies, and consumers were apt to say that the farmer was working a ramp and running a monopoly in the milk business. If there was room for complaint, it was not with the distributors, because great numbers of distributors were in competition, whereas the original suppliers, the farmers, were organized into a solid bloc. We have inefficient milk distributors, there is no doubt about that. We have also some very efficient distributors. But we have not yet got to the stage in this country where every single business and every single business-man is going to be subject to inspection by officials, and is going to be put out of business unless he reaches a certain standard of efficiency. However far we carry planning, I do not believe we can carry it as far as that.

Ihrig: There is in this plan one point I would like made clearer. Who will bear the final burden? I use the word burden rather than

cost, because if you produce goods which you could buy abroad at a cheaper price, that means some burden on the national economy. Is it consumer or taxpayer that bears the burden? If it is the consumer, the level of consumption must be curtailed, and the consumers, who form as far as I know 80 per cent. of the population in this country, will not be at all satisfied with this kind of planning. Or if the consumer can only meet the cost-cover by increased wages, that will endanger the export competitiveness of British industry. If, on the other hand, the taxpayer has to bear the burden, how do you think it can be prevented that at least part of the burden will not be shifted from his shoulders?

Scott Watson: How this last increase in prices is to be borne has not been decided. My Minister's reply last week was that it was a matter for the Chancellor of the Exchequer. But it is true that we are preventing a rise of prices to the consumer by very large food subsidies. The food subsidies are about evenly distributed between imported products and home products. That is to say, of a subsidy of something approaching £360 millions a year, which is being paid by the taxpayer in order to stabilize the prices of food, roughly £180 millions is being paid on our home-produced food and the other £180 millions on imported food. It is not a question affecting our home production alone. It is a question of stabilizing the cost of living by making the taxpayer carry the rise in costs of imports as well as higher prices to our own farmers. Actually, at the moment, our wheat from the United States has been costing us more than the wheat which we are producing at home. That may probably be a temporary situation. But then the prices which we are offering now to our own farmers may also be temporary. We have guaranteed for livestock, it is true, floor prices for 1950 and 1951, but the floors that are guaranteed are substantially lower than the prices that are being paid now. We commit ourselves to a price-level for this year, and we say to the farmer who is producing beef, which is a long-term process: 'You shall get not less than £*x* four years hence', but the floor price is normally a good deal lower than the existing price. There is no guarantee that existing prices will be kept in force for an indefinite length of time.

Whether it is a wise policy that the taxpayer should subsidize the consumer, by means of subsidies on food, I just do not know. It is not a question for a plain farmer like myself. I do agree that there is a very great danger that, if the cost of food gets too high, we shall have to raise wages. We shall then be high-cost producers of the things which we want to sell, and we shall not compete successfully in world markets. Some of our economists, I think, take the view

that we did a very wise thing when we went for free trade in 1847, and that France did a very foolish thing by sticking to high import duties on food; they raised farm prices because they wanted to obtain high production. This is the basis of a very nice argument, and I am certainly not competent to deal with it, but I do very clearly see your point that if we raise prices of home-produced food too high then we shall create a handicap for ourselves as high-cost producers of industrial goods.

Sherman Johnson: A 20 per cent. increase in production on top of your war-time increase seems quite a large increase. I am wondering how you are planning to bring it about?

Scott Watson: There are certain conditions attached to it. For instance, the plan assumes that we are going to import 4 million tons of feed, and about 20 per cent. of the target is to be obtained by converting imported feed into bacon and eggs in this country. That is one section. Another section is to be produced by raising the acreages of certain crops. Linseed, for instance, at the moment is costing us a tremendous price. If we can push up our output of linseed to 400,000 acres, as we plan, there is an addition to the total. Then the acreages of barley, wheat, and so forth are going up, and, of course, the value of these is, generally speaking, higher than the value of the output from an acre of grass. But nearly half the increase is based on the assumption that we can get a 2 per cent. increase in all-round efficiency each year for the next five years. Now is that possible or is it not? I went round five farms on the Scottish Border and in Scotland last week, and I had this idea in my mind all the time. Could this farmer increase his efficiency at the rate of 2 per cent. per annum for the next five years, making a 10 per cent. increase in all? From two of the farms I came away with the feeling in my mind that I could not do a darn thing about it. These farms were already so very intensively and very efficiently managed that if I had concentrated the whole of my 1,200 advisory officers on them I could not have raised the output by 1 per cent. But there is such a wide spread between the most efficient and the least efficient of our farmers. To take one particular commodity, milk is our most important in this country. We have had large numbers of farmers producing about 8,000 lb. per cow per annum on ordinary dairy land, and we know from our cost accounts that that is something near the most profitable level. You do get increasing profits up to about the 8,000 lb. mark, but it is very doubtful whether you get higher profits beyond that point. But our average in this country is 5,100 lb. If we can increase that 5,100 lb. to 5,600 in four years, that is the answer. I believe it

can be done. We want to get our county committees to concentrate on these poorer farmers, to get proper advice for them, and to wave the big stick (in a tactful manner) from time to time. You can say the same thing, I believe, about potato production or egg production or almost any other thing; there is a great gap between the achievement of the best 20 or 30 per cent. of farmers and the general average. If, then, we can concentrate on the poor end and really make a drive, I do not think our 2 per cent. per annum is impossible. We were improving at the rate of about 1 per cent. (Professor Ashby, if he is here, will put me right if I am wrong), that is, we were increasing our output per man at the rate of 1 per cent. per annum even before the war. Further improvement is not impossible.

Norton: I want to follow up a question which Jesness put, and in doing so I would like to confirm that, when he said he had talked more on this subject than any others of the American delegation about the importance of world trade to American agriculture, he was absolutely telling the truth. For a long time in the Mid-West part of the United States, and in a state where you might say that export trade is not particularly popular with the rank and file of questioners, Jesness and his whole staff have carried out a very active programme. I also want to state that I personally have tremendously enjoyed this evening and this very clear exposition of the British position by Professor Watson. I had the pleasure of being on the same programme with Professor Watson once in Chicago, and I would like to tell the English people here how ably he represented your government in the United States during a very critical period.

The question I wanted to ask was in line with your optimistic answer to Professor Jesness's question that you believe that world trade and British trade could be restored more quickly than most people thought. Could you sketch out what you thought the long-run position in agriculture should be, what sort of things you would produce, and what sort of products you would buy?

Scott Watson: Let us run through a few commodities. I think it is right and reasonable that we should produce the whole of our liquid-milk requirements. There is something to be said for marketing milk quickly, and for having it produced in your own country and under your own control of hygiene. We are not interested in producing butter or cheese because we believe that these things can be very much more cheaply produced in other countries—New Zealand, for example. As regards wheat, as I have already said, several people have looked into this question from the point of view of what is reasonable. There are all sorts of complicated considerations. For

instance, as long as we use our present method of storing potatoes, the fen farmer wants to grow wheat-straw to cover them. If, on the other hand, he builds American-type potato stores he will not want wheat-straw. But we have in this country a limited amount of most extraordinarily good wheat land. Let me just give you one example. It happened quite lately that I was in a particular district in Lincolnshire looking at a particular farm and a particular field of wheat. I said: 'That's a very remarkable crop of wheat for this year. I shouldn't be surprised if it went 64 bushels.' The farmer said: 'Well, I'll be disappointed if it doesn't go more than that. Of course, this is a difficult year and I admit the wheat is not up to normal, but I have grown 84 bushels an acre on that particular field.' Well, it is no good saying that we have not got some land which is good wheat land. This is a very small island, and the climatic and soil conditions vary tremendously. We have a limited amount of land which is extremely suitable for wheat, and, as I say, most of the guesses which have been made, as to the reasonable area of wheat, come out at about 2 million acres. We were down to 1¼ million acres in the very depths of the depression when Canadian wheat was landing up in this country at 2*s.* 6*d.* a bushel. But we still went on growing wheat at that level. We have been up to 3½ million acres. I agree that taking the long view it is reasonable that we should grow 2 million acres of wheat. Then take barley; we have our own national taste for beer. American soldiers did not like our beer, and we would not like American beer. We want to have this whole brewing process under our own control. We know what sort of barley we need to make the sort of beer our people like to drink. Therefore I feel that our brewing-barley ought to be very largely produced in this country. Our brewers before the war indeed liked about 20 per cent. of Californian or other six-row barley, but, by and large, I think we ought to continue to produce a lot of barley. It is a difficult question to argue how much of this conversion business we ought to do. Before the war we were importing 8 million tons of feed. About half of that was maize, the other half was oilmeals of one sort or another. A good deal of that was merely converted into eggs and bacon in this country and some of it, in certain parts of the country, into milk. Should we then allow other people to convert imported feed into bacon and eggs or should we insist on doing it in this country? That is very largely a question of what we can afford. If we can afford to have other people converting feed into bacon and sending us the bacon all ready made, I think we can take quite a large amount. On the other hand, as long as we are poor, we feel that it is one of the things which we must do

ourselves. It will be difficult to take large supplies of imported bacon in the near future, not because we do not want them but because we feel we cannot afford them. I do not know whether I have answered that question. But I believe there is a logical answer as to how much wheat we should grow, how many dairy cows we should keep, how much we should do in the way of egg production, and how far we should depend on imported eggs, and I believe that, when we are in a position to do the reasonable, logical thing, we shall do it.

Renne: I have been very much impressed with Professor Watson's explanation and analysis. I take it you feel that this is a period in which the emphasis should be upon tightening up the belt. The emphasis is upon meeting only those commitments which can be met within the immediate prospective financing, and therefore I would assume that your government will probably tend to emphasize those items now rather than some of these longer-run improvements or reforms that might be more expedient some other time.

Scott Watson: I think the Government has put it perfectly clearly that we cannot build great bridges and beautiful new schools, and that we cannot even replace all the bombed houses in the meantime. First things have to come first. We must get enough to eat, and everything else has to wait on that. Nevertheless, I think we are trying to build now from the foundation up. We have singled out two things as the foundation. The one is agriculture and the other is coal. A great part of our manufacturing industry is built up on steel, and we cannot increase our steel production, and therefore our manufactured steel goods, until we can get more coal. We are giving priority, in the way of permanent equipment, to more power-plants. We are giving high priority to the farm-machinery makers and to the houses that are really required in order to get the necessary manpower to the coal-mines and on to the land. There are many other things that are extremely desirable but not so fundamentally necessary.

MEASURES FOR INCREASING STABILITY OF AGRICULTURAL PRODUCTION, PRICES, AND INCOME IN CANADA

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STABILITY implies continuity at or near a given level. It will be recognized that stabilization means a degree of rigidity. In most cases, however, in which stability of prices is sought, the fear of falling prices and prospective loss of income will offset objections to rigidity. If one considers the actions of boards appointed to handle or supervise the handling of farm products, these rigidities are clearly discernible. It is, of course, true that there have been differences of opinion regarding the level of prices established by control boards, and in at least one case Canadian farmers clamoured for a board in order to maintain prices at the high level that had been attained under private marketing agencies in an abnormal situation.

The solution of the problems of an unstable agriculture does not lie entirely in the economic sphere. The physical sciences have a good deal to contribute. It may be in the development of improved varieties of crops, i.e. better-yielding varieties, disease-resistant strains, or early-maturing varieties or better cultural practices. The wise provision for water conservation and the redistribution of water supply is important. The tests of the wisdom of the latter are likely to be found in economic analysis.

In any country with federal and provincial or state government, jurisdictional problems need to be borne in mind. In Canada our Charter is the British North America Act. In general, production problems are the responsibility of the provinces as well as intra-provincial trade. Where provincial trade and export are the responsibility of the Dominion Government, concurrent legislation is, however, frequently needed.

In the prairie provinces of Manitoba, Saskatchewan, and Alberta farm production and income show wide fluctuations. The climate and soil are such that the hazards of agriculture, coupled with a high degree of monoculture, result in very large variations in yields of wheat and coarse grains. I do not mean to imply that in other parts of Canada farming is so firmly established that there are no hazards, but I cannot expect to deal with all agricultural regions in this short

paper. Most of the illustrations of variability will, therefore, be drawn from the prairie provinces.

Physical factors affect production very drastically. Dr. E. C. Hope[1] refers to two prolonged periods of drought in the prairie provinces since 1813—one from 1885 to 1896 and the other from 1929 to 1937. He refers to the third period of drought which was experienced between 1838 and 1848. From 1862 to 1868 there was a period of dry weather, and from 1917 to 1921 there was a four-year period of drought; grasshopper outbreaks occurred in 1818–20, 1857–8, 1864–8, 1874–5, 1920–2, and 1931–7.

This record indicates some of the hazards of production. Variations in early and late frosts and years of excessive rainfall also add to the uncertainties of agriculture.

It is pertinent at this point to refer to price indexes for wholesale prices of Canadian farm products and farm prices of Canadian farm products.

The wholesale price index of Canadian farm products as recorded in 1931 was 78·9. It fell to 65·3 in 1932 and that was the low point. By 1939 it had gradually risen to 92·6. During the war, in spite of controls, it did rise slowly, and for 1946 the average was 164·9. It is still rising, being 175·7 in June 1947.[2]

The index of farm prices of agricultural products was only recently constructed and does not extend back beyond 1935.[3] In that year it was 88. It had risen to 119·7 in 1937. The 1939 average was 91·8, and it was 183·7 for the year 1946. The figure for May 1947 was 192·3. *Both indexes are on a 1935–9 base.*

If you consider cash farm income from the sales of farm products you will find the lowest point was in 1932 when the figure was $385,515,000. The highest was in 1944, $1,846,164,000. In 1946 it was $1,759,311,000,[4] the reduction being due to changes in volume rather than reduction in prices.

Variations in production result mainly from weather hazards and changes in acreages. I shall use provincial yields of wheat in the prairie provinces as examples. If municipal yields are used, the fluctuations are even more violent.

The average yield of wheat has varied in Manitoba from 6·4

[1] 'Weather and Crop History in Western Canada', *C.S.T.A. Review*, 1938, No. 16, pp. 347–58.

[2] *Prices and Prices Indexes*, Dominion Bureau of Statistics, Ottawa.

[3] *Index Numbers of Farm Prices of Agricultural Products*, Dominion Bureau of Statistics, Ottawa.

[4] *Cash Farm Income from the Sale of Farm Products*, Agricultural Division, Dominion Bureau of Statistics, Ottawa.

bushels in 1937 to 26 in 1915,[1] in Saskatchewan from 2·6 in 1937 to 25·1 bushels in 1915, and in Alberta from 6 bushels in 1918 to 26·8 in 1942. Such variations make stabilization somewhat difficult.

STABILIZATION OF PRODUCTION

One of the most comprehensive programmes in stabilization of production has been put into operation by the Prairie Farm Rehabilitation Act, 1935. The original Act was passed to provide for: 'The rehabilitation of drought and soil drifting areas in Manitoba, Saskatchewan and Alberta.' At the outset, emphasis was placed upon the development of water supply and improved farm practices. The programme was designed to give the farmers greater 'economic security'. Under the Act funds were also made available for the extension of soil surveys and for economic research, the latter being chiefly confined in the initial stages to farm management and land utilization including land classification. In 1937 the Act was amended to provide for land utilization and land settlement. This amendment was to enable an action programme to be adopted for (*a*) the development of community pastures on land considered to be unsuitable for crop production, and (*b*) for the transfer of farmers from such lands to more suitable locations. Originally the Act was to have effect for five years, but later this restriction was repealed. In 1941 the Minister of Agriculture was given power to purchase land. This was necessary to develop community pastures and for the location of large-scale water reservoirs.

The water development work consists of (1) provision of assistance for dugouts, to conserve rain-water, stock-watering dams, and small irrigation systems on individual farms; (2) community projects which involve a number of farmers; and (3) large irrigation projects. In the small projects the farmer does most of the work. He is guided in respect to the size, location, and construction of the dugout or dam, and he receives some financial assistance.

The large irrigation projects involve greater complications. The Dominion Government constructs the storage dams and main canals, and after one year's maintenance and operation responsibility is assumed by the provincial Department of Agriculture. The valuation of the land with water on it poses the problem of what the farmer should pay, and what share the municipality and provincial government will pay. It is clear that except for the small projects designed to provide a limited acreage of irrigated land and so provide

[1] *Acreage Production and Value Grain Crops in Canada, 1908–46*, Agricultural Division, Dominion Bureau of Statistics, Ottawa.

for a garden and at least emergency supplies of fodder, high-value crops are needed to make irrigation-farming pay, over the years. These are still controversial points despite commissions, boards of inquiry, and what not. It may be pertinent to say that the Economics Division of the Dominion Department of Agriculture is now studying regional production and marketing of the products of irrigated farms in Alberta and may undertake to extend this study on an inter-regional basis.

Over all the P.F.R.A. has accomplished a great deal under this programme. The provision of funds for the study of improved cultural methods by the Experimental Farms Service has also yielded substantial results, particularly with respect to improved methods of summer fallow and reseeding of land in community pastures. Economic research has centred on land classification and the elimination of land submarginal for cultivated crops, resettlement, and economic and social factors involved in rural life on the prairies.

This programme has not been made nation-wide but special measures have been taken to assist in the conservation of land resources in other provinces. It may be noted finally that the Dominion Government has justified expenditures on this programme by reason of the fact that although the resources are now under the jurisdiction of the provinces, agricultural settlement was largely established under the direction of the Dominion Government, i.e. prior to 1930 when the resources were turned over to the provinces. Furthermore, the extent of the area affected and the inter-provincial problems involved constituted a national problem.

There is considerable interest in land conservation in provincial government circles. This comment may be pertinent. In the last thirty years farm practices have been designed to provide current income. In many cases the short-run view was forced on farmers. Agriculture has undergone a revolution in methods of production, and the long-run stability of the farm and farm production is still under-emphasized by many farmers. There are many problems involved—population changes, conditions of tenure, increased capitalization, inheritance, succession duties, and in some cases debt. Canadian farmers are better off financially now than for many years, and this would seem to be an appropriate time to develop plans for permanency and stability in agriculture.

PRICES AND INCOME

Marketing Boards. Canadians have had considerable experience with marketing boards. There was a Wheat Board comprised of 'the

Board of Grain Supervisors' authorized by Order in Council in June 1917.[1] This board came into existence because of the centralized buying on behalf of allied governments. It was then clear that the normal methods of sale could not function properly with such a concentration of buying in one agency and this action 'was taken to prevent to the utmost possible extent any undue inflation or depreciation of values by speculation by hoarding grain supplies or by any other means'. This board took over all Canadian wheat and acted as a connecting link between the producers and the wheat export company. It paid high prices for unsold balances of the 1916 crop, the 1917 crop, and the 1918 crop. In a few days after it went out of office the 'Canadian Wheat Board' was appointed to sell the balance of the 1918 crop and the 1919 crop. This board came into existence because of the absence or prospective absence of buying for allied account, 'nor any open and stable market of the character that obtained prior to the war'.

The first board paid a fixed price. The new board paid an advance and issued participation certificates. In the fall of 1920 the price of wheat began to fall. As it declined, the agitation for resumption of a wheat board rose, and one was authorized but it never functioned. Then in 1922 the Dominion Government passed legislation authorizing a wheat board, but it was only to function if similar and concurrent provincial legislation was passed. The province of Manitoba failed to pass such legislation and the plan had to be dropped. Following this experience the rise of the wheat pools took place. Then several years later a stabilization programme came into effect as a result of growing Canadian and world wheat supplies and falling prices. The provincial governments had to guarantee bank loans to the Canadian wheat pools. The pools got into further trouble as prices fell, and finally the Dominion Government was again asked for aid. It guaranteed the bank loans, and in 1931 a new manager was appointed to the central selling agency of the pools.

The stabilization feature consisted of holding cash grain and selling futures as it was deemed necessary to stabilize the market. Holdings of wheat continued to increase, and, at the 1935 session of the Dominion Parliament, legislation authorizing the present Canadian Wheat Board was passed. This board was not given monopoly powers. It was to pay a fixed price for wheat delivered to it by producers and issue participation certificates which enabled the grower to share in the profits, if any. It is important to note that growers

[1] 'The Canadian Wheat Board, 1935–46.' Reprinted from *The Canada Year Book*, 1939 and 1947 editions.

were not obliged to deliver to the board. If the market price was above the fixed price authorized by the board, then it received little wheat, and if below, of course, it got all or most of the wheat. In selling and disposing of the wheat it was to use the existing marketing agencies, but power was granted to establish its own agencies if necessary. It was to offer wheat continuously.

The establishment of the 1935 Wheat Board was to protect the Canadian wheat producer against the unsatisfactory conditions of the international wheat market at that time.

I have now sketched the development of wheat marketing boards. For the purpose of this paper, the details of the functions of the board are, I think, unnecessary.

The Wheat Board was established before the Second World War began. During the war other boards were established, but these will not be referred to in detail except as may be necessary in the discussion of the Agricultural Prices Support Act.

Provincial Marketing Boards. Before dealing with this Act I would like to refer to the development of provincial marketing boards. Incidentally, we did have a Natural Products Marketing Act in 1934 and amendments in 1935. This was a Dominion Act and was declared *ultra vires* by the Supreme Court of Canada and the Privy Council.

Prior to the passage of the Dominion Natural Products Marketing Act, in fact as early as 1927, the province of British Columbia had provided legislation modelled somewhat along the lines of marketing Acts passed by state governments in Australia. British Columbia still has a marketing Act which enables growers concerned in marketing a product or a group of related products to vote upon the desirability of a marketing plan, and if it is supported adequately the plan may become effective and be applied to the sale of all the products affected in a district or region. These schemes are limited to sales within the province. By agreement 'Tree Fruits Limited' acts as an agency for selling outside, and it includes both private and co-operative groups. In Ontario, too, there are numerous schemes organized under the Ontario Farm Products Control Act. Control of milk prices by provincial authorities is general.

The basic principle of such a marketing arrangement is the control of the quality, quantity, and movement of the product. It is designed to unify price quotations and ensure regular and timely movement to the market and thus prevent over-supply or under-supply on central markets. Efforts to widen distribution have also been undertaken.

Supporters of such schemes contend that farmers are not as well organized as the buyers of their products, that even co-operative marketing associations have not been well enough informed regarding market outlets and market requirements, and that a few growers can break the market.

What the farmers seek under such legislation is power to control and direct supply and prevent price-cutting. It will be recognized that such plans inject a rigidity into the marketing system both on an organizational basis and in regard to methods of handling. If consumers can be assured of effective distribution there probably will be little complaint. Minority groups of farmers as well as the public will want assurance that constant vigilance is employed in increasing efficiency in production on farms and the handling of the products. Monopoly in farm products is difficult to establish over a long period, but vested rights may have disadvantages.

Thus far in this paper little attention has been given to the problems of international markets. But any policy for stabilization of Canadian farm production, prices, and incomes must take cognizance of the export market and market mechanisms.

During the war the United Kingdom adopted a policy of purchasing food supplies through the Ministry of Food, and the Canadian Government was persuaded that, in these dealings, centralized handling was desirable. Therefore we had during war-time, and still have, a Meat Board, a Dairy Products Board, and a Special Products Board. These boards administer the contracts with the United Kingdom for different commodities. They direct the shipments of the products involved and arrange payments. The contracts assured the United Kingdom of a supply of food and the Canadian farmer a remunerative market. The early contracts never exceeded a season or at the most one year. The reason was obvious, namely, we did not know how long the war would last, and I think it might be fairly said that the Canadian Government was, in the early years, not convinced that this sort of international bargaining was most desirable. But as time went on a change of heart seems to have taken place, because contracts for longer periods were made, and there is little doubt that this is—or should I say was?—part of the Canadian programme for stabilization in the period of transition. It is obvious that these long-term contracts would be the subject of some criticism. The supporters of the contract method point to the fact that this was the first time the farmer had a chance to produce for a known market and to plan accordingly. The real problem seems to have been to convince the farmer that the price was right and that, for example, the prices

of hogs, barley, and wheat have borne proper relationships. I am not going into this problem. A contract with a new supplier which channels all or most of the new producers' goods into one market may have bad results for the supplier. This sort of arrangement has been made in domestic trade between struggling manufacturers and large retail business firms and may limit production. In the international field it may invite counter-measures. Currently the problem on both sides is to deliver the goods. In passing, it will be noted that the contract prices were well above pre-war levels and as such tend to halt any tendency to lower domestic prices.

Prairie Farm Assistance Act. Emphasis on the foregoing activities was largely on price. I would now like to refer to income payments. The wide fluctuations in yields of grain in the prairie provinces and the consequent variations in production and farm income caused the Dominion Government to pass the Prairie Farm Assistance Act of 1939 and subsequent amendments *as a substitute for relief payments in earlier years.* The Act authorizes the Government to make payments to farmers on the basis of crop-yields as follows: 8–12 bushels, none except when the price of wheat is below 80 or 10 cents per acre for each cent or fraction thereof and not exceeding 10 cents by which the average price is less than 80 cents; 4–8 bushels, $1.50 per acre; under 4 bushels, $2.50 per acre, and a minimum payment of $200.

No award is to be made in respect of more than half the cultivated acreage in the individual farm or for more than 200 acres.

A levy of 1 per cent. is made against the purchase price of grain sold to licensed handlers of grain. The Act therefore provides a form of crop insurance, but it is not on an actuarial basis and the 'premiums' are not based on benefit or on liability. There is a provision in the regulations which excludes payments to farmers on submarginal land, but it has not been effective because provincial governments, who must declare land to be submarginal, have not as yet sufficient data to classify all farm land, but political expediency also tends to delay decisions in this respect. Thus some farmers have received benefits in every year since the Act was passed with the exception of 1942, when yields were very high.

The Agricultural Prices and Support Act. This Act does not set prices of farm products. It provides a parachute for farm-product prices. It authorizes the establishment of a board with certain defined powers. Among them is one which empowers the board to prescribe the prices at which it may purchase agricultural products (excluding wheat) in the market. The wheat and coarse grain stabilization

policies are directed by the Canadian Wheat Board which also administers the wheat contract. The Agricultural Prices Support Board may deal only in products for which grades have been established by the Dominion Government or for which grades may be established. It may appoint commodity boards to act on its behalf. There are really two methods of functioning—one is to buy farm products in the market, and the second is to prescribe prices and pay producers the difference between the prescribed price of a commodity and the market price, assuming, of course, that the market price is lower than the prescribed price. The Act authorizes an expenditure of $200,000,000.

The board is also authorized to purchase on behalf of any department of the Government of Canada any agricultural product required—school-lunch programmes or surplus disposal programmes which may become necessary.

It may also purchase and export any farm products under contract between the Canadian Government and any other government or its agent.

The board has only been called upon to support the prices of potatoes in the maritime provinces. However, a contract with the United Kingdom for 75,000 long tons of potatoes relieved the board of the necessity of implementing the agreed-upon support except in so far as purchases for processing into starch were made.

The board is authorized to study prices and methods of price supports. This work is already well advanced. It is worthy of note that the Act leaves the prescription of prices or the level at which prices are to be supported to the board. It does not set up an historical base for prices as is done in the parity legislation in the United States. This makes for more flexibility and consideration based upon the current situation. There has been agitation for parity prices similarly based to those in the United States, but no action has been taken. The flexibility of prices provided for under the Act raises the question as to whether the board is only concerned with the price structure or is concerned also with farm income in relation to other incomes. The Act does state that in prescribing prices the board shall endeavour to secure a fair relationship between the returns from agriculture and those from other occupations.

In providing this legislation the Government had in mind the long-time trend of prices of agricultural products. There was the drastic decline following the First World War and then the collapse in the 'thirties. In the early years of the Second World War prices of farm products were allowed to rise in order to encourage needed

food production. Then price ceilings were imposed and with their imposition there was a tacit agreement that prices would not be allowed to fall so sharply as was the case in 1921–3. This Act is to have effect during the transition from war to peace. It has not been necessary to use it to any extent up to the present time.

HIGH EMPLOYMENT

This brings me to consideration of another concept and one which I think most of us will accept with fewer reservations than proposals for subsidies and price supports or even so-called incentive payments. This is the concept of high employment—the principle that unemployment should be at a minimum. In Canada the plans for maintaining employment were set out in the white paper entitled *Employment and Income*, published in April 1945. On p. 1 we read: 'In setting as its aim a high and stable level of employment and income, the government is not selecting a lower target than full employment. Rather the government is mindful that employment and incomes will be subject to fluctuations in the sphere of international trade, which cannot be wholly and instantaneously offset and that seasonal fluctuations, resulting from climate and buying habits are not to be overcome without much patience and resourceful work.'

In the white paper four channels through which expenditures creating employment and income-flow are discussed: (1) export trade, (2) private investment in plant equipment and other durable goods and stock, (3) consumption expenditures which are dependent on incomes, (4) public investment in useful works.

In respect to export trade it was considered that an export trade 'of not less than one and three-quarter billion dollars annually at current prices for merchandise exports and non-monetary gold is a practical and desirable target for postwar exports'. This, it is estimated, would be about half our high war-time exports and about 60 per cent. more than the pre-war level of the dollar value of exports. It would represent a 15 per cent. increase in the amount of goods sold abroad. It is pertinent to emphasize that the Canadian Government Foreign Trade Service has been expanded and is still growing.

In the export field Canada embarked upon a policy of extension of credits to European countries, the largest being made to the United Kingdom, amounting to $1,250 millions. Associated with expansion of exports has been the Exports Credits Insurance Act designed to protect the private exporter in a large measure against bad accounts.

Easement of business tax rates and provision for writing back or carrying forward losses permits a business firm to approach more nearly an average-profit basis for taxation. Changes in allowances for depreciation have been even more important, enabling a business firm to recover more nearly their newly invested capital even though tax rates remain high. Thus the new investment needed for expansion and maintenance of incomes is being encouraged.

The Government planned for 50,000 housing units in the first full construction year after the close of hostilities. This programme is now directed by the Central Mortgage and Housing Corporation, which is government-owned. Assistance for building new farm homes is provided under this legislation.

High employment was assured for a time because of the back-log of consumer expenditures and increasing incomes occurring during the war. Strikes and shortages of materials have delayed both the housing programme and the satisfaction of consumer demand for durable goods. High indexes of dollar values of wholesale and retail sales indicate a high level of consumption. Part of the price increases results from withdrawal of government subsidies.

On the side of public expenditures the Dominion Government and most provincial governments have a planned shelf of projects to be launched when the material and employment situation seems favourable. The timing of these projects has been considered rather carefully.

It is not without significance that the Unemployment Insurance Act was passed in 1940 and a National Employment Service is being developed. As a result of war-time experience in Canada there is greater mobility of labour, including farm labour.

One other measure should be mentioned, namely the Farm Loans Improvement Act, whereby intermediate credit is made available through commercial banks for purchase of machinery, livestock, building construction, and so on. One of the first results from this Act was the financing of purchases of farm equipment under loans provided for in the Act. The former method of financing machinery purchases by farm implement companies is now almost completely replaced. A feature of the Act is that the Dominion Government guarantees the commercial banks against 10 per cent. of the total loss on loans. This encourages the banks to make loans which might not otherwise be granted. It will be noted that this legislation utilizes the established credit agencies—that is, the commercial banks.

It will be obvious that high employment depends on domestic planning and international collaboration. In Canada we have a great

deal more internal planning than was the case prior to the war, and, while not all the hopes have been realized, employment is still remarkably high. In this connexion it will be remembered that we have a comprehensive plan for training veterans[1] at universities, also trade schools. Within limits an expanded programme of research in industrial and scientific fields is contemplated and is, in fact, under way.

Reference may be made here to the gradual development of personnel for research in agricultural economics. The Dominion Department for Agriculture alone spends about $300,000 annually on research in farm management, land utilization, marketing, prices, and so on. In this connexion the annual outlook or programme conferences are designed to effect a high degree of stabilization. This work was, of course, under way prior to the war.

Funds formerly available under P.F.R.A. appropriations were provided for this purpose. The specific provision in the Price Support Act for investigation of ways and means is another illustration of the same idea. There is need for more trained workers in carrying out all these programmes.

In the white paper we read (p. 14): 'The Post War employment problem is not to be solved by huge expenditures on public works.' Efforts to increase and stabilize employment and income must pervade all economic policies. On the other hand, it is the firm intention of the Government to institute a system of managing its capital expenditures so that they may contribute to the maximum to the improvement and stabilization of employment and income.

The effect of high income and high employment is demonstrably favourable to agriculture. There was, of course, a rise in net income during the war. This, too, was associated with high disposability of farm products on a high price-level. Farmers liquidated old debts, invested in victory bonds, bought new machinery when possible. Under conditions of high employment the commercial farmer probably would need to increase efficiency to meet competitive wage-rates. Output per man is increasing and can be further increased. Adjustments in volume of business and use of capital will be needed too.

It is not claimed that the programmes outlined in this paper have been cure-alls. It is unlikely that anyone conceived the idea that they would be. They represent efforts to meet emergencies and to develop a long-run policy as rapidly as may be accomplished.

[1] It is regretted that time did not permit of reference to the operation of the Veterans Land Act.

The position of Canadian farmers in general is now very favourable. The future is not so clear. High hopes of international reconstruction have not been realized, and Canadians are a surplus-producing people. There is no doubt that many lessons in international trade were learned in the last quarter-century. The application seems unnecessarily difficult.

TABLE I. *Gross Cash Farm Income per Farm, 1931–46*

Province	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
	$	$	$	$	$	$
Prince Edward Island	327	225	259	324	304	411
Nova Scotia	322	265	331	351	376	395
New Brunswick	266	196	207	263	267	317
Quebec	458	346	342	426	450	496
Ontario	850	646	683	774	831	998
Manitoba	578	521	581	770	633	818
Saskatchewan	518	564	552	668	766	884
Alberta	728	702	701	961	991	945
British Columbia	788	679	710	810	837	895
CANADA	611	526	544	665	700	791

Province	*1937*	*1938*	*1939*	*1940*	*1941*
	$	$	$	$	$
Prince Edward Island	478	424	529	588	699
Nova Scotia	495	507	383	511	609
New Brunswick	361	333	375	484	610
Quebec	581	603	673	790	937
Ontario	1,175	1,201	1,204	1,300	1,608
Manitoba	1,295	1,124	1,118	1,121	1,407
Saskatchewan	595	663	1,128	1,082	1,168
Alberta	1,219	1,338	1,202	1,274	1,548
British Columbia	1,047	1,113	1,071	1,093	1,388
CANADA	883	908	987	1,046	1,247

Province	*1942*	*1943*	*1944*	*1945*	*1946*
	$	$	$	$	$
Prince Edward Island	915	1,153	1,128	1,349	1,374
Nova Scotia	655	755	807	810	976
New Brunswick	790	966	1,010	1,107	1,038
Quebec	1,127	1,288	1,403	1,505	1,605
Ontario	1,998	2,154	2,305	2,538	2,633
Manitoba	1,782	2,511	2,902	2,661	2,955
Saskatchewan	1,412	2,361	3,629	2,993	2,875
Alberta	1,694	2,213	3,150	2,906	2,854
British Columbia	1,691	2,105	2,495	2,838	3,266
CANADA	1,502	1,914	2,391	2,316	2,377

TABLE II. *Annual and Monthly Index Numbers Wholesale and Farm Prices of Farm Products (a)*

Year	*Wholesale prices 1935–9 = 100*			*Farm prices of agricultural products 1935–9 = 100*
	Farm products	*Field products*	*Animal products*	
	(*b*)	(*c*)	(*d*)	(*e*)
1926	144·4	158·5	130·2	..
1927	138·6	149·4	127·8	..
1928	136·3	134·3	138·2	..
1929	140·8	137·2	144·4	..
1930	119·5	105·8	133·3	..
1931	78·9	65·0	92·7	..
1932	65·5	60·4	70·5	..
1933	69·3	69·3	69·2	..
1934	83·5	80·5	86·5	..
1935	89·2	84·4	94·1	88·0
1936	97·9	102·2	93·7	96·9
1937	117·4	128·9	106·0	119·7
1938	102·9	100·9	104·8	105·0
1939	92·6	83·7	101·5	91·8
1940	96·1	85·4	106·7	96·8
1941	106·6	88·9	124·4	110·2
1942	127·1	109·7	144·6	133·1
1943	145·4	129·0	161·8	157·8
1944	155·3	144·5	166·1	171·8
1945	160·3	150·4	170·2	176·6
1946	164·9	148·8	181·2	183·7
1946				
Jan.	161·3	148·9	173·7	179·0
Feb.	162·0	149·3	174·7	180·3
Mar.	161·4	149·7	173·1	180·6
Apr.	164·4	150·4	178·4	182·8
May	165·7	151·1	180·3	184·8
June	168·8	152·2	185·4	187·0
July	170·7	156·3	185·1	188·4
Aug.	167·1	150·5	183·7	187·7
Sept.	164·5	145·8	183·1	184·6
Oct.	164·2	144·3	184·2	184·1
Nov.	164·5	143·7	185·3	184·8
Dec.	165·6	143·6	187·7	185·5
1947				
Jan.	168·0	143·7	192·3	185·7
Feb.	169·0	144·3	193·8	186·8
Mar.	170·0	145·2	194·8	188·9
Apr.	171·3	145·4	197·2	190·3
May	174·0	150·2	197·8	192·3
June	175·7	151·6	199·8	..

(*a*) All index data computed by Dominion Bureau of Statistics.

(*b*) Canada, Dominion Bureau of Statistics, Prices Branch. Wholesale Price Index Numbers of Canadian Farm Products (mimeo.). Ottawa, Feb. 1947. Wholesale prices of products of Canadian farms.

(*c*) Ibid. (*b*). Wholesale prices of grains, hay, tobacco, and potatoes.

(*d*) Ibid. (*b*). Wholesale prices of animals and animal products.

(*e*) Canada, Dominion Bureau of Statistics, Agricultural Division. Index Numbers of Farm Prices of Agricultural Products (mimeo.). Ottawa, Monthly.

In reply to questions: Dr. Dawe asked about the management of community pastures.

Reasonable safeguards are taken with respect to the inspection of the cattle that go into the pastures. I do not think they are T.T. tested. The scheme has been in operation, you see, for about twelve years, and most of that time we did not have enough veterinary inspectors. Most of the cattle are range cattle, or cattle for feeding, so that mastitis would not be a serious factor. The pastures are available at established rates to the farmers who have land adjoining. The Dominion Government appoints a man to manage the pasture. It is his job to see that it is not overstocked, that the grass has a chance to grow, and to improve. The pastures are fenced, and the intention is that that land shall be kept out of cultivation. I think we have made some progress in reseeding. Reseeding efforts have not been confined to community pastures. Some has been done through what we call local improvement associations, or groups of young farmers who are interested in developing better methods of farming.

In reply to Dr. Norton's request for some details of the Wheat Purchase Agreement, the agreement provides that the United Kingdom will purchase and the Canadian Government will supply the following quantities each year:

1946–7	. . . .	160 million	bushels
1947–8	. . . .	160 „	„
1948–9	. . . .	140 „	„
1949–50	. . . .	140 „	„

The fixed price of the wheat is 1.55 dollar for 1947–8. That was the price last year and will continue through 1947–8. It is based on Fort William, Vancouver, or Churchill. The minimum price fixed for 1948–9 is 1.25 dollars per bushel, the actual price to be negotiated before December 31, 1947. For 1949–50 the minimum price is 1 dollar a bushel, the actual price to be negotiated before December 31, 1948.

The farmer is to be paid on a five-year pooling system. An advance payment is made of 1.25–1.35 dollars per bushel, and participation certificates are payable after July 31, 1950. There is no question of the Government making a profit for itself, such as was mentioned last evening in the case of the Argentine Meat Board. The Dominion Government is not in business to make profits. It acts as an agent between the Canadian farmer and the United Kingdom government agency.

Dr. Renne inquired about our opportunities for expanding agricultural land.

Perhaps I ought to refer back to what I said on Monday with respect to immigration policy. The actual immigration policy has not been set down. There have been relaxations of the regulations to permit entry of next of kin, and there have been something like 6,000 Polish soldiers brought in to work on farms on a two-year contract, after which they would be free to go into other industry if they so desired. There have been small groups of people from the Netherlands. We do not have anything like as much new land suitable for agricultural settlement as many of you may think. Most of the good land has been taken up. There are small areas in Saskatchewan and a substantial area in Alberta, and there are pockets of land in British Columbia, the largest areas of which suitable for settlement would be the Peace River block. We think we could absorb some new farmers but if I am able to interpret the policy correctly we think we have to move cautiously in the matter of development of new land. Under this prairie farm rehabilitation scheme some large-scale undertakings are being started now which would lead to an increase in the number of farms in various sectors, and in the province of Alberta they are clearing something like 100,000 acres of land for settlement, and members of our own armed services have priority in taking up that land. There is quite a variation in opinion about immigration policy. Certain large groups are opposed to large-scale immigration, and certain other groups are sure that we should embark on a policy of mass immigration. So far, although the matter has been under careful study, the policy has not been laid down. I neglected to mention that at the present time there are 7,000 people in the process of being transferred to the province of Ontario from the United Kingdom by air. Before the end of the war the Premier of Ontario came over to the United Kingdom and solicited applications for citizenship of the Province of Ontario. He had some difficulty in getting his scheme under way, but it is now in operation with the co-operation of the Dominion Government.

MACHINE ECONOMY AND DISPLACEMENT OF LABOUR, WITH SPECIAL REFERENCE TO INDIA

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THIS subject has a special fascination for countries such as India, where, though agriculture has been for generations the principal occupation of the people, land is predominantly under-exploited or undeveloped, and consequently man succeeds in getting out of the soil a standard of living which is in great contrast to what agriculturists in other lands are able to make. And this difference in the yield from land is not due to nature being niggardly. Certain unfortunate areas apart, as in the tropics generally, nature in India is renowned for its bountifulness. The difference is due more to man-made factors, of which there are a great number, several of them no doubt of quite a baffling character but many capable of being successfully tackled by concerted action on the part of the people and the State.

One of these man-made factors is the failure of man to apply to the cultivation of land the discoveries of science and engineering, discoveries which one may see in common use on the farms of western Europe and America but which are a rare find on the Indian farms. Though at first sight this might seem quite a simple hurdle, a closer view will reveal its baffling character, as tractor-ploughing, the use of the electric motor, &c., imply large farms, adequate capital, the necessary technical skill, and so on, none of which can be created overnight. Any one of them singly might present exceedingly obstinate and formidable problems to the most determined administration or planning council, especially in a country where poverty and illiteracy reign supreme and where land is fragmented and subdivided into tiny plots, large numbers of them no bigger than tennis courts and these often under multiple proprietary rights. For the present we may leave these practical difficulties alone and concern ourselves primarily with the economic expediency, on more general grounds, of the application of the science of engineering to the cultivation of land, with particular reference to the impact upon employment of mechanization. While confining ourselves to this restricted field it will perhaps be useful, if only to fix our ideas, to relate our argument to a background of the requirements of an economy like that of India.

The application to India of the colonial economic policy had meant that while the old handicrafts could no longer hold their markets in India or abroad against the mechanized products of the West, industries based on the new technique could not spring up in the country, with the result that we witnessed the strange spectacle of progressive de-industrialization of the country from about the latter part of the nineteenth century. This, coupled with the usual growth in the numbers of the population, naturally increased the pressure on land, the only alternative means of subsistence. The complexities of the problems of agrarian reform were thereby added to, among them the problems of subdivision and fragmentation referred to above. The contemporary trend in other countries, especially in western Europe, was exactly in the opposite direction. In Great Britain, for instance, while on the one hand men were drawn off the land into the new industries, money made out of the Industrial Revolution found its way into agricultural investment, and farms grew larger and estates expanded.[1]

The pressure of population on land has sustained, if it has not also been the origin of, the theory which is rather extensively advocated in India that any attempt at mechanization of cultivation must lead to the emergence of rural unemployment on a colossal scale, so that whatever advantages may be claimed in support of technological improvement they are most likely to be more than negatived by the problems of unemployment and resettlement which it will create. The argument of the theory runs on familiar lines. Since large farm-units are essential to the success of mechanization, it will be attended by integration of the fragmented plots and farms, the population now existing on them being thrown out; for a given agricultural operation, mechanization will demand less manpower than now and probably little or no bullock-power, and the displaced men and bullocks will of necessity grow into an army of unemployed; the present hordes of seasonably unemployed, which the rural population to-day generally is, will get converted into almost as large hordes of perennially unemployed with the additional difference of being landless and possibly also homeless.

This enunciation of the gloomy prospects of mechanization, it must be added, is not usually supported by factual data drawn from experience of the devastation supposed to be worked by the tractor, the electric motor, and the like. The alleged or real horrors practised in order to bring into being, and later to continue in efficient working, collective farms in Russia are often cited as

[1] L. F. Easterbrook, *British Agriculture*, London, 1944, p. 11.

illustrations of the kind of social and ethical consequences one may expect of mechanization, especially in a background which requires the consolidation of split-up holdings into economically successful units.[1] It is also usual to quote accounts of the unsuccessful attempts to mechanize agriculture in certain European countries[2] such as Hungary, without, of course, inquiring into the special economic circumstances which contributed to their failure. And any very critical examination of the fundamental issues of mechanization is generally lacking.

Before proceeding to examine the validity of this theory it is well to make our mind clear that it is not merely *employment* for all that should be the aim of economic policy. If this were the only consideration before us not much policy-making would indeed be necessary for, as Malthus said long ago in criticism of this view, if *employment* were the only problem facing us, it could easily be solved by abandoning the horses, the plough, and other such contrivances, and the entire community, men, women, and children alike, could at once find full-time employment on comparatively few farms, digging with the fingers of the hand in order to raise a few crops! What we want, however, is not merely employment for all but full employment at a rising level of wages and income and also more abundant leisure for engaging in cultural pursuits.

If so, any improvements in the arts of production which may help to raise the standard of income of the community that adopts them must be welcomed and not shunned merely on the ground that, before they are, so to speak, assimilated by the economy, transitional unemployment may result in the trades directly affected. Most, if not all, technological progress, including the mechanization of agriculture, may be said to belong to this category. The transitional unemployment it gives rise to is inevitable, just as the introduction of the plough and the horse may throw out of work an army of men and women engaged in digging the soil in the pre-plough era. But to hold up for this reason the application to production of technological advancement would be entirely short-sighted, as such a policy would be detrimental to the interests of the workers themselves. For the initial unemployment, of which we are disposed to talk so much, is only the first impact of mechanization. But it has a second reaction which is vastly more welcome in its results. Mechanization, besides rendering labour less irksome and less tedious, also lowers the cost

[1] M. R. Masani, *Inaugural Address to the Indian Society of Agricultural Economics*, Karachi, 1946, pp. 7 et seq.

[2] *Report of the Co-operative Planning Committee*, p. 35.

per unit of output. When the demand for the commodity turned out enjoys a high degree of elasticity, the quantity of it indented for by the community might multiply to such an extent and trade may consequently expand to such a degree that, notwithstanding the labour-saving devices applied, the volume of employment in the trade (if we take into account its sum-total requirements and not merely the number engaged in the particular process that has been mechanized) may actually be larger after mechanization instead of the opposite. If so, the ultimate effect of mechanization upon employment even within the trade will be to the advantage of labour.

But this may not be the universal rule. More usually a labour-saving device may in fact be labour-saving in the sense that fewer men can be employed in a trade as a result of the application of such device to it, though the quantity of the product turned out may be larger than before. Indeed, if a community with a given supply of labour should have at everyone's disposal increasing varieties of economic goods with abundant supplies of each and also ample leisure, fewer men would be enabled to produce more, which is what mechanization is meant to do. Looked at from this angle we should cease to regard mechanization as an evil because it is labour-saving; it should, in fact, be welcome for that very reason. It helps to release man from the occupations he is now engaged in for newer and more varied ones. In a country where such large numbers of the population (quite unnecessarily, it would seem) are locked up on the land and with such poor results, mechanization of agriculture, while increasing agricultural output, would at the same time make available abundant supplies of essential labour for employment in industries and other trades. It would render possible industrialization of the country at as rapid a pace as the available supplies of capital would permit. Without agricultural mechanization shortage of labour may prove a second and more difficult bottleneck. Collectivization and the tractor were thus essential to the success of the Russian five-year plans. Similar steps will be essential, too, to any large-scale scheme of industrialization for India.

When the same problem is viewed in terms of the national dividend, we come to the same conclusion. Mechanization, through multiplying the productivity of a unit of labour, would augment the national income. The larger national income would correspondingly increase national outlay or disbursement, either on account of expenditure on consumption goods or as investment of savings, i.e. as expenditure on capital goods. The increased flow of money expenditure would

bring more jobs with it for producing the larger stream of goods now demanded and therefore would create a greater demand for labour *than had existed before mechanization.* The employment position, one degree removed from the initial stage of mechanization, would be if anything shades better in favour of labour than had been the case previously. Wages would increase and employment would become fuller. Multiply this process, i.e. allow the régime of mechanization to spread and to intensify, and we would soon have a community where labour is scarce and wages, income, leisure, and employment are high. In other words, the permanent effects of mechanization upon incomes and employment are the opposite of that feared. So far from making man cheaper, it would contribute directly to raising his value. Under mechanization India's national income would come to be worth several times more than Rs.2,200 crores, its pre-war magnitude, and man would be consequently vastly more valuable than Rs.65 per annum.

This way of viewing the problem at once exposes the fallacy of the theory we are examining, the theory, namely, that labour-saving devices cause unemployment and therefore must be resisted. As we have seen, the unemployment caused will be confined to the trade which is being mechanized and will in any case be only transitional. The compositors thrown out of work by the coming of the type-setting machinery, the manpower released by the tractor, the hand-loom weavers rendered idle by the power-loom, and so on, need not be a permanent addition to the nation's unemployed when the overall demand for labour being now larger absorbs them in the same or in allied or other trades. The history of mechanization in Great Britain, in Europe, in America, and elsewhere reveals not a depressing narrative of mounting unemployment but the remarkable story of rising numbers of the population being maintained at higher and higher standards of living. The successive five-year plans of mechanization did not bring unemployment in Russia though the Russian agricultural economy before these plans was not much different from its Indian counterpart; nor has the coming, with the Jews, of more capital and the new technique of production brought unemployment in Palestine. It cannot be different with India.

From these more general observations let us proceed to visualize, in outline, mechanization of agriculture at work in the Indian background. Our experience in this field is scattered and in isolated spots. We have no information on the number of tractors in use for the country as a whole. But for two provinces, Bombay and C.P. and Berar, the pre-war figure comes to 248 as against 150,000 tractors at

work in an industrial country like England,[1] which is smaller in area and population than some of our provinces. What little experience we have gained in the field indicates, however, that the tractor, with suitable appliances attached, may be utilized with advantage both as a stationary source of power for operations such as pumping, spraying, threshing, winnowing, chaff-cutting and grinding, and as a mobile source of power for tillage of the soil especially on large estates, for eradication of deep-rooted weeds such as *dhub* and *kans*, for clearing land originally under jungle, for making roads, bunds and channels, and for anti-erosion work. The oil engine and the electric motor can also be employed as a source of stationary power for irrigation, as a chaff-cutter, or for grinding corn, the electric motor being generally cheaper than the oil engine.

The advantages of the tractor over the bullock need no recitation. As the bullock can work efficiently for only eight hours a day, four in the morning and four in the afternoon, while the tractor can work twenty-four hours if necessary, about forty-eight pairs of bullocks would be required to do the work of a 30 h.p. tractor in twenty-four hours, and their capital cost, at present prices, would be double that of the tractor.[2] Further, as bullocks depreciate faster, are subject to epidemics and disease, have to be fed throughout the year, unlike the tractor, which 'eats' only while working, and as the larger number of bullocks required will need more men to attend to them and need attending all the year round, the running and maintenance costs of bullock-power cultivation would work out higher than tractor cultivation. For an area which can be operated by a 30 h.p. tractor, the former (excluding the cost of feeding bullocks) has been estimated at Rs. 24,000 per annum and the latter at Rs. 16,000 per annum.[2] To this difference in favour of the tractor must be added, on the one hand, the additional cost of feeding the bullocks and the additional income from dairy-farming if in place of bullocks it should be decided to rear, under tractor cultivation, dairy cattle.

Nor is this all. The tractor is capable of preparing the soil when it is too hard for bullocks, in advance of the monsoon instead of having to wait for it, which in certain areas may render two crops possible where only one is raised to-day.[2] Timely tillage alone has been found to increase yields of cotton and *jowar* by 20–30 per cent. in Khandesh, by 8–10 per cent. at Poona, and by 75–80 per cent. at Mohol.[3] Further, when climatic conditions dictate, and certain

[1] W. Burns, *Technological Possibilities of Agricultural Development in India*, p. 125.
[2] 'Mechanized versus Agricultural Farming', *Capital*, May 1947, p. 931.
[3] W. Burns, op. cit.

operations of tillage or the carrying of a hay crop have to be completed on a given day, the advantages are worth far more than any immediate costing can disclose. The agricultural worker, too, may be said to get his share of the benefits of the tractor, as, in addition to bringing vastly higher wages, it would relieve him of the strain of holding and guiding the ploughs and, what is more, as tractor-driver he would ride while with the bullocks he has to walk.

In terms of output and profits of cultivation, the results of mechanization would be quite impressive. The aggregate output may in certain areas be multiplied, and a 1,000-acre mechanized farm may yield a dividend of 40 per cent. on the capital invested, which is several times the returns that capital applied to land brings to-day. And as against about 200 men now engaged on land of 1,000 acres, the number of men required to maintain a mechanized estate of this size would be less than fifty.[1]

This does not mean, however, that the rest of the men would be thrown out of work or even off the land altogether. Mechanization creates several new classes of employment: to make, to manage, and to repair machines, and to supply or distribute the spares, the fuel, and the lubricants. The larger incomes would leave more money to invest and to spend than previously and would also yield more revenue to the State. The larger revenue would bring more roads and more schools, and the additional money to invest and to spend would create a demand for more and better houses, clothing, food, furniture, and so on. Modern means of transport, electricity, and the cinema would begin to invade the countryside. And if this process of change is accompanied—as for complete success it should be—by schemes for industrialization, the new jobs that will spring up will absorb all the men released from the soil, some in the country itself and the rest in industries. Nor in a régime of economic regeneration such as this can wages be lower than now; national income being larger, wages—the worker's share of this income—must be larger too.

Isolated examples of mechanized farming in India do not justify the apprehension that mechanization might aggravate the problem of rural unemployment. In Coimbatore, assisted on the one hand by cheap electric power which became available with the advent in 1933 of the hydro-electric scheme at Pykara and on the other by the profits earned in the textile industry which, the community dominating this trade being drawn from agricultural stock, sought investment in agriculture, the experiments in mechanized farming, though still in the initial stage of their development, indicate how the application

[1] 'Mechanized versus Agricultural Farming'.

of labour-saving devices can be accompanied by an increased employment of labour at a higher rate of wages.[1]

Farms in this area, in the past, usually ranged between 5 and 10 acres at the most and were irrigated by a well or two with bullock-lifts, a pair of bullocks being able to tackle no more than 3 or 4 acres. With the coming of the electric motor, the wells have been bored deeper and wider and now irrigate over 50 acres each. Besides a motor the bigger farms have also introduced a number of labour-saving implements mechanically worked. The result is that the bullock-lift is getting out of use. Less manpower is required for irrigation. Under the bullock-lift labour accounted for 32 per cent. of the irrigation costs while under the electric motor labour accounts for only 12 per cent.—bullocks are now required only for ploughing, hoeing, and threshing, and costs of agricultural production generally are lower. Nevertheless, the demand in the area, for bullocks as well as for men, has increased, and wages have gone up. This is because the larger farms have made possible the application of improved techniques of cultivation, profits of cultivation have increased, and the agricultural industry is expanding under the stimulus of it. Land is being subjected to a greater diversity of cropping, new land is claimed under cultivation, dry land is brought under irrigation, all of which require more labour, and labour-consuming crops such as Cambodia cotton, tobacco, sugar-cane, vegetables, and fruits are coming to be preferred because they bring better profits. Labour is also in demand during the off season for repairs, reclamation, and improvements to land and for collecting leaves for manure. No wonder this area suffers from a shortage of labour, and migration of labour from outside is encouraged. More bullocks, too, are in demand as there is now more ploughing to be done, and, being relieved of the exhausting toil of lifting water, the bullocks are now easily able to tackle improved iron ploughs.

Multiply this test of Coimbatore a hundredfold, and the experience in respect of the impact of labour-saving devices upon the demand for labour and wages may prove to be not much different. This is, however, only the first stage of mechanization. The next will be for tillage and many of the remaining agricultural operations to be taken over by the machine, say, the multi-purpose tractor and the consequent enlargement of the farms to about ten to twenty times their present size. The requirements of consolidation of the new processes over, at the second stage of mechanization the present

[1] K. C. Ramakrishnan, 'Mechanized Farming in Coimbatore', *Eastern Economist*, Feb. 21, 1947, pp. 367–9.

supplies of labour are likely to prove surplus to the land. But even so this should cause no unemployment if it is accompanied by a programme of industrialization of the country adequate for absorbing the surplus labour.

This is not to say that we could go full steam ahead with the mechanization of agriculture without reference to the pace of progress of the rest of the economy. Such one-sided development might conceivably lead to what we may call 'over-mechanization' of agriculture, i.e. mechanization at a rate which releases from agriculture more labour than can be absorbed by the new industries set up in the economy. Mechanization might then be attended with lasting unemployment. Alternatively, full employment might be secured only at the cost of the wage-rate. No relief may result until over-mechanization has been rectified.

It would appear that it is a situation such as this that is described when we are told that in Hungary, before the war, steam ploughing was much more costly than horse ploughing, 'at least three times as dear' and that tractor ploughing was also dearer, this being confirmed by the fact that on many farms 'tractors bought in 1926–30' were lying idle.[1] Labour being cheap and abundant the ox or the horse-team was more economical. The situation, however, would at once begin to alter if the labour force rendered surplus by the tractor, but which is not surplus to the horse-plough, could be taken over by new industries. The rest of the economy, too, would then advance, and over-mechanization would cease; cheap labour would not lie side by side with mechanization.

The Hungarian experience, then, which is so much made of in India, is no condemnation of the tractor. It is only an indication of the lop-sided development of the economy for which no justification could be offered. It merely proves what is obvious, namely, that mechanization of agriculture which is out of step with the progress of the non-agricultural part of the economy cannot be an economic success.

Nor is this peculiar to mechanization of agriculture. Over-mechanization of any industry singly can result in more harm than good. If, for instance, the trade-union organization in the building trades in Hungary was very close and very strong, as we are told it is or it was in the United Kingdom, the union might succeed in forcing up wages above the comparable wage-rates in the country to such a degree that the entrepreneurs in the building trades might

[1] Doreen Warriner, *Economics of Peasant Farming*, Oxford, 1939, p. 160; see also P. L. Yates and D. Warriner, *Food and Farming in Post-War Europe*, Oxford, 1943, p. 73.

feel compelled to over-mechanize. There might then co-exist in the cities of Hungary mechanization, plentiful labour, and low wages. But that would be no condemnation of mechanization, or any justification of the view that mechanization is a wholly unsuited doctrine to the overcrowded cities of Europe any more than the emergence of a similar situation in agriculture, for similar reasons, can be advanced as justification for the view that the use of agricultural machinery is 'quite unsuited to a crowded continent'.[1] It is only a simple case of over-mechanization and should be dismissed as such without undue moralizing.

The remedy for the Hungarian experience is clearly an orderly advancement of the economy. Introduce only so many tractors as the Hungarian economy can take; that is, only so many as would release a quantity of labour which could be easily taken over by the newly planned industries. Progress in this manner slowly or as fast as the available supply of capital and other factors will permit. We will not then be disposed to blame the tractor nor the over-crowding, and the position of Hungary may in due course become similar to that of Russia, the United Kingdom, or Australia, where mechanization has become an organic part of the economy without causing unemployment.

In Australia, where mechanization of agriculture has perhaps gone the farthest and where industry too is mechanized, it is significant that labour-saving devices, so far from being suspect, are regarded as essential to success. Owing to the rapid rise in the price of jute and the lack of substitutes, the Dominion is investigating the possibility of growing jute in Australia or in New Guinea where suitable soils and climate similar to the jute-growing areas of Bengal are said to exist. But, we are told, 'mechanization of the crop from sowing to retting would be necessary if it were to be successfully grown in Australia'.[2] In other words, Australia would envisage agricultural expansion on no terms other than mechanization. The machine has rendered man so dear in Australia that to-day no productive activity in the Dominion can be an economic success without the machine.

The above, it must be noted, indicates the possibility and the danger of over-mechanization only in particular trades. It is well to note that there is no such thing as over-mechanization of the economy as a whole, i.e. there cannot be said to exist over-mechanization in all the trades simultaneously, provided that mechanization has been

[1] Yates and Warriner, op. cit., p. 73.

[2] *Australian News Letter*, No. AGH 158, issued by Senior Australian Trade Commissioner in India.

effected at a commensurately uniform rate all round. The simple reason is that the wants of man are unlimited. There is no known ceiling above which the standard of living of mankind cannot rise. If the machine produces more and more of *everything* in the right ratios, nothing can be said to be over-produced. Theoretically, as there can be no general over-production, there can be no general over-mechanization. Over-production and over-mechanization can only be in individual trades.

Our conclusion, then, is that mechanization of agriculture need not, contrary to the common fear, cause intractable problems of rural unemployment or resettlement, if only such mechanization is accompanied by orderly progress of the economy in other directions. Part of the labour force rendered surplus to the agricultural operations proper might find employment in the countryside itself now rendered possible by the increased money expenditure from out of large incomes, and the rest may be absorbed in newly planned industries. If mechanization is so planned and so regulated that it displaces only so much labour as can be easily taken over by the new industries to be set up and no more, the transformation would cause little distress. Under such co-ordinated development there need not result any over-mechanization and consequent unemployment. Progress in this manner can be slow or rapid according to the availability of capital equipment and other essential requirements.

In the Indian background, however, such progress would have to be more slow than rapid as both capital and the necessary technical skill, apart from other practical difficulties such as the difficulties presented by land tenure, would be great limiting factors. Scarcity of capital would compel a régime of priorities for the application of the new technique, which, consequently, will have to be done by stages both in respect of the intensity of mechanization and the area to be mechanized.

This limitation should remove much of the apprehension of the colossal scale of rural unemployment which we are told might ensue mechanization of agriculture and which constitutes the main ground of opposition to such mechanization. Displacement of labour cannot be on a colossal and unmanageable scale as extensive mechanization in one step is impracticable. The direction in which we must apply our limited resources is, however, clear, though progress may of necessity be slow.

THE PROBLEM OF INVESTMENT IN FRENCH AGRICULTURE

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FRENCH agriculture has one feature which is common to a great number of national institutions. It establishes a kind of balance between the forces of the past and those of the present. The past weighs on it very heavily. It gives it a really extraordinary knowledge of all the soils and climates of the country, which are very numerous. Unfortunately it also causes at the same time a distrust of the teachings of science. The present has penetrated very profoundly into the cultivation methods. Machinery and fertilizers are used so efficiently that if one compares the yields obtained in each French region with those obtained in foreign regions of similar natural conditions, one sees that France has nothing to lose in the comparison. Nevertheless, France is not satisfied with the state in which her agriculture finds itself now. She thinks that agriculture in the new world, and in other European countries like Denmark and Holland, have evolved far more rapidly than French agriculture, that some backwardness or delays can be noted, and therefore it is necessary to catch up with them. In 1945 the General Commissariat for the plan of modernization and equipment was created for that purpose. This Commissariat was competent to study the whole of the national economy, but it has stuck to six branches of production to concentrate better the national effort. Agriculture is one of those branches, and therefore a plan has been studied for it. The intention is to provide French agriculture with modern equipment, but equipment means investment, and that is the problem we are going to study in this paper.

It has been necessary to decide on the needs and to figure them out. It has been necessary also to find the resources, and these two problems are the ones which we are going to study.

INVESTMENTS REQUIRED

The meaning of the word 'equipment' should be very wide. In agriculture there is no boundary line between the working life and family life; and so a distinction is very difficult to make between home and business. For instance: To provide drinking-water supplies for a farm is at the same time a kind of equipment for the welfare of

the farm family and for the working purposes of the farm. Therefore we are concerned simultaneously with improving the methods of the producer by means of mechanization, and also of the instrument of its work, the soil, as well as the environment in which he lives, his habitation, his communications, roads, &c., without forgetting the places where crops and animals are going to be kept, like silos, dairies, refrigerators, &c.

We have first estimated the existing equipment and arrived at a figure equivalent to 553,000 million francs at the 1939 value. This figure is all the more interesting when one compares it with the total value of the agricultural land, which is 210,000 million, and with the figure of the revenue from the land in 1938, which is 90,000 million. Thus we see that man has added to the land more than twice the value of the land itself. (We must remember also that the last figure includes some of the value added to the land by means of land improvement works.)

But the aim of the Commissariat is not the past but the future. To find accurate bases on which to work, the Commissariat has tried to calculate the magnitude of the expense which it would have to incur, and, at the same time, the produce which could be expected from this expenditure.

Those complex calculations are summarized in the table on the opposite page.

The effort proposed is considerable, for to an existing equipment of 550,000 millions, the Commissariat intends to add another instalment the value of which is 320,000 millions. Why this great effort is now needed can be explained by the timidity which has been characteristic since the beginning of the twentieth century. The intensity of the individualistic feeling put a brake to a great number of improvements which could only be accomplished in a collective way, for instance, inclosures, land improvement, installations for the treatment of agricultural produce. Moreover, the low standard of living of the peasants which was acceptable in the past is no longer acceptable by the sons of those peasants.

We must remember that the last war has been a cause of great impoverishment in agriculture. The levies of the invader represented 25,000 million francs, and the destruction caused by military operations 43,000 million. For more than five years it has been impossible not only to buy new materials but to keep the existing material in order or to repair the buildings.

The peasants themselves begin to understand the problem very well when they try to establish their sons. They see the huge sums they

Estimated Investment for Development of Agriculture

	Total expense (in thousand million francs, 1939)	*Unit*	*Cost per unit (francs, 1939)*	*Net annual plus-value (francs, 1939)*	*Observations*
Machinery (complete mechanization)	35	Hectare	4,000	2,000	..
Inclosures	5	,,	400	800	..
Land Improvement:	40	..	..	..	Effectiveness:
Drainage	..	,,	4,000	1,400	quite constant
Land amelioration by ditches	..	,,	2,500	700	quite variable
Irrigation	..	,,	10,000	10,000	very variable
Agricultural roads	40	Km.	80,000	10,000	..
Rural Public works:					
Electrification (interior installations included)	25	per inhabitant	1,500	300	Very variable
Drinking-water supply	30	served	2,000	500	..
Installations for treatment of agricultural products	15	..	..	..	..
Cereals silos	..	Quintal stored	80	20	..
Vinification cellars	..	Hectolitre stored	150	40	..
Fruit stations	..	Ton of fruits	1,000	500	..
Slaughterhouses	..	Plant	2,000,000	600,000	..
Dairies	..	Litre per year	0·70	0·15	..
Rural buildings:	125	..	..	..	..
Dunghills with cess-pits	..	Square metre	200	40	..
Forage store-pits	..	,,	300	100	..
Barns	..	,,	200	20	..
Cow-sheds	..	Per cow	4,000	400	..
Pig-sheds	..	,, pig	1,000	200	..
Village urbanization	5	..	..	..	..
Schools, research stations	1	..	..	..	..
Forestry equipment	19	..	..	..	..
	340				

would have to provide, and they see that, though in the past the establishment of the young people was easy with the resources of one family, now they have very often to apply for loans; so the problem overflows the family circle to reach the character of a social problem. Therefore society cannot neglect it. Thus in different ways the country has to find the way to equip national agriculture.

The Commissariat for the plan calculates on 60,000 million as the annual revenue of the 320,000 millions that need be invested. The favourable return in the investment is encouraging. Let us see now how the necessary resources can be supplied.

THE RESOURCES

The Commissariat for the plan has not neglected the financial problem. Taking into account the fact that, between the two wars, the farmers have supplied 66 per cent. of the capital, the State 16 per cent., and the local administration another 16 per cent., it is reckoned that in future the State should supply 12 per cent., the other public corporations 10 per cent., the farmers 68 per cent., and private capital the other 10 per cent. In spite of the empirical basis of this programme it has to be examined carefully, for the investment concerned is infinitely larger than that of pre-war, and it is not sure that the excess could be easily borne. From the economic point of view the problem must be set in this way: excluding foreign loans, investment has to be necessarily drawn from the national revenue. Two possibilities present themselves; either those interested in the operation themselves bear the levy on their own income, or, if their income is insufficient, the State can levy from the whole of the national income by means of taxes or loans and redistribute the total amount among the users in the form of credits included in the budget.

1. *The Levy on the National Income.* Though France has inherited from the old régime an instinctive tendency to try state help, we have seen that the Commissariat for the plan only asks from the State 12 per cent. of the necessary capital. The Commissariat stresses that this is only 0·5 per cent. of the national income of 1939, and that thus the burden seems bearable. Yet this is not quite clear. There is a very widespread feeling in France, including the ruling classes, that agriculture needs nothing. The land fertilized by human sweat is a poetical image too well known and easily accepted. In agriculture natural factors are the means of production. People think it is enough to give them some, no doubt fatiguing, care, but they think the hands of the farmers are enough.

That explains why the State has always been mean with regard to

agricultural activities, and has given the money somewhere else. Let us quote some figures from a report given to the Academy of Agriculture of France. The budget for agriculture has always been a very small part of the total budget. Even if we take away from the latter the credits destined to the service of public debts, it can be seen that, from 1930 to 1938, this part has varied between a minimum of 1·82 per cent. in 1939 and a maximum of 2·64 per cent. in 1930. These percentages acquire more importance when we remember that the occupants of farms form a third of the active population of the country. This inequality of treatment appears to be particularly striking in a number of directions. For instance, on professional teaching the State expends much more per head of industrial and commercial worker than per head of agricultural worker. In 1913 the expenses were respectively: 0·98 franc and 0·76 franc; in 1923, 4·97 francs and 2·24 francs; in 1933, 20.08 francs and 5·47 francs. To-day, for the second half of 1947, the credits devoted to technical teaching are 1,222 millions, against only 68 millions devoted to agricultural teaching. With regard to dwellings the difference of treatment is not less. To rebuild rural habitations—and it is here that the backwardness of agriculture is most considerable—the budget of 1940 foresaw a total of 500 million francs; for the urbanization of the Parisian region it devoted a total of 7,000 millions.

Thus lack of resources on the part of the State cannot always be invoked to explain the lack of funds in the budget for agriculture, since in the same budget credits are given or not according as their use is for urban uses or not. It is also probable that in certain ruling circles the idea still persists that the agriculturist does not pay taxes, and therefore cannot demand anything from the State. French legislation in the matter of taxes has, in fact, a favourable record with regard to agricultural profits. Only a very small number of farmers pay taxes on them. It is useless to remark that the scheduled taxes do not provide the State with more than 15 per cent. of its resources, and therefore this privilege which agriculture enjoys operates only within narrow limits. The psychological reality is there. The agriculturist is thought not to provide anything for the finances of the State, and therefore people think he has no right to demand anything.

As long as these beliefs go on we can say that agriculture enjoys a privilege for which it pays dearly. Yet a favourable factor has recently appeared. The State is beginning to realize the insufficiency of its efforts, and is trying to apply a remedy. The burden of the

expenses for the national reconstruction has forced the use of resources outside the budget. It has invented lately special financing techniques under the form of funds, such as National Forestry Fund, Fund for Collective Rural Equipment, National Fund for Agricultural Development, Fund for Agricultural Solidarity, &c. Although the organization of these different funds varies considerably in detail, essentially each consists of one sum which the State deducts from the selling of some important agricultural product like wheat, meat, sugar, &c. These sums are not included in the general budget, but are devoted to the financing, under different forms, of the agricultural development of the country.

From the administrative point of view, this technique is not without snags. The funds are too numerous and compete with each other in drawing from the same products. The rate of deduction and the utilization of the total collected escape the control of parliament. Improvements are therefore necessary. From the economic point of view we have here a new indirect tax levied on the consumer. It is a factor in the rising of food-stuffs' prices, and therefore one should expect difficulties from the social point of view. It would be a great simplification of the problem if the agriculturists could find within their own incomes the margin they need for their own equipment. Can they find it? That is the last question.

2. *The Levy on the Agricultural Income.* The answer is less simple than it seems. The insufficiency of investment in agriculture in the past can be explained in two ways: either the incomes were small, and they only enabled producers to pay for the goods they consumed without letting them have anything to save; or saving was possible and actually done, but instead of being invested in agricultural production, the savings went somewhere else to be invested. It seems that the second hypothesis is the one which corresponds to reality. The French peasants have a reputation of being great savers. The peasant savings, the woollen stockings of the peasants, were traditional themes of the social literature in France. But instead of using the savings to buy machines and to modernize the buildings, the peasants put them outside the agricultural field. We are not talking only of the rural exodus which took young people to the towns, young people whose entertainment expenses were paid out of agricultural profits without the youngsters having the time to repay those expenses into the agricultural world by means of their work. In a general way the peasant has directed all his savings to the town by subscribing to the loans of the State and to issues of shares and industrial bonds.

He did so because he could not psychologically and physically do otherwise. He was used to traditional methods of production which gave priority to the land and to the work and hardly used any capital. He did not know how far his investment in agriculture would be profitable. He did not know that he could expend money, with the help of his neighbours, on collective equipment of silos, stores, and packing centres. The absence of a properly developed agricultural education kept him in that ignorance. On the other hand the capitalistic banking system, which he could use and which from the beginning of the nineteenth century multiplied its branches throughout the country, was very well organized to drain the savings out of the agriculturists but was incapable of distributing the money back to the agriculturists in the form of loans. The banks were and are still organized to absorb the farmers' savings but not to return them in any way. Therefore any capital which is brought by agriculturists to the banks is lost from agriculture.

Until the organization of the offices of mutual agricultural credit there was no machinery to provide for loans to agriculturists; but, even when those were organized, there were some snags. Those centres for agricultural credit, in spite of recent efforts, organized only a small number of branches and that reduced their capacity for absorbing savings. (On December 31, 1946, they had received a total of deposits amounting to 36,000 millions.) Moreover, in spite of their business being small, they were not always respected by the State. The State sometimes asks the National Bank for Agricultural Credit to suspend the placing of its bonds when the State wants to direct the peasant savings towards its own funds (for instance towards the loan of the Liberation) or towards funds which have priority from the point of view of the State (for instance, the loan of the National Society of Railways (La Société Nationale de Chemins de Fer). Moreover, the law of April 29, 1940, forces the regional savings organizations to place the excess of their deposits into the hands of the Treasury, into the Bank of France, or into the National Savings Fund; directly or indirectly the funds go to the public Treasury. Now, if their amount is very variable in time, it generally represents a very high total, for the peasants only make deposits at sight (in 1946, 28,000 million out of 36), whereas their applications for short-term loans are very often followed by long- and middle-term loans. Those cannot be financed by the deposits at sight. So on December 31, 1946, out of 30,000 millions received by these banks for agricultural credit, only 17,000 millions could be used for short-term credits, and 13,000 millions were used to finance the expenses

of the State in the form of Treasury bonds. Thus the capital created by agriculture has generally gone away from agriculture.

If the investment had at least been profitable, agriculture could have been benefited in an indirect way, but it was not so. The French peasant has generally made what is usually called bad investments. Let us consider the three periods of abundant savings he has known. First from 1896 to 1914; he subscribed government annuities at 3 per cent. and Russian bonds, besides South American bonds which were used to finance the equipment of Argentine agriculture. Then from 1925 to 1929 the peasant bought industrial assets, the majority of which were ruined by the world crisis of 1929. Lastly, from 1936 to 1939, the agriculturist only could, as all the other citizens, subscribe state loans, which were then 94 per cent. of the total of all the issues available in the market and were entirely absorbed by the necessities of national defence. Thus his desire for safety has forced the peasant to subscribe largely to fixed-interest securities which have particularly suffered from monetary depressions, whereas his industrial investments have been either unfortunate or have given birth to dangerous competitors.

So much for the past. What is the future going to be like? The answers to this question have to be qualified. And it can be divided into at least two other questions. Are the agricultural incomes, in general, sufficient to allow the farmers abundant savings? That is the first question. Opinions are very divided. Some people think that the peasant has been enriched because of the general dearth of food. They say that a great number of agricultural prices have reached co-efficients of increase from 12 to 20 compared with 1939, while the average co-efficient of all prices is round about 8. The profits of the black market, they say, have directed to the farms all the money of the starving people in the cities.

Others say that this way of reasoning is wrong. They say that whereas the prices of certain animal produce like meat, butter, eggs, have considerably increased, the prices of the basic commodities like wheat, milk, sugar, wine, have remained at a much lower co-efficient (from 5 to 6) because the collecting by the food-supply services was comparatively easy and the official prices could thus be respected. Now, these sale prices are lower than the real net cost, and if this has not disturbed the economics of the producers it is only due to the scarcity in manufactured goods. The working expenses of the agriculturists have fallen almost to zero, because they cannot find in the market either the machines they need or the materials which they also need to repair their buildings. In other

words, French agriculture is now using up its capital which cannot be built up again. It lives on artificial incomes. A very long and careful survey done in 1946 by the National Institute of Statistics and Economic Studies has absolutely confirmed this point. We still have to check the total evaluation which it has used by means of monographic inquiries which refer to a certain number of businesses. In fact, the operation of exchange of bank notes which took place in 1945 showed in the funds of the agricultural credit banks an average amount of 30,000 francs per depositor. Now this is an amount which is no higher than the one to be found in the town banks.

So it is not certain that there are now in the country abundant savings. On the contrary, and this is a second point, one sees how among the peasants a certain desire to equip themselves, to modernize their installations, in a word to invest in their own farms capital, which certainly, before the war, they would have immediately transformed into state annuities or into industrial bonds, and this new fact leads us to our conclusion.

CONCLUSION

The arrival of industrial and commercial capitalism gave birth in the towns to great demand for capital and to a whole banking organization devoted to the satisfaction of that demand. The capital needs of agriculture have been very low because of the small progress made by agricultural techniques. Because of these three facts the capital created by agriculture has not stayed on the land. It had gone to the State or to activities outside agriculture. Very little was left in, or came back to, the country. The flow was only one way. Modern agricultural techniques have altered the needs of the country as regards capital. The country needs now as much capital as the towns and these needs are particularly urgent in a country like France, where a certain backwardness is obvious. Great transformation is going to be necessary. The haemorrhage of the rural capital must cease, and indeed injections of capital coming from outside are needed. It is therefore necessary in the first place for society to pay for agricultural produce at a price which leaves the producer with a margin which could be called an equipment-margin. It is also necessary that society should cease to consider the country as an inexhaustible reservoir of capital. No doubt the country must contribute to the general equipment of the whole nation. We cannot make an exception in its favour. But the one-way traffic which was characteristic of the past must cease, and a true exchange of capital must take place. This result can only be achieved by means of a real reform of the public feeling.

THE CONFLICT OF PUBLIC AND PRIVATE INTEREST IN LAND USE

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THROUGHOUT many of the conference sessions we have been discussing fundamental considerations of land, people, and policy. And now in one of the final papers it seems to me an uncommonly complex job has been assigned—that of treating all three of these fundamentals and of focusing population and policy questions upon land and land use.

Obviously there are no easy and universally applicable answers to the land-use questions faced by various nations with extremely diverse patterns of economic development and equally extreme variations in population—resource ratios. Presumably if the answers were simple the topic would not be on the programme. Let me point out, then, at the beginning, that this will not be an exhaustive treatment of the topic. Its implications are too broad to be fully encompassed in a brief paper. My comments shall be restricted to broad outlines of land-use questions. They shall be directed primarily toward conditions in the United States with only passing reference to other situations.

The very wording of my topic assumes a conflict of public and private interests. Hence it may be more than a little germane to attempt to state each interest so that we may have a focus from which the discussion may proceed.

Agriculturally speaking, the term *land* may be interpreted to include space relations and the prevailing complex of climatic, topographic, and soil conditions. *Space* is a stable factor. But agricultural space may expand or contract in accordance with industrial, residential, recreational, and similar uses, or as the total land area occupied and used by a social group expands or contracts. Historically, space expansion has been a dominant force in shaping the U.S. economy and the prevailing patterns of land use. It is now an essentially static factor. Likewise *topography* is essentially stable. Climate ranges from the highly predictable and stable in some regions to the highly unpredictable in others, and thus in some areas may pose changing problems of land use. But certainly the principal charac-

teristic of agricultural land over which public and private interests may clash is the *soil.*

I shall proceed on the premiss that the soil mantle is the essential foundation of all society, no matter how urbanized and industrialized it may become. The soil is a product of natural processes, which continue to-day as they have through all time. But they are processes which grind slowly indeed. The present soils, upon which every plant and animal are dependent for life and growth, are the product of long ages of development. Yet they may be quickly damaged or even destroyed by abusive use. It is primarily a growing realization of this fact which in recent years has brought public attention in the U.S.A. to focus upon the land problem.

Public interest in land extends across the whole range of land uses. It is home sites, and places of business, and recreation. But it is also, and perhaps basically, in an assured supply of agricultural produce. From this point of view *the public interest is in the maintenance of a productive capacity in the soil base of the nation that will provide an adequate and continuing flow of the desired farm produce at the lowest cost commensurate with a continuing supply.*

I conceive that statement to apply specifically to such a highly self-contained nation as the United States—and also to the world at large. Particularly in the connotation of a fully adequate food supply for local populations it does not apply to all areas and regions. For example it would not apply to New York State, or to Great Britain. But even in these regions the concept of a continuing supply of the economically justified produce is still applicable.

Private interest in land use, or expressed from the viewpoint of the individual commercial farmer, can be summarized as *long-time, continuing, efficient farming.* The United States farmer has operated in an institutional framework of freehold land, of family-size farm units operated as individual businesses and subject to refinancing in each generation, and of essentially free-market prices and costs. It has been a system of as nearly full and atomistic competition as could be readily conceived. The individual farmer in this system sells in a market over which (because of his small volume) he has no control. His relative success among farmers, and his relative standard of living, are tied to the volume of his product and to the relative level of his unit costs. He will strive for his most profitable combination of volume and cost, never knowing precisely what they are. He will know, however, that only through low-unit cost will he compete successfully.

Can it be expected that the farmer operating within this pattern

will maintain the productivity level of his land? A case can be made that, in his own enlightened self-interest, he will. Farming is a conservative, long-time business. A financial killing over a few years' time is seldom possible even by skinning the land. Successful farm operation must be projected over a lifetime. Consequently, it may be argued, the intelligent and forward-looking farmer will balance soil-depleting with soil-building influences in his year-to-year operations—and thus, for his personal interest, follow precisely the pattern of behaviour that meets the public interest. That this is fact and not theory can be illustrated with many individual cases in any commercial farming region.

On the other hand, it may be illustrated also that individual farmers, hard pressed in the competitive struggle, will forgo soil maintenance in the interest of short-run personal gain and without regard to the long-run welfare of either the public or themselves. This cannot be regarded as 'efficient farming' in the long-time, continuing sense. As an operating policy it may arise from ignorance, from ill-advised adherence to custom, from unfortunate location on land of low natural productivity, or from periods of serious and widespread economic distress. Some farmers in these circumstances may realize what is happening but stand powerless to check the trend. By a few it may be done maliciously. In any event this kind of operating policy represents the conversion of essential long-time personal capital into current 'income', while from a public point of view it may result in an ill-afforded diminution of social capital and of future productivity.

Thus we have before us the first of two potential conflicts of public and private interest—the question of maintenance of the soil resource.

In viewing the land-use questions in the United States it must be recognized that we are concerned with a young country. Its physical frontier has only recently closed. Until a generation ago the major concern was to get resources into use, to establish homes and enterprise, to build up communities, to fill up the open spaces. Throughout the past century public lands were sold into fee-simple ownership at a nominal price, or were actually given into fee-simple ownership under limitations easily fulfilled.

It was an expanding pioneer economy. Resources were used lavishly—precisely as sound economic practice under such conditions would dictate. Virgin forests of the finest hardwoods were girdled and burned across the eastern states to open the land for cropping. My own great-grandfather chopped a western New York farm out

of virgin beech, ash, maple, and oak timber and burned the trees for pearl-ash with which he paid for the farm. Such an act would appear to us now as fantastic waste. At that time it not only made economic sense, but was also essential—crops could not be grown in the forests.

Wasteful utilization of all resources—forests, minerals, soils, and others—assuredly went too far. But a pioneer economy and resource conservation are unaccustomed bedfellows. The end of *seemingly* limitless resources dawns only slowly on either the public or private interests. A public unaware of potential future shortage does not object to cheap timber, cheap food, or cheap minerals made available by exploitive private interests. The awakening comes eventually, but not without prolonged yawning and eye-rubbing. In the early years of this century conservation got its start in the U.S. But only the great depression of the 'thirties brought full awakening and public concern over whether there was not in the offing similar resource problems as have plagued older and more crowded countries.

The U.S.A. continues, and will long continue, to use resources (land and other) less sparingly than will European countries. A proper proportioning of production factors in the U.S. economy so dictates. Resource values are showing a tendency to rise. But the relative costs of land and labour have not changed their historic relationship. Labour productivity has continued to rise. Wage rates have risen accordingly. The entrepreneur (farmer or other) remains as much under pressure as ever to maximize the productivity of his labour force. This might be considered as an influence inimical to soil maintenance. But it can hardly be more serious than the heavier pressure of population on the land that prevails in some other countries.

The dominant type of farming in many regions of the United States has gone through repetitive change. Such must obviously have been the case as commercial farming followed the frontier westward. Sheep production was once centred in New England but is now located primarily in the Mountain states of the west. Wheat acreage was once concentrated on the eastern seaboard but now centres in the Great Plains. As new areas have come into commercial production longer-settled communities have been forced into new patterns of farming. Such adjustments, with their concomitant capital losses and requirements for new capital outlay, are not always easily made. When forced by economic circumstances they result frequently in a lag period of unprofitable farming, of which soil deterioration is a

component part. Some farms and some land never do change over, but drop out of the competitive race as an ever-changing technology of production increases the pace of competition. Recent interpretation of the public interest in the United States has supported credit institutions with public backing to facilitate necessary adjustments. Continued productivity of the land has been considered to offset some risk of public loss.

Still another factor that has posed soil-maintenance problems in the U.S.A. has been the steady expansion of farming activities into new and unfamiliar environment. Such a situation is practically unavoidable in the original development of broadly dissimilar areas. Even the early migrants from western Europe into the humid forest country of the eastern U.S. found unfamiliar conditions of climate and soil. Within this area that is in many respects similar to western Europe they still had to adapt new ways of farming, new methods, new crops. Migration continued westward into humid grasslands with strikingly different, but fortunately, very strong and adaptable soils. Still westward was the sub-humid, short-grass country of the Great Plains; and beyond, the semi-arid lands in the rain shadow of the western mountains.

Particularly did the drier grasslands pose new problems. The institutions brought in from the humid east—especially the eastern concepts of water rights and farm size—were entirely unadaptable. The 160-acre homestead, well suited to the mid-west of horse-farming days, was a serious bobble when extended into the dry country. It imposed an ill-adapted institutional factor which further complicated the adjustment to a new environment. It established too-small farms in an area where accumulating experience indicated only larger, extensively operated farms were suited. The 160-acre homestead imposed an undue burden of family support upon the scanty output of each dry acre. Soil-maintenance problems were accordingly increased.

By singling out this particular illustration of a new environmental problem and an unfortunate institutional setting, I do not mean to imply there were not others. In nearly all parts of the country there now has been at least a generation of adjustment from earlier ignorance and errors. But ill effects of such early mistakes on farm-family welfare and on soil-maintenance problems have not been overcome in total. A considerable sum of public funds are being spent on farm-organization studies to promote further adjustment to the dictates of experience. The benefits of such studies go not only to individual farmers who may be thus assisted, but also in equal or greater degree to the general public.

Important as adjustments to new environment and to changing types of farming have been in relation to the maintenance of soil resources, a still greater problem has been posed by the changing technology of agriculture.

Agriculture in the United States is now about 90 per cent. commercial—meaning that 90 per cent. of the total consumable produce is sold off the farms and only 10 per cent. is consumed by the households on the farms where it is raised. This is a marked increase over the degree of commercialization that prevailed only a few decades ago. Not all farmers have met the increasing commercialization with equal success.

In 1946 the top third of all U.S. farms turned out an average of $10,000 of produce each, and produced in the aggregate well over 80 per cent. of the total farm production. The true food base of the country is this group of top producers, which number about 2 million farms.

At the other extreme in 1946 was a low third, 2 million farms averaging less than 500 dollars worth of produce each, and yielding in the aggregate less than 4 per cent. of the national agricultural output. Among these low producers are many residential 'farms' and retirement homesteads on which there is no intent to operate commercially. But included also are a vast number of unproductive farms and too-small farms which the march of technical agricultural progress has left behind.

Certainly not all U.S. farms were alike one or two or three generations ago. But differences among them in productivity and in commercial success are now greater than ever before. Many farms, once supporting large families and even producing net income to provide excellent buildings and improvements, now stand in disrepair and support smaller families in relative poverty. The abuse of once-fertile soils is no doubt a frequent reason. But more often the real problem is natural soil quality too inferior to be used with profit in a highly technical, highly commercial agriculture.

Any discussion of soil resources must recognize the inherent variability of soils. Even in the virgin state their natural fertility ranges from the exuberance of a compost pile down to the sterility of a pavement. The best are highly fertile and easily maintained. But on down the range of soil quality there are first the fertility limitations which may be easily overcome, and then those of more serious nature. When the public interest in soil resources is being argued, these facts demand recognition. Soil improvement is possible from a mere biological point of view far beyond any point that can

be economically justified. Of course, the actual marginal improvement expenditure will vary with regions and nations, and will depend upon the time and the place, and the abundance or the lack of soil resources in relation to population and to capacity to import.

A further point to be emphasized is that technical advances in production methods contribute most to the land that is already best. They do least for land that is poorest. Chemical fertilizers, for example, have come increasingly into use on U.S. farms. As Dr. Johnson has pointed out, we are now using approximately twice the tonnage that was used a decade ago. The amount used varies from region to region around the country, but within each region the fertilizer is used mainly on the better soils instead of on the poorer ones. It gives its greatest yield response on soils that lack absolutely nothing except the chemicals added. When used on soils with limiting conditions of drainage or texture or other handicaps, the yield increase is less and the income increase is less. In economic terms the problem is merely one of proportioning, within the law of diminishing returns. In biologic terms it goes back to von Liebig's law of the minimum.

Improved crops and animals and machines tend to add constant percentage rather than constant amount to yield when applied across different grades of land. The new hybrid corn seed, with a capacity to add something like 20 per cent. to yield, adds 15 bushels on 75-bushel land and 5 bushels on 25-bushel land. The relative contribution to farming success is obvious.

In a short span of years our commercial farming has gone through a revolutionary change in the direction of improved crops, improved livestock, improved equipment, better soil-maintenance practices, and better disease and pest control. These technical improvements have boosted acre yields. But let me repeat, they have added most to the land that is best. The spread in net income between more productive and less productive soils keeps widening as agricultural science pushes on ahead.

Technical improvements have added much more to production per worker than they have to production per acre. This is in keeping with the growing technology and the rising productivity of labour throughout the whole economy. It is the basis for the rising level of living. But it has enormous impact upon land use. In fact, rising living standards are inevitably throwing some farm lands into misuse and deterioration. Cash operating costs are high in a highly technical, highly commercialized system of farming. Trouble comes at the point where all costs cannot be covered.

Somewhere between the upper and lower extremes in soil quality is a point where either the farm capital or a desired level of family living cannot be maintained. Below that point the soils are most certain to be abused and deteriorate. It is of course a variable point. In times of economic depression it moves upward in the range of soil quality. In boom times it moves downward. At all times it varies from farm family to farm family depending upon their skill in management and upon the degree to which they place expenditures for living above expenditure for maintaining the farm.

But the very fact that the point of marginality tends to move upward as agricultural science progresses indicates there will always be a land-use problem in the sense that adjustment will be recurrent in line with advancing technology levels.

I think the public sees this but dimly, and in consequence tends to misinterpret its interest. For example, we have in the north-eastern United States a large acreage of land once farmed but now reverted to nature. If our farming methods had been static over the past two generations much of it would still be farmed. Likewise it would still be in agricultural use if alternative and more profitable industrial employment opportunities had not become available or if population growth relative to the expansion of the national economy had been more rapid. But the fact now stands that the region has one-quarter less land in farms than it had in 1900.

The cry is recurrent from the public, or parts thereof, to bring the derelict lands back into production and on to the taxrolls. The desirability of so doing obviously must be determined in terms of cost and value, and with an answer individually determined for each parcel. Any land area or parcel that would require more public service and expense than its potential productivity would support would appear as a doubtful asset to the society within which it is included. For example, it was said on our trip on Thursday: 'What we do with Dartmoor will neither feed us nor make us starve.' That statement lacks the Scotch-Devonian brogue, and the emphatic bobbing, with which it was delivered—otherwise it is pure Currie. In the United States the vast publicity which soil conservation and land use has received since the recent 'awakening' has emphasized primarily the *quantity* aspect of land. It seems more than a little pertinent to recommend *quality* considerations.

The public interest in farm land bears *not so much with each acre* as with an adequate, continuing supply of the desired produce from *the total land base*. It is essential to the public interest that marginal points of quality be determined (both present and prospective

margins), and that public concern, public assistance, and expenditures, if any, to maintain *farm lands* be concentrated on the supramarginal acres.

The comment is considered to apply peculiarly to the United States. But I believe there is now evidence of this same problem in Great Britain, and probably likewise over a large part of the world. With currently prevailing conditions of food shortage and high food-prices there is both public pressure and private activity towards bringing long-idle acres into arable use. Within whatever country, the long-time economic considerations peculiar to its economy—as well as short-time need and opportunity—must be focused sharply upon the true economic productivity of land so reclaimed.

Let me go on from there to note another soil-maintenance problem—that of the too-small farm. Even when located on productive land, the too-small farm may skid off into the same problems of maintenance as plague submarginal acres. Too heavy demands for family living piled upon too few acres lead inevitably to depletion. The little farm, unless operated with offsetting intensity, may not keep even a minimum labour force productively employed. Enterprise efficiency tends to be low, particularly if mechanized production is attempted. All these factors argue for adequate size of farm units as well as adequate quality of production factors, if private interest in level of living and public interest in maintenance of the land are to be achieved.

And it is important to note also that 'adequate size' is not a constant while technology, and particularly machine technology, continues to push ahead. On a given space resource it means a trend towards fewer and larger commercial farm units. In the United States it may not mean fewer farms as counted by the Census Bureau because suburbanization is creating increasing numbers of residential farms. I do not mean to imply either that U.S. farming should or will tend towards a pattern of great corporate units. It is simply that the family-commercial farm requires more acres than formerly if it is to make adequate use of mechanized equipment, if it is to continue to provide productive employment for the same labour force, and if it is to provide both for good living and good maintenance.

Thus if one farm family is to maintain adequate employment that cannot be provided by increasing intensity of land use, it means that some other family is deprived of acres. Such a trend creates another social-economic problem—that of displaced farmers. But to the degree that the too-small farm (as the sole source of a family's

support) is absorbed, it promises well for the public interest in the maintenance of soil resources.

A large farm population certainly offers advantages to an industrial society in the direction of stability and continued growth of the total population. But too many people on the land creates underemployment and diverts net output which should be used for farm maintenance into the immediate consumption needs of surplus farm population.

Consequently in an economy like that of the United States, both public and private interests in the land require a net flow of population from farm to non-farm activities in such volume as will offset both the displacement of farm workers by technology and the natural increase in farm population.

And let me add that I still question whether long-time considerations within the economy of Great Britain, for example, demand the reverse of that policy, a widespread building of new, permanent farmhouses, and the settlement of more families on the land.

A further point in land maintenance may be considerations involved in land-tenure institutions. In the States we have long cherished the institution of owner-operation, and yet it has been greatly modified by the institution of tenancy. Tenancy will continue with us, and should continue, as an important form of land holding and operation. Though it is often criticized as contributing to soil wastage, it need not do so under a properly developed form of lease and with adequate size of farm units.

As most of you know, we have two major types of tenancy in the United States. One is dominant in the tobacco regions and in the Old Cotton south; the other in the corn and wheat regions and in general farming sections. Tobacco and cotton have been little mechanized as yet. The cropper-system which has predominated in the production of these crops is less accurately described as tenancy than as a system of hiring field hands, and assuring their interest in the work by paying them a share of production. To the degree that this system has contributed to soil deterioration it should be charged to the landowner, to the practice of long-continued row cropping and inadequate soil management. It should not be charged to tenancy.

The cropper-system is now on the wane, particularly in cotton farming. And no doubt it will continue to decrease as cotton regions shift to more diversified farming, and as mechanization increasingly takes over.

Tenancy as practised in general livestock and crop farming is a

more permanent institution. In our system, much as is done here in Great Britain, the tenant rents land and improvements and contributes labour, equipment, livestock, and management to the business. This type of tenancy may be expected to increase as the amount of capital needed for an adequate farm unit continues to rise. It is a means by which a young farmer gets the use of land more in keeping with the vigour of his farming activities, and by which the older farmer may turn over to the capital-short young man land in excess of the amount which the older farmer wishes to continue to operate. In the United States, so long as farming continues to be an individual business with the need for refinancing each farm unit each generation, tenancy is a means by which the public interest can be served by keeping land in the hands of the most vigorous operators.

Here in Britain this form of tenancy is not only considered to serve the public interest, but the discussion has progressed beyond that point to the question of whether there should be a single landlord (the State) or a diversity of individual landlords. With respect to land maintenance, and in whatever country, I think the number of landlords and their legalistic character are quite secondary to the lease provisions under which the land is operated.

Leasing terms which discourage either or both tenant and landlord from maintaining and improving the farm are a contributing factor to land deterioration. Such considerations may include length of lease and security of tenure, equity in the division of costs and returns, compensation for unexpired improvements, and liability for damage or for disturbance. But lease terms which discourage proper farming or which are inequitable are adverse not only to the public interest, but equally so in the long run to the private interests of both tenant and landlord.

In United States agriculture trends are definitely evident to improve leasing terms over those which have prevailed in the past. And with more intensive educational effort what we may call *enlightened leasing* will shortly predominate, if it does not now. Public and private interests in this matter are so similar that marked differences are not to be expected as we move progressively beyond the frontier philosophy.

Agriculture as practised in frontier regions is unavoidably extractive. Both public and private psychology on the frontier are geared to exploitive operation. But self interest as well as public interest dictates a change as the frontier recedes farther into history. On a static space resource as contrasted to the expanding space relations of the frontier, private interest in land turns toward the *sustained-*

yield type of farming activity. The *time preference* in resource utilization is shifted from the present only towards a balance between the present and the future. And public and private interests tend to become so much alike as to be far more similar than in conflict.

No doubt the public thinking in the United States and similar new countries has changed more rapidly and has exceeded full private realization of similar interests. But I believe that in our circumstances, the closing of any final gap which remains is essentially a matter of education and of increased stability of farm income rather than of any abrupt change in the institutional framework of land tenure.

Given a national setting of reasonable prosperity, the future of our commercial farming soils in the United States need not be painted as a picture of dark lines. The federal Soil Conservation Service has increased immensely both public and farmer consciousness of proper long-time soil management and proper year-to-year soil usage. And that our soils have not been deteriorating at a wholesale rate is evidenced by a total of farm production in recent years at the highest levels in our history.

Certain special interests within the United States are now promoting the idea that our soils have been heavily depleted during the recent war. Such a concept has gained considerable public support, but is nevertheless erroneous. Increased use of chemical fertilizers and increased livestock numbers with corresponding increased use of farm manures have put a great deal more plant nutrients back into our soils than the increased cropping of the war years and increased yields have removed. Such a fact is worthy of emphasis, even in a paper at this International Conference, as an illustration of an attempt by special interests to corrupt public thinking with an appealing idea. If proper land management, in the full long-term meaning of the concept, is to be achieved through education, then public as well as private interests must be truly educated and not misguided.

Very probably some may feel at this point that I have dealt inexcusably long with conditions which apply only to the newer countries, and wish for greater treatment of problems more typical of other societies. My excuse is obviously that I have discussed the conditions I know best.

It seems to me other situations fall into two types. First, the land-use problems in older nations and regions where the impact of new areas has had a depressing influence on traditional farming activities —however robust they may once have been. Parts of Europe perhaps may be thought of in this connexion. And within the United States we have this sort of condition at least in parts of the north-eastern

states to which I previously referred. Such conditions are expressed in lands reverting to nature, in fences and buildings falling into disrepair, and in gradual depopulation as young folks move out and old folks die off.

Some such land becomes first marginal then progressively submarginal for any kind of commercial farming on the basis of its comparative fertility. Other parcels may be returned to production by shifting the type of farming, by the outlay of new and wisely invested capital, by new knowledge and new experience. Such shifts are commonly a costly and trying chore. They are a vast challenge. And both public and private interest demand that they be undertaken only with thorough-going analysis of potential opportunities.

A second type of situation is found where population is overburdensome on the land and is there immobilized by lack of alternative employment. Parts of both the Near and Far East are certainly in this situation, but they are only type examples and by no means exclusive. In the United States we have the same direction, if not the same degree of problem in parts of the Old Cotton south. The situation is characterized by hand-labour farming, by tenancy which commonly channels into the less-desirable forms, by land rents disproportionately high relative to production, by low levels of diet even on the best land, by high birth-rates, high death-rates, low educational levels, and by failure to maintain the land in an optimum state of productivity. Some such populations are concentrated on extremely strong alluvial soils where operations can continue for an exceedingly long time. Other aggregations have been less fortunate in their location and have run into soil-maintenance problems much sooner.

If I had any quick solution for these problems my services would be too valuable to permit me to attend this conference. Permanent corrections can be only in the direction of fewer people engaged directly in farming, a greater use of production capital and science per farmer left on the land, and a decrease in reproduction rates. Others have already presented to the conference much more pertinent material on these matters than I am capable of contributing.

Entirely aside from any question of proper land management, there may be a second area in which public and private interests may conflict. Whether it is less important or more important than land-management problems I shall not attempt to answer. I wish only to point it out but not to discuss it in any considerable detail.

What I have in mind is the potential, if not actual, conflicts of

interest which arise from pressure-group political action on the one hand, and from a centrally administered, instead of a market directed economy, on the other.

Pressure-group actions may push out into all sorts of directions without regard to economic dictates if only the pressure groups are strong enough or clever enough to foist off their desires upon a beguiled public. A four-star example of such pressure action is found in the irresponsible use of the protective tariff. It is, however, only a type example.

We need not look very far down the list of world powers to find one which I think has made irresponsible use of tariffs. It is a country which recently considered a Wool Bill. Certainly it has a few sheep farmers, and considerable acreage suited only to grazing sheep. But the Wool Bill, while extremely important to the private interests of a small minority, would have been, if passed, equally adverse to the general public. The whole question is whether it is more important to the public interest to keep a certain area of desert and mountain grazing land in use by assuring high wool prices to a few thousand producers, or to permit 140 million people to buy wool (and consequently woollen clothing) more cheaply from other producers who are willing to sell more cheaply. I see here the private interest and the public interest as being directly opposed. Private interests have often prevailed (as, for another example, the sugar interests in this same country) through the economic ignorance of the general public and a political system peculiarly adapted to the well-worn institution known as log-rolling.

The application of tariffs may enormously influence land use through interference with a free play of the principle of comparative advantage and the breakdown of inter-regional specialization. To the great unwashed public of most nations, the across-the-border exchange of goods is only an obscure principle couched in unintelligible terms in the text-books of a befogged social science. It is much less understandable than Buy British, Buy American, or Buy Ithaca.

As economists we have a vast educational job on our hands. The education cannot be accomplished overnight any more than the tariffs (and other forms of similar restrictions) can be eliminated overnight. I look no farther than right at home, right in my own classroom, for beginning the job.

The United States has the horns, tail, and red suit of a prime offender. I believe our tariff acts of 1922 and 1930 were important factors in the inter-war growth of economic nationalism, in the

depths to which the Great Depression descended, and a contributing factor underlying the Second World War. The battlefields of that war were a form of land use adverse to both private and public interest.

Letting that example do for pressure groups, may I turn quickly and probably equally unsatisfactorily to conflicts in an administered economy. These problems grow out of what I believe to be misinterpretations of the real public interest. We have previously referred to misinterpretations of private interest—situations in which an individual misdirects his efforts either through ignorance or through deliberate short-run grabbing. There can be similar mistakes and misinterpretations of public interest—and an administered economy is most susceptible to them.

Private interests can be expected to follow in production the dictates of price and cost relationships. In an essentially free economy this means that individual farmers will use their land in accordance with its adaptation under the principle of comparative advantage. In a centrally planned economy where it is decided that produce should be raised in a balance between products different from that dictated by free price-cost relationships, the farmer lacks other production guidance than that indicated by the goals and plans of administrative agencies.

All administrators who have the wisdom and uncompromising justice of the Almighty can do a good job. Others make mistakes.

My information relative to certain parts of continental Europe indicates that military governments and other administered governments have fixed prices and pegged currencies at levels which misdirect food production and distribution. In essence black markets are fostered. Livestock are produced where more potatoes and other types of primary foods would more nearly meet the prevailing public interest.

We were told on the first day of the Conference that Britain is going to aim at 400,000 acres of seed flax. This marine-west-coast climate has long been the climatic home of fibre flax, but has not been considered the ideal for seed flax. Is this a programme to spite Argentina? Has it considered the possibilities of seed-flax climatic areas in Australia and South Africa if Empire sources are desired? And has it fully considered that within Britain, potential flax-seed land is wheat land? And what is the public interest, flax or wheat? I do not know. I am merely asking a question that will be answered only by experience. Four hundred thousand acres will be a lot of experience.

In private conversations (and I sincerely hope that this is no breach of confidence) Sir Manilal has indicated that certain Indian farmers are concentrating on tobacco production instead of food because food prices have been fixed at a level less profitable than tobacco. Again, has the public interest been properly interpreted, and does smoking compensate for empty bellies?

I believe that the areas in which public and private interests conflict are small indeed relative to the areas of agreement when the facts are known by all parties. Not all the facts are known—not by the public, nor by individuals, nor by that select group classed as administrators. The challenge to agricultural scientists and educators is of vast proportions. But I submit that research and education are the only solutions.

DISCUSSION

SHERMAN E. JOHNSON.

What I have to say will be more in the nature of supplementation than a question. Perhaps Dr. DeGraff will want to react to it after I get through. It was a stimulating paper, but I do want to supplement it on two or three points. On the question of war-time depletion and damage to soil resources in the United States, I would go along on the statement that we had more restoration of plant nutrients relative to the output of farm products than we had before the war. Therefore, if it were just a question of depletion of soil fertility that could be restored by the application of more fertilizers, and by other practices, the question would not be serious. But we have ploughed up about 8 million acres of land, going largely into wheat, some of it in the dry, high hazard areas that are going to give us trouble again when the dry years return. From a long-time standpoint that land ought to be in grass. I think that is a serious problem. I must confess that I do not have any measure that I can suggest as to the seriousness of the damage, but I am convinced that it exists. I think this also is true in the hilly areas where we planted intertilled crops too frequently on land that was not suited for continuous planting of intertilled crops. And there we did have erosion damage that to some extent is irreparable. This land cannot be restored with commercial fertilizers.

On another point I thought Dr. DeGraff gave the impression that in an efficient agriculture soil maintenance was always or nearly always immediately profitable. I doubt that from the experience in the United States at least. I have had some discussions with the folks

in our Pacific north-west regarding the situation in their wheat areas. They do not find that there are sufficient near-term returns from conservation farming, so that farmers would find it profitable to farm in a way that would maintain soil resources. And of course the outstanding area in our country where that is true is our Great Plains wheat region. We have not devised any system of farming that will maintain soil resources in that part of the United States, consequently we are mining that area. Now, if you regard the use of this land in the same way as you think of a coal-mine, that is one thing, but we are not maintaining soil resources in that part of the country, and we might as well recognize it. I suspect that there are other areas in the world that are similarly situated.

I think we need to remember that there are two necessary prerequisites for soil resources to be maintained in efficient farming. First, it must be technically possible, and second, it must be profitable to farmers. In our Great Plains region it is not technically possible yet, unless we shift entirely to grazing, which when land is once ploughed up is a very much lower value use under ordinary circumstances. In other words, the scientists have not discovered the technical possibility of maintaining that soil with arable farming. In other areas it is technically possible to maintain soil resources but farmers do not find it profitable. How can we maintain soil resources to the extent that maintenance is in the public interest in such areas? I am not saying that we should maintain them intact, but I think we need to give considerable attention as to how much conservation we need in the public interest, and to how much investment is necessary to achieve it. Public investments should be made to the extent that they are necessary to maintain the public interest. And in that regard I make very little distinction between the different kinds of investment. I think we might use all types of investments that are needed to do the job. And by all kinds I include education and research, which are public investments. Most of us are employed by the public, and we regard our work as public investment in the public interest. That is one type of investment. The Soil Conservation Service in our country is furnishing technical service in the way of laying contour lines for terracing and for contour farming and so on. That is another type of public investment in the public interest. We have had a third type in recent years. We have furnished lime and fertilizer, and in fact other materials to promote conservation. To the extent that those materials promote conservation in the public interest, I think they are in the same category as education and research. You can raise questions of course about the difficulties of

administration, but I think the lime programme especially has been very effective in promoting the uses of lime, because the uses of lime have about quadrupled since 1935.

Because of a discussion I had after yesterday morning's programme, I am going to ask you to bear with me for just a moment on another point. I was asked what we were doing in the southern states, and whether there were any suggestions from that work which might be helpful to the people from other areas who were faced with similar problems, similar in form if not in intensity. Dr. DeGraff also referred to that this morning. I am not a southerner, and I do not want to pose as an expert on the south. Mr. Sayre could say this much better than I can. Perhaps he would not agree with what I say. But we have had a committee of southerners working for about a year and a half, and working very hard on southern problems, and just in very brief, one-two-three fashion, I want to mention some of their conclusions.

First of all they suggested full steam ahead on industrialization. That area has not been industrialized to the extent that other areas have. They do have resources of water-power, coal, iron, gas, oil, timber, and others. They have the only sulphur mines, by the way, that we have in our country. So that there are resources within the region. And the population is heavily concentrated. How can industrialization be accelerated? I do not know. One of the suggestions that has been made is to ensure venture capital in that area. Some of the states are tackling it in other ways. But we do know that we do need to go full steam ahead on industrialization.

As number two they suggested greater emphasis on education, starting with the young people, but also working with older people as well. Training for non-farm work is more important than for farming because so many of them are going to have to shift to non-farm work. But in farming I believe we need to think of some new methods of education and training. One of them might be apprenticeship farming. I think also there are some real possibilities in the way of farm management assistance. Some of you are acquainted with what was our Farm Security programme. It was an attempt at rehabilitation of poorer farmers, and the idea of rehabilitation with some supervision and aid on both farm and home aspects may have in it some suggestions for other areas. To be sure, credit and other types of assistance should also be in the picture.

Although material assistance is necessary for improvement of farm resources it seems to me that we need to think of starting where we are with the present generation of farmers and then working towards

improvement and development of skills for other employment for the younger people who will not be needed in farming in an efficient agriculture.

That kind of a programme will require a great deal of public investment in agriculture as well as in other lines—in the public interest. And I think we ought not to be afraid of that. Of course, the more serious the crisis or the more serious the conditions, the more public investment and the more public attention will be required. I do not believe in any more public investment or public programmes than are necessary to do the job that has to be done in the public interest. Sometimes we do those jobs very poorly from an administrative point of view. But I think we need to recognize that some public activity is necessary in the public interest—not as a substitute for individual effort, but to complement it.

EDGAR THOMAS.

Before putting my point I would like to give my personal thanks to Professor DeGraff for his very able and, if I may so describe it, scholarly paper this morning. It was probably accidental that this paper should come at the end of the conference. But, even if the persons who were responsible for the programme had seen all the papers beforehand, we could not have had a more fitting final paper to our conference. That at least is my feeling.

The point I want to make is this. This morning we are not discussing farm management at all. We are discussing land management. Professor DeGraff touched on the importance of the systems of holding land in this connexion. In considering the relative merits of tenancy systems and occupying ownership there are certain well-recognized advantages in being a tenant from the farm-management angle, i.e. from the point of view of the operating farmer. But in considering land use we are more concerned with the advantages from the point of view of land management, or from the point of view of the ownership of land. In this country we use the term 'estate management' in this connexion. The term 'estate', in turn, conveys the conception of the large landed property, something which is larger than the farm and which permits whoever is responsible for the management of the estate to practise certain principles of estate management which I suggest are not possible under a system of occupying ownership. If we are to practise land management we must have control of large tracts of land before what we mean by estate management is practicable. Whether the ownership of these estates is in individual hands or in corporate hands or in

public hands is a secondary consideration. The point is that in considering land use we have to think in terms of much larger areas of land than even the largest-sized farms.

I do wish that Professor DeGraff had not restrained himself when he came to touch on the present position in this country. I suspect that if he had let himself go he would probably have expressed concern about the trend towards the state ownership of land and all it means by loss of freedom and so forth. I want to suggest, without developing the point at all, that it is just possible that the rules and regulations and restrictions which have to be imposed in order to get the optimum land use under private ownership may be a much greater menace to the freedom of the individual operator than anything which would be necessary if the land itself were in public ownership.

A. W. Ashby.

I would like to put one or two points relative to this discussion. Theoretically if we conceive at least of the Western world as moving very rapidly towards a stationary population, and if we remember the recent progress in agricultural science and its application, I think we have, in the course of time (and but for the intervention of this war in a relatively short course of time), to consider the necessity of retirement of land and also to consider the *processes* of land retirement. 'Land retirement', I believe, is a term which we need to get into these general concepts of conservation, reclamation, and use. Retirement in some cases is just as important as any of these other processes. I agree with Dr. DeGraff that, up to the present moment, the contribution of science and engineering to production in agriculture have been greater in the case of the output per man than in the case of the output per acre. I agree particularly if you are looking at crop production for direct human consumption. But I believe that, if you are taking crop production including pasture production and the processes of livestock production together, the increase in output per acre there has been far more than in the case of the crops grown for direct human consumption. There are these factors in that particular case. First, there is the increase in the production of crops including pasturage per acre. There has been an absolute revolution in pasture production in New Zealand, and there is perhaps beginning to be a similar revolution in this country. Considerable improvements in pastures have been somewhat general. Second, there is the increase in the converting capacity of the livestock themselves. Third, we have had in the last twenty years a factor almost as important as

the other two, namely, the increasing knowledge and the increasing application of knowledge in the combination of pasturage and other crops, and converting capacities, for livestock production. If we look at certain parts of the world, and particularly at New Zealand, the increase in output per acre has been extremely rapid.

To the general proposition which I put at the beginning there are of course one or two slight qualifications, one that when opportunity occurs in the Western world the people may eat more food, another that they may eat a higher quality of food, i.e. more livestock products in the totals, thus requiring more land. And still a third, taking the world as a whole, there may be more agricultural production of industrial raw materials. Those are qualifications of the original theorem. But at the same time one must remember that with the types of agricultural policies being pursued, and with the ideas that are in the minds of some of the nutritionists, we could give the world, even the Western world, better food, purely from the point of view of nutrition alone, with less land than we have in occupation and use at the present time, if we turn the population back on to a lower cost and more vegetarian dietary.

Beyond this, I think that in any case if we look not at the theoretical position, but at the practical position as it has developed in this century, land retirement is often necessary. If you want to go farther back you will find any number of cases in the previous centuries. Cases of the need of land retirement are always occurring. The general process has been just to let it go out of use—to 'tumble down'. But where there is no necessity of land retirement as such, there is the necessity of transfer of land from higher agricultural to lower agricultural uses, such as Mr. Johnson was mentioning about the wheat plains a few minutes ago. We in this country are beginning to feel more confident in dealing with a situation of that kind, very largely because of the very rapid and very effective increase in the knowledge and practices of making and managing pastures. Indeed, if we were concerned with the production of livestock products in some parts of our country, the probability is that we get as much carbohydrate, as much starch equivalent, from some of our pastures as we should from treating the same land under arable crops. On the balance at any rate there is very little difference. But there is in all these cases of transfer from higher to lower agricultural uses the necessity, as Dr. DeGraff said, for the institutional adjustments or the adjustment of the size of farm to the new use. In this country I would say that we have very little land which is absolutely marginal if it is used in farms of the appropriate size for appropriate purposes.

Our marginality is very largely determined by the historical type of settlement; that is, by the size and the type of existing holdings and their equipment. And the provision and arrangement of the new institutional settings for change of use is an enormous problem, especially in this country with the very solid buildings that you have seen, and the generally heavy capital investment.

At this point I would just like to comment on an early part of Dr. DeGraff's paper and say that if you are looking at the surface soils of large parts of a long-settled country, their characteristics are man-made. The effective surface soil consists largely of labour and materials. That is true of some of the most productive parts of this country. If you are looking at hilly parts, you will find fields that lie close to the farm buildings, extremely productive fields, and if you move a quarter of a mile away you will find fields that look and act entirely differently. Set the chemist and the physicist on the job and they would tell you that there is little or no difference between the nearer and the more distant soils. All that has happened is that for a thousand years we have been putting livestock on the nearby lots. And that is what Sir Manilal said about India the other day—more productive land near the villages, less productive in the margins between villages. That condition occurs in the Midlands of England. But one of the fundamental problems in attitudes to land, and in public and private actions in relation to land, is the condition in all the older countries, and I believe practically the world over, of the emotional set of the general population, very often on the lines that the land is sacred, and that all lands should be used for food production. That is our fundamental problem, getting rid of sentimental attitudes, setting out to establish rational general conceptions of the relations between land, supplies of materials, and all types of labour force for production; supply of food-stuffs and industrial raw materials required; and also, of course, between these and the living conditions of the cultivator. In this country during the war reclamation and renovation of land have been extremely popular. The publicity value has been extremely high. But I can tell you that if we had used on the better land the main part of the labour, the main parts of the lime and superphosphate, that we used on reclamation and renovation, we would have got a greater contribution to national food supplies. But that would not have given such spectacular results, and it would not have been so popular. However, even in this country we do have to consider this problem of land retirement and the appropriate form of retirement in certain circumstances, and the appropriate processes of retirement.

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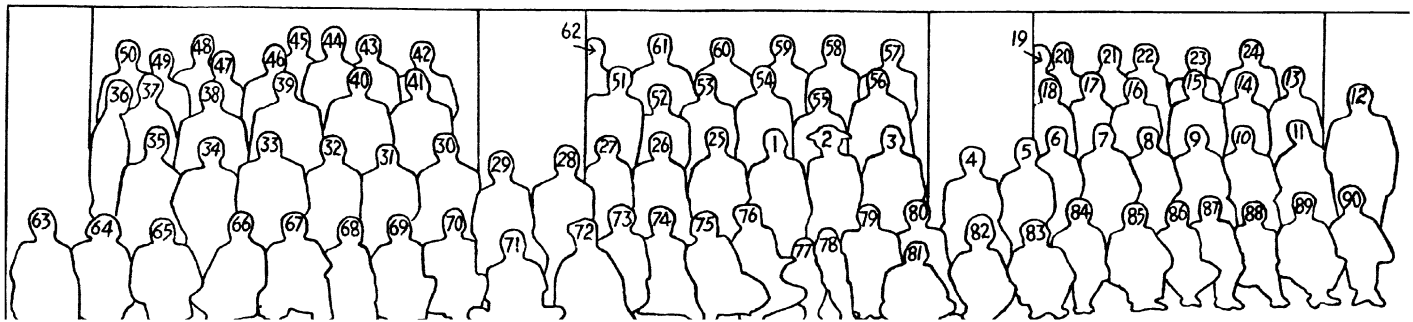
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INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS

CONFERENCES

First, 1929: Dartington Hall, Totnes, Devon, England.
Second, 1930: Cornell University, Ithaca, New York State, U.S.A.
Third, 1934: Bad Eilsen, Schaumburg-Lippe, Germany.
Fourth, 1936: St. Andrews University, Fife, Scotland.
Fifth, 1938: Macdonald College, Ste Anne de Bellevue, P.Q., Canada.
Sixth, 1947: Dartington Hall, Totnes, Devon, England.

THE International Conference of Agricultural Economists was inaugurated during the summer of 1929, when fifty economists from eleven countries met for two weeks at Dartington Hall, Devon, England, on the invitation of Mr. L. K. Elmhirst. The Second Conference was held in 1930 at Cornell University, U.S.A., and was attended by over 300 members and visitors, twenty countries being represented. At this meeting the formal Constitution was drawn up and approved. The Third Conference, held at Bad Eilsen, Germany, in 1934, was attended by 170 members, nineteen countries being represented. The Fourth Conference was held at St. Andrews, Scotland, when 219 members and visitors attended, of whom 127 were from twenty-one countries outside of the United Kingdom. The Fifth Conference, at Macdonald College, Canada, in 1938 was attended by 510 members from twenty-three countries, and the Sixth Conference at Dartington Hall in 1947 was attended by eighty-two members from twenty-three countries.

The Conference has now a total membership of 404, with twenty-nine National or Area Groups. Its representative character has been steadily growing since the first informal gathering in 1929, until it now embraces the majority of countries where the study of agricultural economics is pursued.

The object of the Conference is that of fostering development of the sciences of agricultural economics and of furthering the application of the results of economic investigation of agricultural processes and agricultural organization in the improvement of economic and social conditions relating to agriculture and rural life.

Membership shall consist of individuals who pay £1, $5, or their equivalent per year for the period between Conferences. The current period will be two years, for which the subscription will thus be £2, $10, or their equivalent. Members will be entitled to a free copy of the *Proceedings* of the most recent Conference and to copies of the *International Journal of Agrarian Affairs*. The majority of members are professional agricultural economists engaged in research, teaching, or public administration, but the membership is representative as well of a wide range of agricultural and economic interests. Applications may be made to the Secretary, who will put the applicant in touch if desired with the appropriate national correspondent.

Meetings are held at intervals of two or three years, at a time and place determined by the Council. No two successive meetings can be held in the same country. The meetings afford a unique opportunity of personal intercourse with fellow workers from all parts of the world.

The *Proceedings*, consisting of papers and discussions at each Conference, are published, and one copy free of charge is sent to each member. Extra copies may be purchased by members at reduced rates. Copies of the *Proceedings* of the First, Second, Third, Fourth, Fifth, and Sixth Conferences are available on application to the Secretary, or to Professor F. F. Hill, Department of Agricultural Economics, Cornell University, Ithaca, N.Y., U.S.A.

AMENDED CONSTITUTION

NAME AND OBJECT

The name of the organization shall be The International Conference of Agricultural Economists.

The object of the Conference is that of fostering development of the sciences of agricultural economics and of furthering the application of the results of economic investigation of agricultural processes and agricultural organization in the improvement of economic and social conditions relating to agriculture and rural life.

MEETINGS

Meetings shall be held at a time and place determined by the Council. No two successive meetings shall be held in any one country.

MEMBERSHIP

Membership shall consist of individuals who pay £1, $5, or their equivalent per year, but not exceeding £2, $10, or their equivalent for the period between Conferences (which shall be the period from the end of one Conference to the end of the next).

Libraries, corporations, and similar institutions may become members if a duly accredited representative is appointed by each such institution.

The Conference, on the recommendation of the Council, may elect honorary life members.

NATIONAL OR AREA GROUPS

The members of the Conference in each country (or in a group of countries) may form a National (or Area) Group. Each such Group shall make provision for the election of a Chairman of the Group, and may provide for the appointment of a secretary of the Group, for each Conference period. The Chairman or secretary, as may be designated by the Group, shall be the correspondent of the Group.

EXECUTIVE OFFICERS

The Executive Officers shall be a President and a Secretary-Treasurer, both of whom shall be elected by the Council at a formally constituted meeting held during a Conference, and shall hold office for a period ending with the close of the next succeeding Conference. The Executive Committee, in the event of the inability of the President to fulfil his duties, shall elect an acting-President who shall hold office until the first session of the next Conference, at which time the Council shall elect a President of the Conference to hold office for the period of the meeting of that Conference.

HONORARY OFFICERS

The Council may nominate for election not more than four Vice-Presidents to serve from the end of one Conference to the end of the next Conference; these Vice-Presidents to be *ex officio* members of the Executive.

COUNCIL

The Council shall consist of the Executive Officers and Honorary Officers as *ex officio* members together with members of each National or Area Group as hereinafter provided.

(*a*) A National or Area Group having 5 or more members may elect one member of Council; having 10 and not exceeding 25 members, two members of Council; having over 25 and not exceeding 60 members, three members of Council; having over 60 members, four members of Council; the maximum number of members of Council for any electing Group shall be four.

(*b*) Members of the Council shall be elected and hold office for a Conference period.

(*c*) Method of election of Members of the Council shall be left to the discretion of each electing Group.

EXECUTIVE COMMITTEE

The Executive Committee shall consist of the two Executive Officers and Honorary Officers and the duly elected Chairmen of all National or Area Groups having five or more members.

The President of the Conference shall be the Chairman of the Executive Committee.

The Secretary of the Conference shall be the Secretary of the Executive Committee.

The acts of the Executive Committee shall be subject to the approval of the Council.

It shall be the duty of the Executive Committee to act for the Council between meetings of the Council.

PROVISION FOR TEMPORARY ORGANIZATION OF GROUPS

Where no Group has been constituted the President may appoint a representative to canvass for members in the country or area and to make arrangements for the proper organization of a Group under the Constitution.

AMENDMENT OF CONSTITUTION

The Constitution may be amended by a majority vote at any Conference provided the amendment has previously received the approval of a majority of the Council.

LIST OF OFFICERS AND MEMBERS

(For 1938–47)

(*Note*: It has not been possible to revise all addresses since the war)

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