PROCEEDINGS

OF THE

FOURTH INTERNATIONAL CONFERENCE

OF

AGRICULTURAL ECONOMISTS

HELD AT

ST. ANDREWS

SCOTLAND

30 AUGUST TO 6 SEPTEMBER 1936

LONDON

OXFORD UNIVERSITY PRESS

HUMPHREY MILFORD

1937

delphia–New York area, the Norfolk area in Virginia, and the Winter Garden area in southern Texas so supplement and compete with each other as to provide American consumers with a continuous supply of fresh vegetables the year around.

It should also be noted that the great bulk of farms throughout the United States are family-sized farms, with the family supplying the most of the labour and the head of the family, even on tenant farms, assuming to a considerable degree the responsibility for the system of farming followed and for the actual operation. There are a small number of large farms, including some corporation owned farms, but these are not important. The only outstanding exception is the plantation system in the South, where the 'share-cropper' has a status somewhere between that of an agricultural labourer and a share-tenant in other parts of the country. The proportion of tenant to owner-operated farms is high in both the South and the Corn Belt.

Within each of the broad general type-of-farming regions, or areas, there are also to be found wide variations on individual farms, particularly with respect to the way in which the various crop and live-stock enterprises are combined into farming systems. Many factors have contributed to these variations in the crop and live-stock combinations handled by different farmers following the same general type of farming. One of the most important of these is the variation in soil, topography, and drainage of farms in the same locality. Although conditions within a given area may be generally uniform, in specific localities and on particular farms a great deal of variation is possible. Any one of these may force the farm operator to adopt a crop and live-stock organization which may vary considerably from what the majority of the farmers in the area follow.

The location of the farm relative to markets, both for commodities to be sold and to be purchased, also has an influence. The location is, of course, measured in terms of transportation facilities and costs and of market organization. The controlling principle is the minimization of transportation, processing, and selling costs which intervene between producers and consumers for all the products for which there is an effective (either direct or indirect) consumer demand.

Another factor influencing farm organization has to do with the availability of capital. A farmer, due to limitations of capital or credit, may be unable to expand his business, or to produce as intensively as he otherwise would, were capital not a limiting factor. Variations in family labour supply also cause differences in crop and

live-stock combinations. Farmers with available family labour oftentimes will add supplementary enterprises to their business in order to utilize such labour and render it more productive; or may, in the short run, produce more intensively, i.e. sell his labour cheap in order to pay debts and taxes and accumulate additional capital.

Still other factors are the supplementary, complementary, and competing relationships between enterprises, or the factors affecting diversity. Because of the differing requirements of the several agricultural enterprises, farmers usually find it to their advantage to combine several enterprises into a farming system in order to obtain a continuous or even employment of labour and equipment, in order to obtain the best utilization of the several plant foods in the soil, and in order to convert the products of the several enterprises into their most marketable form.

The tenure of the farm operator and his degree of indebtedness likewise play a part in determining the particular combination of enterprises a farmer adopts. It usually happens that tenant operators do not have complete freedom of choice as to the operation of the farm. Usually having possession of the farm but for a limited period of time, the tenant does not feel that he can afford to make improvements, add fertilizer, and adopt a permanent cropping rotation unless he is compensated for such outlay.

The amount of mortgage debt also may cause farmers to adopt systems of farming which are different from what they would handle, were they not encumbered. An encumbered farmer is more likely to work harder to push his resources to the limit of profitableness in an attempt to make the farm yield as much as possible.

Then, finally, the personal likes or dislikes and aptitudes of the farmer play a part. Some farmers are more alert to their economic opportunities than are others. They respond more readily to changes in economic conditions and attempt to take advantage of every new situation. Other farmers are less 'price sensitive' and are influenced more by custom and established ways of doing things. These farmers, therefore, make changes very slowly in their organizations and practices.

Apart from the factors just discussed, the rate or state of economic and social progress has an important influence on the organization of farms, as does the role which government plays in the way of legislative and regulatory measures with respect to production and marketing. Changes in demand for agricultural products, for example, caused either by changes in *per capita* consumption, in population, or in foreign trade, influence not only what a farmer does in a

particular year, but also may be the primary considerations which lead him to shift his type of farming entirely.

Economists usually have reasoned: as prices change, entrepreneurs respond by shifting enterprises or combinations of enterprises so that total production of the commodities whose prices have been lowered will be curtailed. But experience in the United States during the past decade indicates that, in a period of declining prices, such changes are made only very slowly by entrepreneurs. In fact, in 1932 and 1933, acreage and production of cotton, wheat, corn, and tobacco in the United States were practically as great as they had been five years earlier, although in this five-year period prices had fallen precipitously. On the other hand, the Agricultural Adjustment Act of 1933 and the Soil Conservation and Domestic Allotment Act of 1936, which gave to agricultural entrepreneurs an added incentive to shift away from the production of commodities for which demand had declined, and to adopt systems of farming which conserve the soil and restore fertility, have already had a profound influence on the organization of individual farms in the United States.

With this discussion of the geographic variations of farming systems in the United States and some of the factors responsible for them as a general background, I would now like to consider the relation of some of the broad technical and economic developments now under way in the United States upon systems of farming and agricultural organizations.

The developments which I consider most significant are: (1) the trend towards mechanization of the processes of agricultural production; (2) the effort to adjust agricultural surplus to the changing demand situation which grew out of the World War, the expansion of production in competing areas and the rise of nationalism; (3) the increasing interest in, and the realization of, the need for soil conservation in order to maintain fertility and to preserve or increase the producing capacity of the nation; (4) the use of the centralizing powers of government by farmers in the development of national agricultural adjustment programmes.

Although agricultural mechanization has almost completely changed the methods of agricultural production in some parts of the United States since the middle of the nineteenth century, it should be recognized that it has progressed at different rates in different parts of the country.

In general, agricultural mechanization has developed fastest, and may be expected to continue so to develop, in areas characterized by level land, by relatively large farms operated by farmers with a

reasonable amount of capital or credit, and where considerable blocks of new land were being brought under cultivation. Level land and large fields, of course, lend themselves readily to mechanical operation; farmers must have, or be able to obtain, money in order to acquire the necessary machinery; and in areas where new land is being brought under cultivation, labour is usually scarce, and farmers are not hampered by tradition and the possession of old machinery from adopting any new machine or cultural method which appears to offer more efficient operation.

As already noted, these several conditions were all present in the wheat-raising areas on the Great Plains through the decade ending about 1930. A similar condition existed along the western edge of the Cotton Belt. Mechanization has proceeded more slowly in those areas which are characterized by rough and broken topography, small and irregularly shaped fields, and a self-sufficing type of farming, and in the South where the failure to develop an efficient mechanical cotton picker and the presence of a dense rural population have resulted in a marked lag.

The motor truck has supplanted horses generally for farm to market transportation, and the development of two- and four-row implements and of the general purpose tractor has tended to economize or supplant horse labour throughout the general farming regions and the Corn Belt. Altogether the decline in horse and mule numbers in the United States through the last two decades has released about 30 million acres of crop lands, once required to produce feed, for the increased production of commercial crops either for increased domestic consumption or for export.

The further development of agricultural mechanization apparently depends upon inventive genius, the maintenance of reasonably sized farming units, and the continuance of the opportunity for the surplus farm population to find industrial or other urban employment. If mechanical devices which require any considerable capital investment are to continue to be adopted generally, however, farmers must be reasonably prosperous, and the surplus farm population must be able to find industrial employment in order that farms will not be subdivided, and that the ratio of labour to land will not increase to the point where hand labour is cheaper than mechanical operation.

Although mechanization and the development of better strains and varieties have lowered costs of production, they have, at the same time, increased the supply of agricultural products available for market. This increase in supplies in the United States accompanied

by similar increases in competing areas outside of the United States, rising tariffs, and a diminishing volume of international trade both in agricultural and industrial products, by 1931 and 1932 had brought about a situation in which total supplies of the commodities most important in American agriculture were entirely out of line with effective demand. In terms of total acres, there were from 30 to 50 million acres of land in harvested crops for which there was no ready market at prices at all remunerative to farmers. This maladjustment was further aggravated by the industrial depression and by the fact that many producers maintained or increased production in a vain effort to maintain their incomes.

The sales of an individual farmer are usually so small as to have an infinitesimal influence on the market, so that it is to the interest of the individual to sell as much as possible, even though he well may know that similar action on the part of all producers, or even the bulk of the producers, will certainly break the market. This fundamental conflict between the interest of the individual and of the group, which can be reconciled only by group action, is the basic reason for the existence of many of the marketing co-operatives, especially milk marketing, in the United States, and this was one of the important reasons for the passage of the original Agricultural Adjustment Act early in 1933.

Another great force or development affecting the organization of farms in the United States to-day is the increasing interest in, and need for, soil conservation. Proper farming practices and crop rotations must be adopted on every farm, if soil fertility is to be maintained or improved and erosion prevented.

The cropping systems and practices that have been in use on much of the farm land of the country—the good land as well as the poor land—are such as to result in the continuance of decline in fertility and of an increase in the losses from erosion by wind and water. An erosion survey conducted by the Soil Erosion Service in 1934, covering 1,907 million acres—the entire rural land area of the United States—showed that on 578 million acres—between one-third and one-fourth of the total—little or no erosion of any kind was occurring, but that sheet erosion was prevalent on more than 800 million acres, severe gully erosion on more than 300 million acres, and wind erosion on another 300 million acres.

Secretary Wallace has stated recently that water erosion has practically destroyed 50 million acres of farm land and seriously damaged another 150 million; that wind erosion has destroyed 9 million acres, and that it is active on another 70 million acres. In many parts of the

country, the systems of farming, the terrain, and the climate all combine to accelerate erosion and loss of fertility. One hard rain sometimes carries away as much as an inch of top soil from a sloping cultivated field.

From the short-run standpoint of the individual farmer, it is usually most profitable to put a high proportion of the farm in cash or market-crops, or crops which can be most quickly converted into live stock. In the United States, this means that there is a tendency to put as high a percentage as possible of the land in the South and the Mid-west into clean cultivated crops, which are especially conducive to water erosion and the extraction of soil fertility, and as high a percentage as possible of the land on the semi-arid Great Plains and the Pacific North-west into wheat or some other small grain, which leads to over-expansion and in dry seasons to wind erosion. And in the Range Region, and on the pastures throughout the general-farming, corn-growing, and dairy regions, the tendency is to graze as many animals as is possible in any particular season, which is conducive to deterioration of the vegetative cover and to accelerated erosion.

On an owner-operated farm it is to the long-run interest of the farmer to adopt a rotation or farming system, and such practices as are desirable from the standpoint of soil conservation, provided he knows what is needed, and provided he is financially able to consider his long-run interest. A farmer with a heavy mortgage, however, or even a farmer on a small-sized unit with a large family to support cannot usually afford to consider anything other than the short-run situation. On a tenant-operated farm where the tenant has only a short-term lease, and where any effort to conserve or improve the soil accrues to the benefit of the landlord or some other tenant, the tenant can only afford to consider the short-run situation. Soil conservation is to the long-run interest of farmers, of their children, and of the nation. The question then is not whether it is needed, but rather as to how it can be best obtained.

The last major development affecting farm organization in the United States I shall mention is the inauguration, in recent years, of national collective adjustment and conservation programmes. The low farm prices and low farm incomes that came when supplies entirely outran effective demand in 1930 to 1932 led the farmers of the United States to ask for and to obtain from their Government the Agricultural Adjustment Act. This Act provided a mechanism through which the farmers of the country, especially those of the Cotton Belt, the Wheat Regions, the Tobacco Areas, and the Corn

Belt, could collectively adjust the organization of their farms. At the same time, it provided an economic incentive in the form of a 'benefit payment' to each farmer who would co-operate with his fellow farmers in remedying a nation-wide maladjustment. In 1934 and 1935 more than 3 million farmers entered into individual contracts with the Secretary of Agriculture to make changes in the organization of their farms; as one example of the mass result of the adjustments thus made, the cotton acreage in the United States was changed from more than 40 millions in 1932 to less than 30 millions in 1935—the result of a greater or less change in the organization of a very large percentage of the cotton-producing farms in the country.

The principal change in the organization of the millions of individual farms co-operating in the programmes was a shift of part of the acreage formerly in the intensive soil-depleting crops to extensive soil-conserving crops, e.g. from cotton or corn or wheat to grasses or legumes. Generally the changes were in the direction of what the agricultural economist would term 'better farm organization'. The primary purpose of the movement was, of course, to enhance farm prices and to raise farm incomes by balancing supplies with the effective demand, and to stimulate industrial recovery by increasing the purchasing power of farmers for the products of industry. Better farm organization and conservation and restoration of soil fertility were secondary achievements.

Then on January 6, 1936, the Supreme Court of the United States, by a 6 to 3 decision, declared unconstitutional the production adjustment phases of the Act. The majority of the Court stated, among other reasons for their decision, (1) that agriculture is a *local matter* over which the States, rather than the Federal Government, have jurisdiction; (2) that the contracts between the individual farmers and the Secretary of Agriculture, which called for payment of a direct reward to the farmer for changing the organization of his farm, were a form of 'economic coercion'; and (3) that the processing taxes, because of the manner in which the proceeds were being used, were unconstitutional.

Thus it seemed that the current interpretation of our Constitution had destroyed the opportunity for farmers and the Government to work together to bring about adjustments in agriculture—changes in the organizations of farms—even though they are recognized generally to be in the interest of the nation as a whole as well as in the interest of the farmers, but which the farmers, acting as individuals without the aid of the Government, have been and still are incapable of making. But within two months the Soil Conservation and

Domestic Allotment Act of 1936 became law. Under this law farmers in every type-of-farming area in the country—probably more than 4 millions of them—are now working together voluntarily with the aid of the Federal Government to develop farming systems and farming methods that will check the destructive erosion of our farm land and begin to rebuild its fertility. On most farms an increase in soil-conserving or soil-building crops will be accompanied necessarily by a decrease in soil-depleting crops and, since the crops that had been in excess supply prior to the Agricultural Adjustment Act —cotton, wheat, tobacco, and corn—are the principal soil-depleting crops, the Agricultural Conservation Programme, as an important by-product, is preserving to a considerable extent the balance that had been achieved through the adjustment programme.

Each farmer participating in the programme is to receive a grant of money from the Secretary of Agriculture, the size of the grant depending upon the extent to which the farmer has increased his soil-conserving crops and practices, and the short-run loss of income he has suffered thereby. The Act is being administered through associations of producers, the State Agricultural Colleges, and the Agricultural Adjustment Administration of the United States Department of Agriculture. The crops and practices for which farmers will receive grants are based largely on the findings and recommendations of the State Agricultural Colleges. In nearly every agricultural county in the country, there is an association of farmers—the County Agricultural Conservation Association—composed of all those in the county who are co-operating in the programme. These associations, through committees of their own selection, are carrying the main responsibility in determining the extent to which each of the members of the association is co-operating in the programme. They are determining also, subject to review by the State Agricultural Colleges or State Committee and by the Agricultural Adjustment Administration, the size of the grant which each farmer will receive. In many respects, the functions and duties of the County Conservation Associations are similar to those of the County Production Control Associations which played so important a part in the administration of the adjustment phases of the Agricultural Adjustment Act.

Thus, for the past four years, the farmers of the United States and the Government of the United States have made great progress in developing a method for achieving *mass* adjustments in the organization of individual farms. These adjustments have enhanced the incomes of the farmers who participated. They have been in the

interest of the nation as well as of the farmers. They are using the processes of democracy and are in harmony with the form of government which has existed in the United States since it first became a nation.

In conclusion, I should like to point out again that the most difficult problems with which farmers in the United States are faced are problems arising from the effect upon agriculture of economic and social developments since the World War.

American farmers are, as a group, able and hard-working, and American agriculture is not badly adjusted from the standpoint of economic or natural location, or with respect to the supplementary and complementary relationships between enterprises. But as a result of economic and social developments not only in the United States, but also in many other countries as well, it has come to pass that a state of unbalance exists which has called for rather profound changes in the internal organization of some millions of farms in the United States. These changes would enhance the welfare of the nation as a whole as well as of the farmers. New relationships between the Government and the farmers of the nation and new governmental mechanisms had to be developed in order to achieve the changes expeditiously and to maintain the improvements resulting therefrom. No doubt in this rapidly changing economic and social world, the continuance of the development of relationships between agriculture and government will be desired by the people of many countries. I suspect that this offers to the agricultural economists one of the most fertile fields of service in the years ahead.

DISCUSSION

A. W. Ashby, *University College of Wales, Aberystwyth.*

In taking part in this discussion I intend to devote the greater part of my remarks to Dr. Zörner's paper. Like all the rest of us, I hold Dr. Zörner in very high regard, but it seems to me that he is the vehicle of expression of ideas which I regard as extremely dangerous to the whole agricultural community. There seems to lie behind a good part of his paper the idea of conflict between agriculture and industry, between agricultural or rural society and urban-industrial society. It does not seem to me—indeed, I think I ought to go further and say quite definitely that I do not believe—there is any such conflict. I am sure that no such conflict is inevitable, and I am afraid that the greatest danger of such conflict arises from theorists like ourselves. Indeed, it would appear to me that the younger generation of

agricultural economists, instead of looking at the existing differences between urban and rural society, should apply themselves to ways and means of amalgamating the two groups; of raising the standards of rural and agricultural groups to the best of those established by industrial endeavour and in urban environments; and perhaps in some measure of helping other people to modify in some ways and degrees certain forms of urban society. If again we can say to ourselves in all sincerity and honesty that only small-scale production gives us an entirely satisfactory form of work and of livelihood, then should we not turn on our great urban industrial organizations and break them up into the small units in which they existed in the early part of the nineteenth century? We do not, of course, believe anything of the kind. And we must realize, all of us, that the greater material benefits and advantages which the population of the whole industrial world now enjoys have been due to specialization and division of labour in industry; to the development of science and industrial organization; and although we are as agriculturalists prepared to apply the science, we, or some of us, are not prepared even to think of the application of industrial organization to this our industry.

The general position, however, is that scarcely any one, if one, of the great agricultural communities has yet enjoyed its full share of the material benefits of civilization, to say nothing of the modern services which arise from the benefits of material civilization, because they are still in part segregated and isolated from the great national communities in which they live. My view is that, rather than further segregate and isolate them, we should try to develop forms of organization, forms of education, transport, mobility, and social habits, which, if they are good for us—for such people as are now in this Conference—are good for all other people; and that we should try to build up standards of living of the family and social habits of rural communities which will give them the greatest possible material benefits and aesthetic and psychological satisfactions which the modern industrial world can provide for them.

That is general. It is surprising to me that a man like Zörner should present to this Conference the idea that it is still necessary to maintain a big agricultural population in order to provide a market for industrial goods. It is absolutely amazing that any such idea should be presented to this Conference. If there are 50 millions of people with an average purchasing power of one hundred pounds a piece, it matters not to industrial producers whether 20 millions or

30 millions of them are engaged in agriculture. The consumption of industrial goods in total will be exactly the same. The only industrial groups which benefit from a high proportion of agricultural population are those which produce the relatively primitive and cheap industrial goods, not those that produce the higher forms.

Then there is this other strange idea for agriculturalists that it is still necessary for us to maintain a rural population in order that the urban population may be maintained. It is equivalent to good farmers, seeing their flocks dying from liver-fluke on the low-lying lands, saying: We must not clean out the ditches which breed the snails; we must breed bigger flocks on the hills in order to maintain the total sheep population. It is a policy of sheer physical and biological waste and nothing else, but in fact most of the industrial countries of Europe, and certainly the United Kingdom and the United States, cannot hope to maintain their urban industrial populations on the basis of their present rural populations. We in this country have simply to look at our agricultural population which represents 7 per cent. of the total occupied people, or, including their families, perhaps 8 or 9 per cent. of the total population, or at the rural population which represents 20 per cent. of the total. If the urban population were dying out in three generations, it would become necessary for our rural population to produce people to about three times its own survival rate: that is, each adult woman in our rural population, instead of producing two children to insure survival, must produce at least six up to the age of reproduction. This when translated means, of course, that the rural population has got to raise children and forego certain modes of living in order to do it. In crude terms, the process means in Europe utter poverty for the period between marriage and the time at which the children leave the home in order that an urban population may be maintained. If that is the condition, what one feels tempted to ask is: Why maintain an urban population at all? Why not go back to the eighteenth-century condition of a population comprising (as it did in the United States) 80 per cent. agricultural and 20 per cent. industrial and commercial? Of course we never mean to go back to that.

Then perhaps one of the great ideas behind the exaltation of small-scale production is the idea that the peasant or the *Bauer* is a man who has an inner calling, a higher inspiration for industrial activity than any other person. It is a great claim to make for any class, and I think we can easily exaggerate the extent to which the desire for self-expression in production, or in vocation, has passed from the non-agricultural part of the modern world. Perhaps most of us,

certainly many of us, would be prepared to admit that the great majority of individuals require to find personal psychological and aesthetic satisfactions in their vocations. There is no reason yet why men and women cannot find these satisfactions in full in a combination of leisure and industry, leisure and occupation, which the modern industrial and commercial system can afford them. When we go one step further and say that the *Bauer* is not a man who works for profit, we should not delude ourselves by thinking of that term profit in the form in which it is commonly used. On the family farm profit means income, and, if it does not mean income, it does not mean anything in reality. If the *Bauer* is not a man who works for income, what is it he works for? Does he not work for food, for clothing, for education, and leisure occupation, for all the possible opportunities of personal development? And if he does not provide for his children the opportunities of full personal development for every one of them, is he not failing as a man and a citizen, to say nothing of failing as a *Bauer*? Certainly the *Bauer* works for profit, unless, of course, those of us who may act towards him as leaders mislead him into false standards and judgements of what is worth while in this industrial world in which we live.

There is however no possibility of really segregating a rural from a general population in any of the progressive nations, unless it is done of a set social and political policy by beginning at the pre-school or the school age and by turning children and their minds in the channels along which we, as a representative group of another type, would not like our children turned. We may do that; we may succeed in doing that; but if we do, then it seems to me this social political conflict between the urban-industrial and the agricultural-rural groups, which has been spoken of, is almost inevitable. Fortunately a good many tendencies are against the possibilities of success for this policy. There is especially the development of modern transport, and more particularly of short distance transport. In this country a connexion between the village and the road-side bus stop and the market town, or the town of 40,000 or 50,000 inhabitants, is beginning to link up the two groups of the population as they never were linked before. And there will be, as far as one can judge, an almost complete absorption of the rural group into the general social group in a very short time. This country will not be the weaker, but will in fact be socially and politically healthier and stronger as a consequence.

As I said a few minutes ago, we are, all of us, prepared to use and to foster the use of modern science in agricultural production in so

far as it may be applied to a small-scale industry. There are still a number of us who are not prepared for the full application of inventive genius in mechanical lines to our industry, and certainly not prepared for the development of forms of organization leading to higher technical standards and more economically efficient forms of production, because we are afraid that new systems may be in conflict with certain political ideas which we hold. Indeed, I would not judge unfairly, but I feel bound to judge that the key to Zörner's paper is not his faith in the peasant farm at all but his real fear of the success of forms of collective farming. However much we may fear some aspects of the Russian political system, and we all know that there are some aspects that we have to fear if they are inevitable in that system, we must not shut our eyes to the fact that at least in some parts of their collective systems they have brought progress and have increased the production per man in agriculture ten times as rapidly as it could possibly have come under any system of small-scale production which was possible in that country. And having done that, they are making possible advances in education, improvements in clothing, in housing, and in all the conditions which lead to the extension of life for the individual and the development of the higher forms of personality on the basis of the agricultural industry.

G. F. WARREN, *Cornell University, New York State, U.S.A.*

Farms in the United States are probably the smallest in the world—when measured by number of workers per farm. According to the research work of Larsen of Denmark and Buck of China, we have fewer workers per farm than in either of these countries. We also have fewer workers than formerly in the United States. Our farms have grown larger in acres but smaller in number of workers. As an exceedingly rough statement of the approximate average, we may say that the operator represents one man, other unpaid family labour the equivalent of one-half man, and hired labour one-half a man. Buck's work shows a little more than this for China. Why has this come about? Of course, there is considerable variation from the average, but farms with a labour equivalent of more than four men represent a small percentage of the total number.

Every invention of machinery favours enlarging the farm. On the other hand, progress in education and in use of machinery increases the amount of produce required to pay for an hour of labour. As Dr. Zörner has stated, the smaller units are far more flexible in ability to meet labour emergencies. The farmer works for himself as you and I work, that is, he works very hard at times and at other

times does not work much. In an emergency, he may double his hours per day as you and I do, and may double his speed for a day. Also, the wife and daughters who usually do not do much farm work may help in an emergency. By these means, a two-man farm may do as much as four to eight men's work on some emergency day and then recuperate by working much more leisurely. This is a common practice when people are working for themselves in any occupation. The last day before I left home, I did nearly a week's work measured by my standards—and have not done anything since.

Emergencies on farms more often come in the summer when there is no school. Young children then help and take pride in doing such work as driving the horse on the hay fork, hay rake, and the like. For a large farm or corporation farm, child labour is discouraged, and sometimes prohibited by law.

When a man is working for a corporation or large farm, he works at a more uniform rate. He has not the incentive to go so far in an emergency and must work the next day also. When labour is very cheap in terms of produce, as it was everywhere a century ago and as it is in the tropics to-day, the importance of saving time is much less. Other items in the cost of production are more important. When labour represents a small percentage of the cost, enough workers are carried on the pay-roll to meet emergencies.

What we call a family farm in America should not be compared with what are called smallholdings in Europe. A farm that has the equivalent of two to three men, one of whom is the operator, uses the same modern machinery as is used by corporation farms. It is not necessary that the use of this machinery be confined to one farm in all cases. Tractors, combines, and grain binders are often used for custom work for neighbours. Still another method by which the smaller farm uses modern machinery and maintains low costs is by buying secondhand tools. If the machine is used nearly to full capacity as it may be on a large farm, it is not safe to use it after there is much danger of a break-down. But this same machine may be purchased at a low figure and used successfully on a farm that might have half use for it. If it should break there is still time to get repairs and do the work.

Extension work has removed the advantage of the corporation or large farm in the scientific field. In the United States, scientific knowledge is as readily available to the small farms as to the large. Specialists in poultry, spraying, and the like are available to all.

Other advantages of the corporation farm have been made available to the small farm through the co-operative movement. In the

north-eastern States, feed, seed, fertilizers, and the like are available through co-operatives at the same price to a corporation farm or a family farm. They have a volume of business very many times what any corporation farm has ever had.

Through the co-operative land banks, mortgage credit is now available to a family farm at a lower figure than the corporation farm can obtain. Short-term credit is available through government banks at a lower figure than can be obtained by corporations.

There are, of course, exceptions. If the product sold depends primarily on advertising, and if a co-operative association is not yet developed, the corporation farm has the advantage. It costs the same to advertise one packet of seeds as a carload. Seed farms, florist establishments, nurseries, and the Walker-Gordon farms which are vitally dependent on advertising are corporations. It is interesting to note, however, that nurseries, seed farms, and the like usually have a large central farm and have much of their material grown by farmers on contract. The Walker-Gordon farms send their heifers to farmers to be grown on contracts. The men who raise the silage and hay for the cows raise it on contract. This provides cheaper feed and higher returns to the man who does the work.

O. H. LARSEN, *University of Copenhagen, Denmark.*

First of all I want to express my thanks for the three very interesting papers we have had this morning about farm organization.

For more than one reason I want to make a few remarks on some of the questions that have been discussed in these papers. I have only had the opportunity of reading in advance the paper by Mr. Bridges, and it is especially some passages in his paper that give rise to my remarks, but before going on to deal with these I want to say a few words about the tenure of land in Denmark.

I believe that Denmark has a somewhat singular position among European countries with regard to land tenure. In Denmark about 94 per cent. of the farms are in the hands of freeholders and only 4–5 per cent. are tenant farms or leaseholdings. This has not always been the case. About the middle of the eighteenth century, of the peasant farms which occupied nearly 90 per cent. of all land, there remained only 5–6 per cent. freeholdings, while the majority were leaseholdings—'life leaseholdings'—under the Crown, the Church, and the Nobility. But towards the end of the eighteenth century began a slow moving back to the old system which had existed from the beginning of the Middle Ages—the freeholding system—and this movement was increasing rapidly at the beginning of the nineteenth

century; in 1835 two-thirds of the farmers were freeholders and only one-third were leaseholders.

The movement kept on increasing, and at the beginning of the twentieth century there was only a small percentage of leaseholders left. After the War—in 1919—the Government took the initiative to abolish the remaining leaseholdings in respect to the peasant farms. Just at the same time, however, we had some new laws concerning establishment of new government smallholdings which are a new form of government leaseholdings. There were many circumstances which stimulated this movement; partly the very high prices of land which made it difficult for the smallholders to buy land for establishment of new farms, and partly because the Government wanted to try a new system instead of the old form of smallholdings which existed at the beginning of the century. Under this new system the land belongs to the Government, and the farmers have to pay an annual rent for using the soil—equal to 4 per cent. of the tax-value of the land; and besides this the smallholders can get loans from the Government for the establishment of the new buildings and equipment of the farm.

This new system has now been running for nearly fifteen years, and during this period there have been erected about 5,000 smallholdings of this kind with an average size of a little more than 7 ha. which is sufficient for a family to get a living without working for other farmers. I should say, on the basis of investigations, that it has even been necessary to have some hired labour on many of these small farms. This special form of government leasehold should actually be considered as a form of freeholding. The smallholder may keep his farm as long as he wants to; he may manage the farm quite as he likes; and he may leave it to a son or a daughter when he is getting old. He also has the right to sell the farm to another man, if he prefers to do so, only first of all he has to offer it to the Government. But apart from this special form of leaseholding, there is very little left of the old form of leaseholding and very few tenant farms—only about 4–5 per cent. of the total number of farms and a little more of total area—7–8 per cent.—because the tenant farms are mostly the bigger farms.

These are the few remarks I want to make about land tenure in Denmark before going on to discuss the very interesting papers we have heard this morning.

Mr. Bridges said in his paper that the small farms on the average have a very high output per acre compared with the larger farms. It is naturally correct, if we are speaking of the gross output per acre.

In our investigations in Denmark we divide our farms into six groups varying from less than 10 ha. for the smallest farms (averaging 6 ha. or 15 acres) to nearly 200 ha. for the biggest farms (about 500 acres), and the result shows on average for the last twenty years a gross output for the smallest farms of more than 1,200 Kr. per ha.—compared with 600 Kr. per ha. for the big farms. But if we compare the net return, we shall find that the difference is not nearly so big, varying from 150 Kr. per ha. for smallholdings to 100 Kr. per ha. for the big holdings. When the gross output varies as 2 to 1, the net return only varies as 1½ to 1; and if we take the net return in percentage of the capital, we find for the whole twenty years that on the average there is not a very big difference between the two groups of farms, but if there is a difference this is in favour of the big farms. That is when we compare the very small farms of 6 ha. with the big farms of 200 ha. But if we take the middle-sized farms from 10 to 30 ha., we find that on the average of all the years the net return in percentage of capital is about one-fifth higher than for the small farms and for the big farms; which means, on the basis of our investigations, that it has been the farms from 10 to 30 ha. (equivalent to 25–75 acres) which in Denmark have given the best economic result. But of course the financial result will vary very much from our country to any other, and I think there are various reasons why the middle-sized farms in Denmark have given the best financial result.

First, practically all these middle-sized farms are freeholdings; less than 1 per cent. are tenant farms. For the bigger farms the proportion of tenant farms is somewhat larger; for the biggest farms with more than 240 ha. it is nearly one-third. In spite of the fact that we have not so very many of these tenant farms in our investigations, I believe that when we take the average of all twenty years, the factor of tenure has been of some influence.

Secondly, the big live-stock production which we have on the small and middle-sized farms—when we take the average of all the years—may also have had some influence, especially during the War and the first year after the War, when we had high prices for the animal products.

And last, but not least, the relatively high development of agricultural co-operation which we have had in Denmark for a great many years—partly for the sale of animal products and partly for the buying of supplies—may have had some influence upon the results of the small and middle-sized farms, because the advantage of co-operation is greater for this type of farm than for the larger farms.

I call to mind that Professor Laur of Zürich has said that only with a high development of co-operation is it possible for the small farms to bear comparison with the larger ones, and it seems to me that Professor Laur is quite right in this observation.

As Professor Zörner said in his paper this morning, it is not possible to discern distinctly between the different size-groups of farms, because what we in Germany and Denmark call a middle-sized farm—or '*Bauer*-farms'—will in Great Britain and U.S.A. be called small farms, but that is not so very important. The main point is that for us in the Scandinavian countries and in Germany these middle-sized '*Bauer*-farms' will, as far as I can see, be the most advantageous, both economically and socially. Furthermore, it has always been the case in Denmark that this type of farming has been the dominant type.

If we take our last census, the middle-sized farms from 10 to 60 ha. include a little more than two-thirds of the agricultural acreage, while the small farms under 10 ha. and the larger farms with more than 60 ha. have about 16 per cent. each. If we separate out the very big farms of more than 240 ha., we find that they amount to between 2·5 and 3 per cent. of the agricultural acreage of the large farm group.

As we have seen, the middle-sized group of farms is very important in Danish agriculture, and they have always been very important. Proportionally they were more important in former times, because during the last century the small farms increased very much, but still the middle-sized farms cover a little more than two-thirds of the acreage. I should think it will also be the most prominent type in the future, and in any case it has been the most profitable size of farm for the period for which we have made our investigations.

T. W. Schultz, *Iowa State College, Iowa, U.S.A.*

Mr. Tolley, in his paper, addressed himself chiefly to the farm management adjustments that are inherent in the major agricultural adjustments now in process within the United States. These broader production adjustments are those to which the A.A.A. has addressed its efforts in the revised programme which came as a consequence of the Supreme Court decision. The land-use adjustments necessary to attain general soil conservation objectives are being emphasized.

Two years ago the staff members in agriculture, including not only agricultural economists but, in most States, the technical staff in agronomy, animal husbandry, agricultural engineering, &c., entered into a national agricultural adjustment study, the chief objec-

tive of which was to determine the crop pattern for their respective States that was consistent with soil conservation and good farm management. The project was taken more seriously in the Corn Belt and in the western States than in other regions of the United States.

It is on the results of these studies when fitted together into a national picture that I wish to report, and relate the findings thereof to Mr. Tolley's observations.

To start with, the most embarrassing question to the economist, particularly to those who assume that there is a certain automatic adjustment in the balanced use of our resources, is the question: Why is it that in the heart of American agriculture, the great Mississippi valley, there has developed a highly exploitive agriculture? There is no question that the Middle West cannot continue to grow as many acres of corn as it has in recent years, nor that the Cotton Belt can grow as many acres of cotton as it has without exploiting land resources. Similarly, in the mountain States it is a question of over-grazing.

Returning to the question of how much corn can be grown, for example, in the Corn Belt without depleting the soil and promoting erosion losses, the approach to the answer is not difficult, because of the fact that the comparative value of corn in the heart of the Corn Belt exceeds considerably the value of any competing crop. The crop land of the Corn Belt farmer is used for the growing of feeds. An acre of corn will produce much more feed than, commonly twice as much as, an acre of any other of the competing crops. Accordingly, it does not matter to the farmer whether corn is selling for $1·00 or for 10 cents a bushel; it is to his advantage to maximize his corn acreage. In the South, the comparative value of cotton causes the cotton farmer to maximize his cotton acreage; and in the range States, it is a matter of maximizing the number of head on a specific area of range. In each of these the problem is essentially one of physical relationships and not one which has to take count of the changes in the demand side of the picture. For instance, again returning to the Corn Belt, in view of the fact that oats, barley, and hay crops are all feeds and within limits are easily substituted for corn, it follows that whether the price of corn is high or low, the ratio of values between the several feeds tends to remain fairly constant. Whether the direct demand for feed is strong or weak, a farmer in the heart of the Corn Belt attempts to grow as much feed as possible and, inasmuch as corn is much more productive in the value sense, he naturally tends to maximize his corn acreage.

The picture in Iowa can be stated in about the following terms: The severe depression years found Iowa farmers producing over 11 million acres of corn. After systematic study, it is the opinion of our agriculturalists that 9½–10 million acres of corn is the maximum figure that may be grown without exploiting the farm land resources of the State. This estimate assumed the farming practices customarily followed other than that of reduced emphasis upon corn.

I am stressing the fact that, in reaching the figure of 9½ million acres as a top figure for the corn acreage of Iowa, the research staff did not involve itself in any complicated economic assumptions. However, as one moves east and west, especially to the Atlantic coast States and to the specialized crop areas of California, the problem of determining the proper use of farm land is not a matter of maximizing one crop which has a decided comparative advantage, but instead it is a matter of selecting from among a number of alternative crops, each of which can be grown in such combinations as to maintain soil resources, and whether or not it is the most profitable combination depends primarily upon the demand picture. That is, assumptions have to be made with reference to the demand side for these alternative crops before it is possible to say which combination of crops is likely to be the best use of the land. It is, therefore, not surprising that the research staff found the project of relatively little value to them in obtaining a better understanding of their production problems. As a matter of fact, the assumptions that had to be made on prospective price relationships were altogether too artificial, and appeared to them quite unwarranted.

Consequently the results of the State studies have some meaning in the farming regions where one or a few of the crops have a distinct margin in their favour in the comparative value over competing crops. Conversely, the crop pattern worked out by the State research staff has little or no meaning in those States where a large number of alternative crops can easily be substituted for one another, depending upon year to year changes in the farm prices.

The study unmistakably points in the direction of severe exploitation of farm land resources in the Corn and Cotton Belts and in the range States. The tempo of farming in these regions, in view of present practices followed, is too intensive.

One additional comment from the point of view of better conservation of land resources is that it will have to be recognized that no national formula is likely to give satisfactory results. Every farm is a unique enterprise, and it is virtually impossible to generalize the

factors responsible for exploitive farming with such subtlety as to make it possible to apply a generalized programme. In a word, the technical aspects of using land resources are truly a local affair. The specific adjustments which the individual farmer must make in his operating programme so as to reduce soil losses to a minimum are a problem that has its causal forces chiefly in the characteristics of the soil itself, and therefore tends to be local in character.

It will be found, however, that when specific adjustments are called for on a given farm there are a number of institutional arrangements which will continue to operate in the direction of exploitive farming, even though the farmer is temporarily assisted in financing an operating programme which better conserves his soil resources. Chief among these institutional factors is the landlord-tenant arrangements that are customarily found both in the Corn and Cotton Belts. Suffice it to say that should the revised A.A.A. make it financially profitable for farmers generally to follow less intensive cropping programmes for the next three or five years, at the end of that period there will be grave danger, in my opinion, of many, if not most, of the farmers who formerly were following exploitive programmes resuming their old cropping systems with all their exploitive features. The reason for this would be that the current programme does not bring about any fundamental change in the landlord-tenant arrangements, and these are such that they tend to promote the intensive cropping associated with exploitive agriculture. Other institutional arrangements might be emphasized as operating in the same direction. I have in mind the present taxation system with relatively high property tax assessed against land, and also the debt burden of farmers.

The point of my comments is this: there is little doubt but that the cropping systems which prevailed in much of the United States in the late 20's and the first few years of the 30's were too intensive to be consistent with a permanent agriculture which maintains its soil resources. The adjustment required to gear down the tempo of that part of American agriculture which has fallen into exploitive land use has not been made in such a way that it will continue, should the present 'awards' of the A.A.A. be discontinued. The purely technical task of farming so that there is less soil exploitation tends to be local in character. The institutional arrangements, however, which promote the intensive agriculture associated with soil exploitation are exceedingly important, but these have not been adjusted and are not being corrected by the approaches employed by the revised A.A.A.

F. VON BÜLOW, *International Labour Office, Geneva.*

I have asked to be allowed to speak in order to point out an aspect which, as far as I can see, has been missing in our discussion hitherto. All papers read and all contributions to discussion have considered the problem only from the point of view of the economic possibility of the farm or to some extent also of the community as such, but there has not been what I would call a social approach. The problem has not been considered from the point of view of the individual engaged in farming. It is too often supposed that a good net return in farming goes to the benefit of all those engaged in farming. It has not been sufficiently taken into consideration that this net return is divided between land, capital, and labour, and the form of farm management may have quite a different value if looked at from the point of view of the individual instead of from a general point of view. I shall leave aside here all considerations regarding farm owners and family members. I would like only to make a short remark to Dr. Zörner who stated that the town population dies out in two or three generations. That may be quite correct; but if these people who have had a chance to go to the towns had been obliged to stay on the farms, I think that in most cases there would not even be a second generation. The maintaining of the population in the country-side is a privilege only to those who take over the farm, and not to those family members who have to work on the farms with no chance of migrating to the towns.

There is a further characteristic of the family holding (whatever we call it) which is very important from the labour point of view. As things are on the family holding proper only the father and mother are really free to dispose of their time and do as they like. The other members of the family, even when they are grown up, are children in relation to the head of the undertaking. They are limited in their incomes and the use of their free time; they have not even got a special room at their disposal, which comrades of the same age would have if they had taken up another profession. It is therefore natural for them to want to get away. You may say that this fact is of no importance from the point of view of labour; but it has to be remembered that a family holding is not only a question of size. The family holding of a certain type may be a family holding in one year and employing paid labour another year. Professor Larsen observed that even smallholdings in Denmark have a hired-labour cost of about 20 per cent. of the total labour cost, and the same can be observed in many other countries This is partly to be attributed

to the fact that at one time the family is too young to help, and therefore paid labour has to be engaged, but this paid labour has to accept the conditions of the children. They more or less live in with the family, but they all know they must get away from these farms, because these farms do not offer them any possibility of establishing a household of their own. It is a well-known difficulty in all peasant districts to get suitable conditions for married agricultural workers who want to stay on the land. From this point of view there may be certain advantages for the agricultural worker in the large-estate system. One may come to similar conclusions—I shall not go into details here—with regard to the questions of wages and hours. Hours on the peasant farms are often very long. The big estate not only can organize hours in a better way, but is obliged to do it. It cannot in the same way look out for the weather, because there is no time to change instructions for the next day. It is more rigid in its labour organization, which presents certain advantages to the workers. With regard to employment, it may be that employment is more stable on the peasant farm because the one man as a labour unit plays a bigger role in comparison with the whole labour staff on the small peasant farm than on the large estate where he is only a fraction of the whole labour staff, and where more changes in the numbers of employed and more use of casual labour may be made. But on the whole, the employment situation in agriculture does depend not exclusively on the real need for labour in agriculture, but also on employment possibilities in other industries, and whether farmers can assure themselves of a supply in times of pressure, or whether they have to keep labour over the whole year in order not to be short when work is pressing. It is on these indications that I would like to submit to you that the question of the best size of farm may, when looked upon from the point of view of the individuals working in agriculture, have another aspect than is usually stressed.

E. LANG, *Königsberg, Prussia.*

Among the many problems of organization which were discussed this morning in such interesting manner, I would like to pick out only one which was also broached by Dr. Warren; the size of the farm holding. I will do so from the special aspect of German conditions.

It seems to me important to make this introduction. The course of the Conference hitherto has very plainly shown that the great economic areas, North America, Great Britain, and Central Europe, to name only a few more closely connected with each other, work

under very divergent economic conditions, and again that the co-operation of the essential factors and their development vary greatly. This fact seems to me to be mainly responsible for the difference of opinion between Professor Ashby and Professor Zörner.

In order to avoid the same danger as Professor Zörner—of being misunderstood—I treat the question of the size of agricultural holdings as I, a German, regard the problem; and I would add that the problems in central and east Europe up to the Russian frontier could, in many respects, be treated from the same angle as in Germany. I must also add that what was said by Dr. Warren this morning can to a considerable extent also be applied in Germany.

The problem of the size of the unit has a special significance in farming. This is mainly because any adjustment of the size to changed conditions, as should take place in an organic development, is confronted by exceptional difficulties. The size of the farm is partly influenced by the factors affecting the form of farming, i.e. the farming system, the most important of which are the natural conditions, market conditions, personality of the operator, and the development of commerce and technique. In varying combinations these factors always give rise to new systems of farming which in their turn change according to changes in the determining factors. As already stated by Johann Heinrich von Thünen, there is no optimal farming system. There is also no size that is optimal under all conditions, because the factors mentioned act in ever-changing combination, and, because of these changes, different size units are always becoming the more efficient. But whereas the adjustment of the system of farming to the prevalent factor is comparatively simply achieved, this does not hold good for the adjustment of the size of the farm. This process is rendered exceptionally difficult by factors other than those mentioned, which also affect the size of the farm. Such factors are: historical influences, customs and practices of forms of inheritance, conceptions of State policy and social policy. This group of factors makes for great rigidity in the size of farms, particularly as the agricultural section of the population tends to respect historical traditions even if they have long since been proved obsolete.

The attainment of the most efficient size on the principle of highest efficiency per unit of land is, therefore, if not impossible, at least extremely difficult. This is apparent if we follow the development of the average size of farms in Germany in the last half-century. Between 1882 and 1933 the average size of the holding over 2 ha. dropped from 13·57 to 12·12 ha. If we only take the holdings over

5 ha., the average size decreased from 21·78 to 17·72 ha. In the same period, the population grew from 84·5 per sq. km. to 140·3. Owing to the comparatively insignificant reduction of the size of holdings just mentioned, the great pressure of population could not be counterbalanced, and for many years there was a strong migration from the agricultural regions, particularly those east of the Elbe, to the industrial centres in the west or overseas. Thus, in the period 1840–1925 the province of eastern Prussia lost more than half its birth-rate surplus through emigration. Here, the alterations in the size of the holdings bear no proportion to the development of the population, but nevertheless they deserve close scrutiny.

An examination of the size groups and of their variations, 1882–1930, as shown in the official German statistics, reveals several features notable for their regularity.

The share of the size groups in the farm land of Germany was, in percentage:

Proportion of Land in each Size Group, Germany, 1882–1933

Size group	1882	1895	1907	1925[1]	1933[2]
Under 2*ha.*	5·8	5·6	5·5	6·3	5·8
2–5	10·0	10·1	10·8	11·4	10·0
5–10	12·2	13·0	14·9	16·3	37·5
10–20	16·5	16·9	18·5	19·5	
20–50	22·5	21·9	22·0	19·8	28·8
50–100	8·6	8·5	7·8	6·6	
100–200	4·8	4·7	4·5	4·8	17·9
Over 200	19·6	19·3	16·0	15·3	

[1] New territory.
[2] Preliminary figures.

It is to be observed that the size groups 5–10 and 10–20 ha. show an increase at all five official censuses of this period, amounting to a total gain of approximately 9 per cent. of the whole farm land, whilst the large peasant farms of 20–50 and 50–100 ha. gradually lose land to the total extent of 3 per cent. The large farms over 200 ha. lose even more, their loss amounting to almost 6 per cent. On the other hand, the farms of 100–200 ha. have maintained their share, and the same also applies to the small holdings of 2–5 ha. Thus, we note a decided shifting from large estates and big peasant farms to typical peasant family farms. That leads to the question: What are the factors that on the one hand weaken the big farms and larger peasant farms, and on the other strengthen the position of the family farms?

The perception of these changes gives us some hints on the further

development of the size groups, which are important both to science and to practical agrarian policy.

1. An advantage of the peasant family holding of the size of 5–20 ha. is, above all, the incomparably favourable form of labour organization. That applies equally to the quantitative labour capacity as to the personal interest in the results of the work, and also to the adaptability to varying labour requirements in the annual routine of farm work. This means efficiency of the family holding in all types of labour necessitating special care, e.g. cultivation of intensive crops, truck crops, animal husbandry, and animal breeding. In particular, family labour facilitates quicker harvesting of fodder and grain crops, thus avoiding losses in quality and quantity, as compared with big farms. This is especially notable in districts usually suffering from bad weather in harvest time, for instance in eastern Germany. The utilization of the crops, particularly of the fodder crops, the utilization of fodder supplies and of the by-products of the grain and root crops are all better. Then, thanks to their heavier live-stock capacity, which is 50–100 per cent. higher than that of the big farms of the group over 200 ha., these holdings can apply more yard manure per unit of land, an advantage especially important for the yields of the root and fodder crops.

2. A special disadvantage of the larger peasant farms of 20–100 ha. is the fact that they are particularly short of labour. They endeavour to retain as far as possible the advantages of family labour and lack, when compared with the larger farms, the scope for use of labour-saving machinery. In consequence, the larger peasant farms are organized on an extensive system, which is apt to stand in contrast to the trend of national economic development. It is possible that the development of small tractors may strengthen the position of the larger peasant farms.

3. An advantage of the large farms of 100–200 ha. is the fact that the operator of these farms is usually very well trained, that he usually also manages his farm himself, that the extent of hired labour is kept within reasonable limits, and that the unit is large enough to allow of the utilization of almost all types of modern labour-saving equipment suitable for the German types of farming. This size-group includes a particularly large number of efficient farmers.

4. A disadvantage of the very large farms over 200 ha. is the fact that the increased size impedes close supervision and rapid control of all operations, that hired employees and workers preponderate, and that the long distances in the farm make for waste of time and other losses. Wherever the natural conditions allow of, or particularly

favour, grain farming, distillery enterprise, sheep farming, or sugar-beet cultivation, the very large farm can hold its own fairly well. Occasionally, the special efficiency of the entrepreneur and the great capital at his disposal can result in particularly progressive organization and management. In this case, such a farm can give a great incentive to farming in the district.

Within the peasant size groups there are several special factors of management which, under certain circumstances, can very essentially affect the size of the unit. The most important of these factors are the requirements in animal draft power, the supply of labour, and the form of soil utilization (ratio of arable, meadow, and pasture land). Dr. Marckmann has proved that on the heaviest soils, which require for tilling a team of 4 horses, economic results can only be obtained on holdings of 30–40 ha. The need for full utilization of the 4 horses tends to increase the size of the holding up to 50 ha., whereas the advantages of family labour diminish with increasing size of the farm. This is demonstrated by the fact that at a size of 20 ha. 87 per cent. of the permanent labour is supplied by members of the family, and at 45 ha. only 66 per cent. Very often only by means of a compromise between the two factors, utilization of horse power on the one hand and fullest share of family labour on the other hand, will it be possible to decide the most efficient size of the holding. On the same soils, which in Schleswig-Holstein are operated with a proportion of permanent grass of 50 per cent., but in eastern Prussia with only 30 per cent. permanent grass, this factor, in conjunction with the shorter period of growth, leads in eastern Prussia to 4-horse teams on holdings of 25–35 ha. In general, on heavy and very heavy soils, draft power requirements are the deciding factor, whereas on lighter and medium soils the considerations of family labour are decisive.

Furthermore, intensity is an important factor governing the size of the farm. According to Dr. Brock, the 2-horse farm of about 10 ha. is most suitable for fruit, tobacco, and vegetable farming in the best parts of the Vistula lowlands, but for grain and live-stock farming on medium soils 15–25 ha., and on heavy soils a 4-horse holding of 25–30 ha. is the best size of the holding. Under specially unfavourable conditions, holdings with two 4-horse teams and of a size of 40–50 ha. have proved necessary, whereas in the best conditions, allowing of fruit farming, 1-horse holdings of about 4 ha. provide independent agricultural subsistence. In western Germany the size of the independent family holding can be diminished to 1 ha. under the very favourable conditions of the Rhine valley between Cologne and Bonn. Again, in intensive live-stock farming in

Denmark, under favourable conditions, holdings of 7–8 ha. and, under unfavourable conditions, those of 10–12 ha., have proved efficient.

Whereas the larger peasant farms mainly devote themselves to live-stock farming and grazing because of the low labour requirements of those forms of farming, according to a not yet published investigation (of Dr. Bräuning) very different tendencies are also to be found in this size group. Thus the types of farming in the Friedrichskoog on the west coast of Schleswig-Holstein show increasing intensity with increasing size of the peasant holding, which is apparent in the extent of the acreage of root crops and vegetables. The reason for this remarkable exception to the rule is that only the peasant holdings of 30–100 ha. have enough draft power for cultivation of sugar-beet and vegetables on the heavy soils prevailing, although the general physical conditions favour these crops; the smaller peasant holdings of 10–20 ha. have not enough horse power for this system of cropping and grow more fodder crops on the arable land.

We will let this suffice. All the examples prove that, in so far as there is unfettered development of the size of holdings, very various factors can have the deciding influence, and that it is impossible to set up standards even for one district, apart from the general trend of economic development, which also affects the general trend of development of the size of holdings. But apart from that, every one concerned with these problems must be acquainted not only with general economic facts but also with the particular circumstances of farm organization and management, if wrong measures are to be prevented. In densely inhabited west and central Europe the lack of space will probably render these problems increasingly important in the future. It is certain that unlimited and uncontrolled yielding to the pressure of increasing population by diminishing the size of the holdings is not feasible, and that, wherever a diminution seems practicable, it can only be carried out under closest observation of all circumstances. It is certainly a fact, proved by the extensive investigations of Prof. Laur[1] of Zurich, that economic efficiency increases with decreasing size of holding, and that there is an increase in output for market which continues in spite of greater home consumption—according to the studies of Dr. Bräuning[2]—down to the small peasant group of 5–10 ha. This fact deserves, above all others, particular consideration.

[1] Laur, Concluding address in *Proceedings of the International Conference of Agricultural Economists*, Bad Eilsen, 1934, German edition, Buske, Leipzig, 1934, p. 424; English edition, Oxford University Press, 1935.

[2] Bräuning, R. 'The efficiency of the settlement farm in comparison with large farms'. *Berichte über Landwirtschaft*, 98. Sonderheft, Berlin, 1934.

J. COKE,[1] *Assistant Commissioner, Economics Branch, Department of Agriculture, Ottawa, Canada.*

The idea of large-scale farming is not new; for nearly three-quarters of a century in North America experiments of this nature have been carried on. The speculative element entered into some of the earlier attempts, but in the majority of cases there existed a strong belief that the principles of large-scale business could be applied in agriculture. With the passage of time, the corporation has been adapted to agricultural production to some extent. In Canada, as elsewhere, the highly specialized products of the soil such as apples, wheat, and tobacco have lent themselves to the evolution of corporate ownership and operation of extensive holdings. There are at least three types of corporate organization which might be discussed in this paper: (1) the corporation which owns and operates its holdings in every respect; (2) the corporation which performs the functions of an entrepreneur in a large measure; (3) the corporation which seeks to perform specific services in production. The first type may be dismissed with brief discussion. This form of farm business organization is the oldest of the three and the least satisfactory, and most of the failures have been in this type of organization. The difficulties of supervision and operation in a farm business due to the area of the unit are too great to make for much success.

The second type is the corporation which limits its field of activity by assuming responsibility for those things which corporate enterprise may accomplish more successfully than the individual or a partnership. Because of the continuity of its existence, a corporation can develop a long-time policy, whereas the individual cannot because of lack of funds, shortness of life, or even lack of vision of potential objectives. Such a type of corporation has been developed in one of the tobacco-producing regions in Canada, and, while its history is short, it will be generally agreed that it has stood the shock of depression rather better than individual ownership. Before dealing with this type of organization, it will be necessary for me to provide some of the background of tobacco production in Canada.

Tobacco has been grown in Canada since very early times. For years the acreage, yields, and prices fluctuated violently, each successive rise in prices bringing in new growers and new land with often a surplus of low grade tobacco, which resulted in sharp declines in prices. The crop is one which requires skill and suitable conditions of soil and climate for its production. There are two areas in Canada

[1] The special title of this address was 'Corporation Farming in Canada.'

in which the crop is grown commercially. The smaller area is in Quebec and is devoted mainly to the production of large and small pipe tobacco and cigar leaf. This area is somewhat widely spread, including parts of the counties of Missisquoi, Iberville, St. Hyacinthe, and Bagot. It is in these regions that the cigar leaf is chiefly produced. The counties of L'Assomption, Montcalm, Berthier, and Joliette on the north shore also produce tobacco, mainly large and small pipe varieties. Production in these districts has varied recently from over 10,000 acres in 1927 and 1928 to 5,425 in 1935.

The chief source of supply is, however, to be found in south-western Ontario. In this section about 3,000 acres were grown in 1900, while in 1935 41,428 acres were grown, yielding 38,500,000 pounds valued at $10,117,200. It is true that this represented the peak of production. Most of the tobacco grown in south-western Ontario is flue-cured or burley, both being used for cigarette manufacture or smoking mixtures. Most of the burley is now produced in Essex and Kent Counties and most of the flue-cured tobacco is grown in Norfolk County. The development of the industry in this county and the surrounding districts covers approximately a decade. Although not related to the development of flue-cured tobacco production, it should be stated that since 1926 Canadian tobacco, like other Empire tobaccos, has enjoyed a preference of 2*s.* 0½*d.* per pound in the United Kingdom market, but our consumption of Canadian grown tobacco in the domestic market has been increasing rapidly and the export market, though of importance, absorbs but a small share of the total output.

This short description of the industry will, I hope, help you to understand what is to follow, but it will also be necessary to outline the growth of tobacco production within Norfolk County. The pioneer in growing flue-cured tobacco was Mr. Grant Fox who, about thirty years ago, produced his first crop at Ruthven in Essex County. From this small beginning, the production of flue-cured tobacco reached 7,550 acres in 1927, of which 5,850 acres were in Essex County. This really marked the high point in Essex for, as we shall see, other developments were under way.

In 1919 H. A. Freeman, who was then connected with the Dominion Department of Agriculture, planted 5 acres of 'flue-cured' near Lynedoch in Norfolk County. This was more or less an experiment and one which proved to be successful, for in 1923 he and a partner, W. L. Pelton, grew 20 acres and subsequently increased the amount to 150 acres. Mr. H. B. Smith, President of the Norfolk Tobacco Plantations Ltd., was another pioneer who began soon after

Freeman's first experiment, and others, including Mr. Fox of Essex County, followed. The 1926 report on tobacco production, published by the Tobacco Division of the Experimental Farm and the Bureau of Statistics, shows that 205 acres of bright flue-cured tobacco were grown in Norfolk County in that year.

The presence of the soil type essential for the production of flue-cured tobacco had already been noted, but no one knew its extent or location. About this time, two Departments of the Ontario Agricultural College began work in the tobacco regions. The Department of Chemistry extended its soil survey; their work indicated a clear relationship between tobacco production and soil type. The Department of Economics undertook an economic study of the organization of tobacco farms and marketing problems. Professor A. Leitch, who was in charge of the latter study, had experience in operating large farms before accepting an appointment as head of the Economics Division. He became interested in flue-cured tobacco. He reckoned that any crop that would return $175 net per acre, as was shown by his studies, should command attention. Moreover, his technical training led him to 'scout' the new area in Norfolk County and, as a result, he was the first to realize the extent of the soil in that county suitable for growing the crop. He checked on drainage conditions and frost hazards. There was, however, one large fly in the ointment—he had only a little cash. He went, therefore, to a broker friend, J. E. Carter, who was able to supply additional funds sufficient to buy options on desirable farms. The result was that in 1927 and 1928 control of a considerable portion of the flue-cured tobacco lands in the county was secured. The options were sold to small groups which organized companies to grow tobacco on a share-tenant basis. 'The Professor' subsequently became president and general manager of the largest company and president of a smaller concern.

By 1931 eight companies and three large individual operators owned 21,000 acres on which 6,500 acres of tobacco were grown.

The acreage operated in 1931 and 1936 is shown in Table I. It will be observed that expansion has been moderate during the past five years. In this connexion it should be stated that in 1934 a voluntary system of acreage control was introduced, and this factor must not be lost sight of in considering the growth of these companies.

The largest company owns 5,400 acres of land on which 2,017 acres of tobacco are being grown in 1936. The second largest organization has 3,500 acres on which 1,100 acres of tobacco are

being produced this year. Last year the companies produced 21 per cent. of the total production of flue-cured tobacco in Ontario.

The capital structure of the companies for the most part involves issues of preferred and no par value common stock. Generally

TABLE I. *Large-scale Tobacco Plantations, Norfolk County, Ontario, 1931 and 1936*[1]

Name of Company	*Year organized*	*1931*			*1936*		
		Total area	*Tobacco area*	*No. of units*	*Total area*	*Tobacco area*	*No. of units*
		acres	*acres*		*acres*	*acres*	
Windham Plantations, Ltd. . . .	1929	5,300	1,860	48	5,400	2,017	49
Lake Erie Tobacco Co., Ltd. . . .	1928	3,100	1,100	33	3,500	1,100	30
Ontario Plantations, Ltd.	1928	1,800	650	18	2,000	550	17
St. Williams Plantations, Ltd. . . .	1929	1,800	500	14	1,800	440	14
Southern Canada Plantations . . .	1930	1,700	425	13	1,850	450	15
Norfolk Plantations, Ltd.	1927	2,000	425	14	2,000	425	14
Vittoria Plantations, Ltd.	1928	1,100	425	8	2,400	512	17
Simcoe Plantations, Ltd.	1931	500	105	3	1,000	260	8
Carolina Plantations, Ltd.	1928	800	240	8	800	245	7
Delhi Plantations, Ltd. .	1928	450	150	4	450	150	4
F. R. Gregory . .	1926	1,000	300	9	950	325	9
H. A. Freeman . .	1928	700	240	7	1,100	350	10

[1] These acreages are approximate.

speaking, the capital structure is conservative. The lands were acquired at moderate prices, and there has been very little of the speculative element in the organization of the companies. There has been speculation by individuals.

Some companies are still experimenting with the paid labour system, but generally the advantages of the tenant system are recognized. The tenants are usually either Belgians, Hollanders, or Southerners from the United States. Each nationality has its supporters as regards suitability. The tenant system is an endeavour to preserve the personal interest of the family group and to provide the essential supervision of each unit. Besides the business management, the larger companies also have well-paid farm managers who are skilled in tobacco production.

The tenant holdings usually range from 30 to 40 acres of tobacco, this amount of land along with the greenhouses, kilns, and equipment having been found to be most efficient.

The companies, in entering into agreements with tenants, retain

control of the production policies; that is to say, the tenant agrees to follow the methods prescribed by the companies. A company, therefore, agrees to supply the land, buildings, horses, machinery, and to pay the taxes. The tenant supplies all the labour. This is the general principle upon which leases are drawn. Two companies supply fertilizer to tenants.

The general policy is to develop a rye and tobacco rotation, the rye being disked in when the tobacco has been harvested and all except sufficient to provide seed and bedding is worked under in the following year. The companies provide the seed and assume responsibility for this practice because it is regarded as a capital expenditure.

The companies also assume charge of the curing of the crop because many tenants have no experience in this important phase of the work. The companies pay the transportation of the curers from the Southern States and from farm to farm as well as half of their wages, while the tenant boards the curer and pays half of the wage bill.

The terms of the lease provide that in case the tenant refuses to follow the instructions of the company he may be set aside, the company assuming full charge of his crop for the balance of the season and charging the expenses to the tenant's share of the crop. This is essential to insure a uniform product and is of peculiar significance in the case of partnership tenancies. It is moreover necessary to protect the company's interest not only in the crop but in the equipment as well.

Each tenant is supplied with one horse for each 10 acres of tobacco, and in the majority of cases half the cost of feed, on a basis of $125 feed cost per annum, is assumed by the company. This arbitrary arrangement prevents possible waste of feed by tenants and ensures that the horses will be well fed. Moreover, the company does tractor work at cost to the tenant. This is done as a means of providing extra power at times when it is required without burdening the tenant or the company with additional horse equipment which would not be fully employed.

Generally speaking, tenants are expected to haul all goods required for growing the crop, but the companies do supply oil and gas where it is required for tractor operation, and haul the building materials. The returns are divided equally between landlord and tenant in every case and the agreements have effect for one year.

The turnover in tenants is considerable for various reasons. Some have become established as owners. Others have been refused renewal of their contracts. A few have terminated their relations with companies for other reasons. One company has adopted a selective

process and now has more than half of its tenants under 30 years of age, and their men have been selected because of ability displayed as hired men or tenant holders. They are ambitious and amenable to suggestion with respect to improved methods of production. Nearly all these men are Southerners. Some companies show relatively little change in tenants.

TABLE II. *Summaries of Profit and Loss Accounts of Three Tobacco Corporations 1928–1935.**

COMPANY A

	Income	*Operating expense*	*Operating profit*	*Net profit*
	$	$	$	$
1928	38,165.26	20,778.37	17,386.89	6,302.77
1929	30,400.77	19,914.60	10,486.17	1,933.63
1930	51,932.46	27,402.97	24,529.49	10,630.30
1931	48,003.72‡	29,304.72	18,699.00	−2,388.34†
1932	45,820.70‡	32,728.93	13,091.77	−1,717.59†
1933	38,986.32	23,954.59	15,051.73	45.48
1934	52,967.77	27,233.84	25,733.93	9,265.02
1935	62,794.13	35,627.86	27,166.27	11,048.98

COMPANY B

Crop year	*Income*	*Expenses*	*Operating profit*	*Net profit*
	$	$	$	$
1929	50,250.19	21,913.80	28,336.39	16,299.69
1930	60,225.70	24,790.25	35,435.45	17,389.37
1931	53,766.73‡	28,040.58	25,726.15	7,599.29
1932	46,233.86‡	24,987.26	21,246.60	2,606.62
1933	38,142.59	27,295.86	10,846.73	−2,168.85†
1934	56,697.60	26,581.49	30,116.11	14,687.01
1935	66,747.25	26,659.52	40,087.73	22,973.34

COMPANY C

Crop year	*Income*	*Expenses*	*Operating profit*	*Net profit*
	$	$	$	$
1929	132,679.52	46,967.49	85,712.03	56,349.59
1930	187,805.51	80,333.46	107,472.05	65,993.06
1931	230,444.19‡	97,921.84	132,522.35	74,710.27
1932	171,296.95‡	95,211.19	76,085.76	10,840.02
1933	169,192.45	98,023.25	71,169.20	841.72
1934	177,660.33	94,488.94	83,171.39	37,963.60
1935	276,422.98	113,026.86	163,544.44	105,304.03

* Based upon annual reports of subsequent years.
† Loss. ‡ Less marketing costs.

The companies have all withstood the depression. In some years the profits were low and in one year most of them lost money. Only one has shown net profits consistently. Dividends on preferred stock have been fairly well maintained though some are in arrears. The dividend position of the companies is not a clear indication of their financial position. Reserves of a substantial character have been set up to cover depreciation, and in general mortgage indebtedness has been reduced and the properties improved. There are, of course, exceptions where unsatisfactory tenants have been secured. In general, the attitude has been that the first duty of the directors is to protect the equity of the shareholder. The years of low profits or loss were due first to an effort to develop an export business in which losses in exchange were pronounced and secondly to very low prices for tobacco.

Most of the usual advantages claimed for large-scale operation may be presented in support of these corporations, though one must understand that they have accrued in the several companies in varying degrees. Among the more important which may safely be referred to is the factor of adequate financial resources. This is particularly important in the production of a crop such as tobacco which is a high cost and high value product. The purchase of the crop is in the hands of six or eight companies. Therefore, skill in the technique of production must be coupled with efficient business management. It may be fairly claimed that the companies have followed progressive policies of production and have been responsible for the introduction of priming, use of proper fertilizers, and rotation of crops. In the initial stages of development, some companies saved as much as $3 to $4 per ton in the purchase of fertilizers, and in the construction of kilns were able to effect savings in materials and construction of as much as $90 per kiln. They take advantage of cash discounts and in the purchase of equipment generally effect economies. A well-financed organization can also supply equipment quickly, as, for example, one company which found that certain tenants were having difficulty with sprayers had four new sprayers at work the following day. The tenants individually could not have secured this equipment so readily, and as a result would have lost at least part of the crop. The purchase of equipment can and is minimized in that expensive equipment, such as tractors, can be used on a large number of units, and the tenant is charged for the work that is done for him. He has no investment in expensive equipment which might be required for only a short period of the year. It should be recognized that once a system of production is established there will be some hesitancy on the part

of the management of a corporation to introduce innovations because they must be adopted on all units and, if the experiment did not work well, considerable loss would be experienced. The individual owner operator is not under such a handicap in this regard. Generally speaking, I think it will be agreed that a high degree of technical skill is being utilized by the companies, but the necessity for caution in respect to new methods is not to be overlooked. It should, moreover, be said that the majority of the better crops are produced under company supervision and the production of a large volume of the product under standardized methods usually results in a more uniform quality of product.

It is in the selling phase that corporate management has made its greatest contribution. Here business experience has been effective. The growers with their diverse views and weak financial position were never able to bargain effectively for the sale of the product, but three or four representatives of the companies were able to match wits with the buyers. In 1931 steps were taken to develop the export trade in the United Kingdom. This would have been a long-drawn-out process and might not have been accomplished at all under individual ownership and operation. This export outlet was essential as a safety valve in case the regular buyers were not willing to pay prices deemed adequate by growers. It cost the companies considerable money to do this, and it has been accomplished for the benefit of the companies it is true, but the private grower benefits as well. Moreover, the strong financial position of the majority of the companies has permitted them to avoid distress selling. The companies have a more uniform and a higher quality of tobacco in the majority of cases, and they have been able to secure better than average prices for their products. The companies took a leading part in the Price Spreads Committee investigation, conducted by a committee of the Canadian House of Commons, and in the establishment of the Ontario Flue-Cured Tobacco Marketing Board, until the Natural Products Marketing Act was declared *ultra vires*. The companies have since been active in assisting in developing a voluntary agreement between buyers and growers which permits most of the advantages of the Marketing Act or, at any rate, is expected to do so. The foregoing will serve to show that the companies, economically speaking, have been able to weather the financial storm for eight years and to make progress towards firmer financial ground.

Opinion regarding their operations is not unanimous, as one would suspect. The development of the tobacco business has brought about an influx of population of varied nationalities and

ideals. The old United Empire Loyalist families view the tobacco crop and the tenants with disdain. In some measure the problem of absentee ownership is present, that is, the head offices of some of the companies are outside the county. This is not serious because the management has close contact with the tenant operators. The development of the tobacco business, at large, has brought an influx of unemployed at certain seasons of the year, and this has added to the social burdens of the municipality, but this is not to be laid at the door of the companies. One company has provided hydro-electric power on a large percentage of its farms. The homes are equipped with electric washing-machines, stoves, and lights. This company has held several meetings among its tenants at which a banquet has been provided and technical discussions of tobacco production have been carried on. This company last year, as a gesture of goodwill, sent each tenant a Christmas cake. So far as I know, such activities have been indulged in by only one company, but the possibility is clear. The manager of this company told me: 'We want our tenants to be satisfied and to make as much money as possible because the more they make for themselves the more they make for us.' It is my opinion that several of the companies have the long range point of view and the interests of the community at heart. The possibility of the other view is not to be overlooked, and I am not holding this one company up as an example of the usual practice, but it can be said that conditions in this area as regards the tenants are fairly satisfactory.

I would like to emphasize the fact that substantial numbers of labourers have become tenants and numbers of tenants have become owners. At the same time, the area of land suitable for tobacco production is rather definitely limited, and the essential climatic conditions are also limited. Thus, it may be that as time goes on, the opportunities for the labourer to ascend the agricultural ladder may become more limited. The number of companies is not likely to be enlarged greatly because most of the tobacco land is now under control. In my judgement, the development of the corporation farm organized on a share-tenant basis is likely to find its highest development in those types of farming in which the single enterprise contributes most of the revenue.

The experience of these corporate farms has been short and, in the absence of a complete analysis of data on their operations, one must refrain from a definite appraisal of their accomplishments, but it may be said that the necessity of providing large amounts of capital for land, buildings, and equipment, the high operating expenses

involved in the production of tobacco, the skill required to raise the crop, and the efficiency essential to satisfactory sales, all indicate the desirability of a division of responsibility between landlord and tenant. It may also be suggested that a company operating on a large scale may prove to be a more efficient landlord than a number of individuals attempting to perform that service. So long as the companies deal fairly with tenants and select good citizens as tenants, there is little likelihood of a corporate landlord being undesirable. Moreover in the matter of sales the tenant and the landlord have a common interest, and any tendency to take unfair advantage of tenants is thus minimized.

The third type of corporation is represented by the operations of the Colonization Finance Corporation of Canada, Ltd., which offers another example of corporate supervision of groups of farms. This company operates in the three Prairie Provinces. It came into existence through the co-operation of nine loaning companies and the Canadian Pacific Railway—each of the companies had experienced difficulties in securing repayment of loans made to farmers. This company was, therefore, organized with a twofold objective: (1) to assist the loaning companies to salvage their loans, and (2) to assist the creditors in salvaging their farms. In 1931, 72·3 per cent. of the farms were foreclosures which had taken place over a period of years prior to 1930. They could not expect tenants to maintain the properties because of lack of security of tenure, but with a proper system of farm management this was not true. The operators of these farms were in much the same position as a tenant. Their equity was small or in some cases had entirely disappeared. The company, therefore, was brought into existence to provide assistance which would be of mutual benefit to the operator and the creditors. Briefly the plan is to zone the areas in the provinces in which the member companies have their loans and provide a supervisor for each zone. In Manitoba there are 8 zones and in Saskatchewan 6 zones. Fewer farms are under supervision in Alberta, and I think these are handled in connexion with the Saskatchewan zones. A total of 3,220 farms are under supervision this year. A competent farm manager supervises the work of the zone district representatives.[1] In developing a system of management a crop map of the farm is provided as the first step in reorganization. The second step is to take an inventory of equipment, live stock, land, and buildings. The taking of the

[1] For a full discussion of this project, see F. W. Reinoehl, 'Farm Management Programme of the Colonization Finance Corporation', *Scientific Agriculture*, vol. xiii, no. 8, April 1933, pp. 481–8.

inventory is followed by the establishment of a set of accounts which are basic to proper budgeting. Annual crop reports are also required. These are summarized and made available to the farmers for comparisons. These accounts, of course, are useful in deciding additional amounts of credit for operating purposes.

Improved methods of crop production and weed control have been introduced. Portable seed-cleaning equipment has been provided in some zones, improved cultural practices adopted, and similar improvements in live-stock production introduced on a commercial basis.

The cost of the service in 1931 was estimated at 20 cents per acre which is almost entirely met by the interested company. My belief is that such costs have been reduced in subsequent years by means of an increase in the number of properties supervised and consequent improvements in the system of zoning so as to reduce the cost of supervision.

There is a degree of similarity in the two types of corporate organization discussed thus far. I believe that both hold possibilities for development. The principles involved in the operation of the plan adopted by the Colonization Finance Corporation may be applicable on farms which are operated by farmers whose equity is unimpaired or very slightly depreciated.

Besides these examples of corporate enterprise in agriculture in Canada, we have a number of chain or multiple farms controlled by single individuals. This is true in the apple districts of the Annapolis valley, Nova Scotia, and in the St. John valley of New Brunswick where potatoes are the main cash crop. I have already implied, however, that I do not expect to witness a marked change from the family size farm to the corporate form of ownership, though there may be some increase.

Besides these commercial undertakings, we have in Canada several examples of group farming such as that carried on by Doukhobors in British Columbia, the Hutterites in Manitoba, and the Bangor Community in Prince Edward Island. In these enterprises, a national and religious motive is characteristic and even of paramount importance, so that this type of organization is not as highly developed commercially as the tobacco and grain farms, and really has no place in this discussion.

In conclusion, I would say that Canadian experience with the corporate form of farm ownership and operation has been limited to rather highly specialized types of farming. Those which appear to have been most successful have possessed more adequate capital, greater efficiency in business management, and a higher degree of

technical skill than would be found on the average among the individual producers who would be necessary to operate a similar area of land, but not a little of their success has been based upon the preservation of the intangible but essential quality of successful operation found in the family farm—the personal interest and pride of attainment possessed by the family head on each unit of the corporation's land.

F. BUČEK,[1] *Institute of Farm Management and Accounting, Prague, Czechoslovakia.*

Agricultural production in Czechoslovakia is managed on the principles of private enterprise on the individual farms, the total of which amounts to 1,641,309, operating an area of 8,475,710 ha. (excluding forest land). That is to say, the average is 5·2 ha. per agricultural holding (arable land, meadows, garden-land, pastures, and vineyards). The farm is, as a rule, the property of the operator. Rented farms comprise only approximately 1 per cent. of the total area, which mainly includes large farms. Part-rent is more frequent; here, the main area of the farm is the property of the farmer and only a certain additional acreage of fields (or meadows) is rented. This form of rented land accounts for about 10 per cent. of the agricultural area.

Only a few large farms are managed on the corporation system, and there are no State-owned farms. The State mainly administers the forests, but only to an insignificant extent the agricultural land.

According to the agricultural census of the year 1930 the distribution of farms in the size groups was as follows:

TABLE I. *Size of Farms in Czechoslovakia, 1930*

	Number of farms		*Area*	
Size group	*Number*	*Per cent.*	*Acres*	*Per cent.*
0–2 ha.	753,542	45·9	647,406	7·6
2–5 ha.	444,099	27·1	1,587,952	18·8
5–20 ha.	391,926	23·9	3,943,102	46·5
20–100 ha.	46,667	2·8	1,448,652	17·1
Over 100 ha.	5,075	0·3	848,598	10·0
	1,641,309	100·0	8,475,710	100·0

In Czechoslovakia farms of all size groups are to be found, but the great mass of farms belong to the small and medium-size groups,

[1] The special title of this address was 'The Organization of Farming in Czechoslovakia'.

i.e. up to 20 ha., which comprise 97 per cent. of all agricultural holdings and which operate 73 per cent. of the total farm land.

The land reform carried out subsequent to the establishment of the new State did not materially change the distribution of farms in the size groups, because the land reform mainly affected the forms of land tenure. By means of the land reform, the area occupied by the largest size group (over 100 ha.) was reduced by about 500,000 ha., whereas, on the other hand, the groups of small and medium-sized farms showed an increase, with the exception of the group under 2 ha. This group decreased because many holdings previously in this group received additional land and thus came into the 2–5 ha. group. The structure of agricultural production was in no way disturbed by the land reform, either in its economic or in its social aspects. The drawbacks of the distribution of land before the reform were not so much an abnormally large share of the large farms in comparison to other countries, but rather the fact that fully 60 per cent. of the size group over 100 ha. belonged to great estates, i.e. properties with an area of more than 1,000 ha. The great estates had not grown up by free competition for the soil, but were the result of the political system of former centuries; two-thirds of the great estates belonged to the nobility, the Church, and the State, i.e. to those sections of the community which had held political power in the past. There was a particularly great accumulation of landownership after the loss of political independence, for, after the battle of the White Mountain (1620), the estates of more than 500 Bohemian nobles were confiscated and added to the property of the nobles of the opposing political camp. Not these historical facts, however, but economic, social, and political reasons working against ownership of great estates were the immediate causes of the land reform; the land reform was a means of checking the revolutionary tendencies of the period of reorganization and of satisfying the so-called 'craving for land'. The land reform has by no means done away with large farm ownership. The previous owners were left much more than the legal maximum of 250 ha. for reasons such as the preservation and maintenance of buildings of historical and artistic value, of parks, &c. The land reform was carried out organically, without undue haste, and on a legal basis. The former owners were given compensation.

The land reform is an economic gain for the State, for it has caused an increased output of all live-stock produce and has thus materially relieved the trade budget at those points where there was formerly the greatest deficiency (pigs, fats). Furthermore, the land reform

strengthened the farming element which, thanks to its sane conservative character, forms the social backbone of the community. This fact was of special importance, because so high a proportion of the industries and of the industrially employed population of the former Austro-Hungarian State was located in Czechoslovakia. Because the number of persons occupied on a unit of land is three times as high on small peasant holdings as on large farms, the expansion of small and medium-sized peasant farms notably increases the home market for industrial products. This effect of the land reform is particularly important for Czechoslovakia, as owing to its continental position it is dependent on exports for the main part of its industrial production. The land reform thus fulfilled its mission of economic and social consolidation of the State and greatly improved the political situation which threatened to become perilous because of the sudden changes of structure.

By organization of agricultural production we mean the choice of the most suitable form of production, the fixing of the volume of production, and, furthermore, the selection of the most favourable means of production and the intensity of their application. Besides the natural conditions (climate, altitude, soil) which characterize the individual natural regions of production,[1] the size of the farm also exercises an important influence on the organization of agricultural production.[2]

A very important feature of organization is the proportional distribution of the various forms of soil utilization:

TABLE II. *Land Utilization on Farms in Czechoslovakia*

Type of soil utilization	*Size group*					*Average for the whole country*
	0–2 ha.	*2–5 ha.*	*5–20 ha.*	*20–100 ha.*	*over 100 ha.*	
Arable land . .	72·0	71·5	70·5	69·5	64·3	70·0
Meadows . . .	16·6	16·1	15·5	14·4	14·6	15·4
Garden land . .	2·4	1·2	0·9	0·8	0·8	1·1
Vineyards . .	0·6	0·3	0·2	0·1	0·1	0·2
Rough grazing . .	8·3	10·9	12·8	15·1	19·8	13·2
	100	100	100	100	100	100

[1] In Czechoslovakia, according to natural conditions, we distinguish 4 main regions of production: 1. The sugar-beet area. 2. The grain area. 3. The grain and potato area. 4. The fodder crop area. In this sequence, altitude above sea-level increases, the natural conditions of production deteriorate, and the intensity of land operation declines.

[2] All statistics in the tables which follow are derived from the survey embracing 3,200 farms, carried out by the Agric. Institute of Farm Management and Accounting of the CSR, Director, Dr. Vlad. Brdlik. The data represent the average of the 5 years 1926–30.

The smaller farms show a higher percentage of the intensive forms of soil utilization (arable land, garden land, and vineyards), whereas the large farms have a greater proportion of rough grazing.

The form of utilization of arable land is also a decisive factor in the organization of agricultural production. The choice of crops is primarily influenced by soil and climate, but is also affected to a significant degree by the size of the holding.

TABLE III. *Crop Acreage in Percentage of Arable Land*

Crop	*Size group*					*Average of the whole country*
	0–2 ha.	*2–5 ha.*	*5–20 ha.*	*20–100 ha.*	*Over 100 ha.*	
Wheat	13·5	14·6	14·9	15·9	22·1	15·6
Rye	20·0	20·0	17·8	15·3	9·6	17·2
Barley	13·4	12·3	12·1	12·8	15·1	12·6
Oats	8·8	11·5	15·5	13·9	8·2	13·3
Potatoes	17·8	12·9	9·4	7·4	7·0	10·2
Sugar-beet	3·3	4·0	3·6	6·6	9·0	4·6
Vegetables	0·6	0·5	0·4	0·2	0·1	0·4
Industrial crops	0·5	0·5	0·7	1·4	2·2	0·8
Fodder crop	14·4	16·3	18·6	19·2	17·9	17·9
Fallow, &c.	0·3	1·2	1·7	2·2	3·4	1·7

In the small farms the tendency to provide for self-subsistence and work for all members of the family predominates. The factor of absolute profitableness of each crop is not given much consideration, but the factor of relative profitableness, i.e. income, is important. With increasing size of farm, the acreage of wheat increases and that of rye and potatoes drops, and, whilst the acreage of sugar-beet expands, the cultivation of vegetables diminishes; industrial crops are developed and the acreage of fodder crops also increases (with the exception of the size group over 100 ha.). These facts reveal the principles of household production in the small farms and of market production in the large ones. Favourable natural conditions are more efficiently exploited by the large farm than by the small peasant holdings which, for reasons of household requirements and utilization of a high supply of labour, continue to grow crops (rye, oats, potatoes) which might be replaced by more profitable ones.

Crop production is supplemented by live-stock production, the volume of which depends on the number of live-stock held. This again is dependent on the amount of home-grown fodder produced. The number of draught animals (horses and draught oxen) increases up to the group of 5–20 ha. and then remains practically stationary in

the groups of 20–100 ha. and over 100 ha. On the small peasant holdings the cows are used as draught animals; that is an important fact for these farms. The use of cows as draught animals enables the small farmer to till his land with draught power of his own and, at the same

TABLE IV. *Total Live-stock in kg. per ha.*

Type of live-stock	*Size group*					*Average of the whole country*
	0–2 ha.	*2–5 ha.*	*5–20 ha.*	*20–100 ha.*	*Over 100 ha.*	
Horses	19·5	24·6	57·7	48·7	36·1	45·0
Cattle:						
Draught oxen	6·3	14·0	19·2	17·5	31·3	18·1
Cows	315·7	238·8	145·2	118·7	100·4	167·0
Cattle for fattening	1·3	1·1	5·7	15·7	20·6	7·6
Stores	46·0	53·9	51·0	42·3	26·9	47·3
Cattle: Total	371·6	310·6	228·4	205·3	185·1	246·6
Pigs	43·6	29·3	25·9	22·5	16·8	26·4
Sheep	0·8	1·8	2·5	3·7	6·8	2·8
Goats	9·1	1·6	0·5	0·2	0·0	1·3
Poultry	9·7	6·2	4·0	2·2	0·5	4·1
Total	455·9	374·9	319·3	282·7	245·3	326·7

time, to produce milk. There is a marked drop, therefore, in the number of cows with increasing size of the farms, and, simultaneously, a decrease in the total number of cattle.

The pig enterprise is most developed on the small farms and diminishes with increasing size of the farm; this also applies to poultry and goats; the opposite is the case with regard to sheep. As compared with pre-War times, there is a remarkable reduction of cattle for fattening on the large farms (from 50 to 20 kg. per ha.) but, on the other hand, an increase in pigs (from 3·8 to 16·8 kg.), of horses (from 18 to 36 kg.), and of cows (from 65 to 100 kg.). This is a consequence of the fact that the large farms have replaced draught oxen by horses and tractors, whereby more fodder is available for cows. The reduction of draught oxen also entails a reduction in cattle for fattening, as it was the practice on large farms to fatten the oxen.

The profitableness of small holdings is to a great extent conditional upon the use of cows for draught. This type of draught power adapts itself readily to the seasonal fluctuations of draught requirements. When the cows are not used for draught, the productive capacity of the food can to a greater extent be utilized for milk production. This means that there is always an economic equivalent for the feed. No

other kind of draught animal shows similar advantages. But wherever heavy clay soils limit the use of cows for draught purposes, the basis of small peasant holdings is endangered. Draught animals naturally curtail the supplies of fodder available for productive livestock. The less the number of draught animals carried per unit of land the greater the surplus of fodder, or the greater the acreage that can be devoted to the production of market crops. The remarkable number of pigs in the small size groups is directly connected with the great number of cows kept and with the higher number of persons per unit of land; in small holdings there is enough home keep for pigs in the form of skimmed milk and household refuse (potatoes).

A summary of the days of work annually performed gives us the best survey of the labour conditions:

TABLE V. *Labour Performed on Farms*

	Members of family		*Hired labour*		*Total days*
Size group	*Days*	*Per cent.*	*Days*	*Per cent.*	
0–2 ha.	205	97·3	6	2·7	211
2–5 ha.	151	94·7	9	5·3	160
5–20 ha.	80	75·2	26	24·8	106
20–100 ha.	21	30·0	49	70·0	70
Over 100 ha.	2	3·5	60	96·5	62

It may be said that in the smallest group of 2–5 ha. about treble the amount of labour on the average is needed per ha. than in the size groups of 20–100 ha. and over 100 ha. That, however, does not mean that the effect of labour is three times as high in the smallest groups as in the large groups; it is simply a consequence of the fact that a surplus of the labour force of the family is at the disposal of the small farms, and that therefore it is sought to find means of employing the members of the family. The output per unit of work is disregarded, and only the result of the work of the family as a whole in the course of the whole year is taken into account. This clearly shows up the important social role of the small holding, especially in times of economic stress; for the small farms can serve as refuge to three times as many people as the same area operated in large farms.

The peasant homestead is to the farmer primarily a family enterprise, a means of utilizing his working capacity, and, only as a secondary condition, a source of money income.

The following survey (Table VI) shows that with decreasing size of the farm the number of male members of the family permanently

employed in agriculture diminishes, whereas the proportion of female labour increases. This proves that on small holdings the men seek occupation elsewhere, because the agricultural enterprise is not sufficient in size to provide work for the whole family. With increasing size of the holding it is no longer necessary to seek subsidiary labour income and the farm becomes self-sufficient. The

TABLE VI. *Labour per 100 ha. of Farm Land*

Type of worker	*Size group*					*Average of the whole country*
	0–2 ha.	*2–5 ha.*	*5–20 ha.*	*20–100 ha.*	*Over 100 ha.*	
1. MEMBERS OF THE FARMER'S FAMILY:						
Adults	199·5	86·2	35·1	9·4	1·5	49·6
Children	84·8	35·9	14·2	3·1	0·4	20·5
Employed in agriculture:						
(*a*) Permanently:						
Men	17·7	24·1	14·1	3·9	0·6	13·2
Women	53·3	30·8	13·8	3·4	0·2	16·9
(*b*) Temporarily:						
Men	61·5	13·8	2·2	0·5	0·1	8·4
Women	31·6	7·9	2·0	0·6	0·1	5·0
Children	2·1	3·1	1·4	0·2	0·0	1·4
2. HIRED WORKERS:						
(*a*) Permanent:						
Employees	..	..	..	0·3	1·5	0·2
Labourer families	..	..	0·1	3·6	6·6	1·3
Unmarried workers:						
male	0·6	0·4	3·1	2·6	0·1	2·0
female	0·2	1·2	3·2	3·0	0·4	2·3
(*b*) Temporarily employed:						
Days of work:						
Male	76	89	202	534	1,225	327
female	244	264	461	1,323	2,175	722
Piece-work wages paid:						
Kč.	100	300	800	3,600	4,800	1,500

close connexion between farm work and wage work in the industries offers great advantages, particularly in critical times. The general tendency is towards more general recognition of this fact.

The decrease in labour requirements with increasing size of the farms is a result of the more efficient utilization of manual labour on larger areas, as well as the replacement of manual labour by use of machinery. With increasing size of the farm, the family enterprise disappears, together with all its advantages, particularly with regard to the high quality of family labour. The income loses the nature of a labour income and acquires the character of capital income.

The diverging character of labour in small and large farms leads to differing tendencies in organization and therefore to a different economic type of each size group, thus resulting in very various economic and social values of the different types of farms.

Concerning the various capital investments per ha. of farmland, details will be found in the following tabulation:

TABLE VII. *Agricultural Capital Investments per ha. in Kč.*

Type of capital	*Size groups*					*Average of the whole country*
	0–2 ha.	*2–5 ha.*	*5–20 ha.*	*20–100 ha.*	*Over 100 ha.*	
Land	9,991	9,537	9,245	9,547	9,545	9,438
Improvements	101	130	200	288	214	195
Buildings	13,891	8,434	5,414	4,486	2,939	6,232
Fruit trees	290	214	151	118	115	165
Live-stock	2,104	1,801	1,623	1,484	1,185	1,627
Machines, Implements	920	1,065	1,050	1,049	1,054	1,043
Field inventory	110	105	99	103	129	105
Supplies	1,459	1,159	1,037	1,040	939	1,083
Cash	77	69	85	119	88	87
Total	28,943	22,514	18,904	18,234	16,208	19,975

With increasing size of the farm, the capital investment per unit of land decreases. This particularly applies to the items of buildings, live-stock, supplies, and fruit trees, whilst the land capital, although, in fact, highest on the smallest farms, only shows minor variation.

The greater outlay of the small farms for buildings is caused by the larger requirements for the dwelling, by the greater amount of live-stock, and by the well-known fact that the costs of building are relatively the greater, the smaller the size of the building. Because of the higher investment in buildings, the smaller farms are also more heavily burdened with expenses for upkeep, amortisation, and insurance of buildings.

Capital investments for machines do not diminish with increasing size of the holding because the larger farms can use machines for which there is no scope on small farms.

The outlay on fertilizers and feeding stuffs in the different size groups is shown in Table VIII. The smallest amount of concentrates is bought in the group of medium-sized farms from 5–20 ha.; purchases are highest in the large farms, and then in the smallest holdings under 2 ha. In the case of the large farms, this is due to lack of home-grown concentrates (grain is sold); amongst the small farmers it is a result of the great amount of live-stock carried and

is also due to the tendency to obtain the highest possible output from the live-stock enterprise.

TABLE VIII. *Purchase of Concentrates and Artificial Fertilizers per ha. of Farm Land in kg.*

Commodity	Size group 0–2 ha.	2–5 ha.	5–20 ha.	20–100 ha.	Over 100 ha.	Average for the whole country
Concentrates:						
Bran	128	70	45	71	137	70
Maize	50	25	16	27	77	28
Oil cakes	6	7	10	25	46	15
Distillers' draff	2	3	3	5	12	4
Molasses	3	5	8	25	26	11
Sundry	29	8	12	25	39	17
Artificial fertilizers:						
Nitrates	22	25	23	38	49	29
Phosphates	58	62	64	78	105	69
Potash	13	22	19	29	40	23
Lime	54	55	63	99	133	74

The use of artificial fertilizers grows with increasing size of the farms. This is to be explained by the better professional training of the operator as well as by the reduced output of yard manure owing to the lesser amount of live-stock carried.

TABLE IX. *Production and Income per ha. of Farm Land in Kč.*

	Size groups 0–2 ha.	2–5 ha.	5–20 ha.	20–100 ha.	Over 100 ha.	Average of the whole country
Production	4,712	3,687	2,986	3,081	3,209	3,288
Plant production	30·3%	36·1%	42·3%	53·2%	56·2%	42·7%
Live-stock production	69·7%	63·9%	57·7%	45·9%	34·8%	56·3%
Industrial production	..	..	..	0·9%	9·0%	1·0%
Of the production:						
Used in household	55·8%	40·7%	27·9%	11·5%	1·8%	28·5%
Marketed	43·1%	57·1%	68·8%	82·4%	86·5%	67·4%
Income of the entrepreneur:	2,675	2,268	1,537	988	557	1,572
Labour income	2,008	1,619	1,005	364	68	996
Capital income	667	649	532	624	489	576
Income of hired workers	101	143	434	825	1,084	484

The national importance of the various size groups lies in the value of production per unit of land. The efficiency from the point of view of the individual is expressed in the amount of income.

From the national point of view, the two smallest groups are the

most important, for they show the greatest output per unit of land. The smallest group of holdings is particularly remarkable as it surpasses the next group by about one-third. Among the other groups, the large farms have the highest production, then follows the group of larger peasant farms (20–100 ha.), and finally, the group of medium-sized peasant farms (5–20 ha.) which is of the least national importance. The differences between these three groups are, however, not sufficiently large (4–7 per cent.) to warrant the assertion that one group or another is more efficient from a national viewpoint. But the higher value of the first two groups is beyond all doubt. The summary also displays the superiority of the small farms as compared with the large farms in live-stock production, and equally the significance of the large farms for supplying the non-agricultural population.

From the point of view of the private entrepreneur, the size of income per ha. drops from the small farms to the large ones. In the income of the small farmer, labour income is preponderant, and in the income of the large farmer, capital income.

The income of hired workers is naturally greater in the larger size groups, but, if we add together the labour income per ha. of the entrepreneur and of the hired workers, the small holding is superior to the large farm.

In summary: Agricultural production in Czechoslovakia is organized on the basis of private enterprise and is conducted on farms of various sizes. The majority of the farming community are farmers of the small and medium-sized groups operating almost 75 per cent. of the farmland. Large farms (over 100 ha.) claim 10 per cent. of the land (16 per cent. before the land reform). The relationship between the different size groups is the result of a prolonged economic, social, and political development and is continually changing according to the necessities of actual life. At certain periods every size group is economically and socially necessary and justified, and can claim importance from the point of view both of national economy and of social value and private enterprise. It would seem as if the trend is towards a development of the small and medium-sized peasant holdings at the expense of the large farms, and that such a development is to be welcomed as the most efficient means of solving the industrial crisis, particularly in Czechoslovakia.

A. B. Lewis, *University of Nanking, China.*

I only presume to speak because I am afraid that some other much better qualified person among you is not going to give voice to these

remarks. Coming from China towards the United States I am of course feverishly interested in what I am going to find there when I land. One of the severest shocks which I have so far received was that administered by Dr. Tolley when he described the newest attempt to regulate agricultural production in the United States. I refer especially to the machinery of administration of the new Soil Conservation Act.

In our agricultural improvement work in the United States we have the State agricultural colleges and, associated with them, agricultural experiment stations and agricultural extension services. The function of these three institutions is research and education, and it is with great difficulty that this limitation of function has been maintained over the period of years since their formation. It has been with great difficulty that political influences have been kept from dominating them. Their purely educational character is the basis upon which the great respect in which they are held by the farmers has been built.

Now, under this present Act we find that the county agricultural agent who is appointed partly by these educational institutions is given charge of determining amounts of money which are to be paid to individual farmers. From an administrative point of view I cannot imagine any greater catastrophe which could have befallen agricultural education in the United States than this. On this basis alone, if not on any other, I hope that this Act, like the preceding one, will soon be improved or abolished.

One other point which should be made is that in general, and I think regrettably, most economists do not yet approach their subject from a scientific point of view or by scientific methods. Most conclusions upon which political action of an economic character is based have been derived, not by statistical analysis of facts or by very difficult reasoning on the basis of these facts, but rather by premisses which have been established on unbased theoretical thinking. It is by people using this latter method that the A.A.A. and substitute measures have been devised. Many of us in agricultural economics do not have confidence in the type of economist who has been given control of such a vital and vast function as the production of food and clothing materials on the farms of the United States. We do not have confidence that they have the omniscient power to regulate the proper relations between supply and demand, least of all in the different highly complex situations for the many commodities produced in the United States.

I wish to make just one particular point under this last heading.

The general idea upon which the regulation of production is based is that the reason for the crisis, as it is called in this part of the world, was over-production of commodities or, as is sometimes said, the lack of adjustment between the supply of commodities and the demand for them. This has been disproven many times over by Professor Warren and by many others who have worked in similar fields, in showing that the principal cause of the decline in prices was not any unusual high production, but monetary changes. I happen to have lived for three years in a country which has undergone a severe economic depression although the level of consumption is below what would be considered a depression level in most western countries. The fall in prices which caused the depression was not due to over-production. It was caused by a rise in the value of the currency. This is the only factor which could have caused a fall in prices in China.

On approaching the United States I regret to find that unscientific economists who are mistaken in the fundamental premiss upon which they operate are engaged in regulating agricultural production.

H. ZÖRNER, *University of Berlin, Germany.*

I would like to reply to the remarks of Mr. Ashby this morning, but first of all may I say one thing. Mr. Ashby concluded by saying that he presumes my statements spring not so much from my belief in the peasant system as from my fear of the collective. I think, when we deal with such intricate subjects as those we are discussing here, the first premiss should be that we do not deny to each other bona fides. I am sure that Mr. Ashby believes what he says and it would be fair, I think, for him to believe the same of me. It would make things easier and it would at least free divergencies of opinion from personal asperities.

Now to his remarks: Mr. Ashby says that I have stressed a conflict between agriculture and industry. I am not conscious of having spoken of a conflict between industry and agriculture. True, in my opinion, there is a very fundamental difference in the conditions of production between industry and agriculture, a difference of such fundamental character that the systems which can and must be developed in agriculture and industry must be different. That however is not a conflict, but a difference. This difference also is often not acknowledged and was, in a private conversation this afternoon, again denied. I would like therefore to go into this matter.

In agriculture we have to deal with the production of organisms. The whole process of production is organic. We have to take account

of Nature, of space; we have the annual cycle of plant growth, &c. All these facts make for quite different considerations of the size of the productive enterprise than in industries where these limits do not exist. Therefore, we cannot approach the organization problems of agricultural enterprise with conceptions gained in industry. We have witnessed such attempts. In Russia these conceptions were consciously adopted to organize agriculture in the same way as industry, because these differences in the conditions of production were consciously refuted. The result was catastrophic. I speak here from my own experience. I personally have followed these matters and have witnessed them at succeeding stages. One cannot say that these affairs were taken in hand in Russia by incompetent men or idiots. On the contrary, in theory they were evolved with the closest reasoning down to the last detail, but they rejected the difference of basic conditions, and thereby failed. In other countries also, various attempts of a similar kind have been made. I have not followed them myself, but I think perhaps one or other of the gentlemen from America present here can make a few remarks on this subject. So much for the fundamental differences between industry and agriculture and the resulting differences in the scope of shaping the size of the unit of production.

Now a second point. Mr. Ashby implied something in his remarks to the effect that by advocating the family farm and peasant farm I wished to maintain the standard of living of the rural population at about the level of the cave-man. I do not know how he arrives at this implication. The peasant farm is by no means inevitably tied down to lower possibilities of earnings, to lower standards of living and such things. If we look at Danish farming—of which we have heard so much—at Dutch farming, if we take Switzerland, Germany, Czechoslovakia, Sweden, Norway, &c., everywhere we will be able to find peasant farms which in their standard of living and in their cultural status fully bear comparison with what we find in the cities under comparable circumstances. Championing the family farm does not imply that one wishes to segregate agriculture from all cultural progress, or even from all progress of civilization. On the contrary these two aspects can be combined, as is proved by innumerable examples. We need only to open our eyes to see that these possibilities exist. This is no theoretical fiction, but real fact.

As to the question whether wealth can be earned—it was previously stated that the peasant must earn and would wish to earn—of course he wants to earn, and can earn money. He has proved that. Not only can he earn wealth, but he can preserve wealth once earned in a

manner in which no one else can, for this is proved by the history of centuries. So it is really not the case that the peasant is necessarily cut off from material progress.

I come now to the question whether the peasant requires other forms of life than the man of the towns, whether the urban forms of life should be brought to the peasant, whether the life of the peasant (even if he is not in so good a position as we have just assumed) need be poorer than the life of the town man. The question is, whether we should take it for granted that the forms of social life developed in town and industrial life are so splendid that we should under all circumstances convey this blessing upon the rural population. If we want to come to a decision, we must of course make up our minds what we consider finally desirable in life and, here again, we enter into a field of problems which cannot be gauged by scientific measurements. One man likes to play golf, a second drinks whisky, another goes to the theatre, another is glad to watch the growth of his work. These are very various attitudes towards happiness and sense of life, but one thing is certain, that one can find happiness in the scheme of rural life even if not blessed with an abundance of material wealth. How could it otherwise be explained that millions and millions of men, who had the chance of leaving the toilsome life on the land and of going into industries or to adjoining large farms as labourers or of emigrating, nevertheless stayed on their land even in times of material hardship? Surely that proves that there must be something giving meaning and riches to inner life. And that is what finally matters. Mr. Ashby and I will surely agree that what we both aim at is to make men happier and that we need only to discuss which ways to that goal are the safest and which the more dangerous. As to the aim we are certainly of the same opinion.

Now, a further question. By what means can we give to the rural population these advantages of the urban and industrial forms of life on which Mr. Ashby places so much emphasis? Are there no possibilities by means of the development through which agriculture is passing in very many countries, by the opening-up of the country-side by transport facilities, by the growth of education, &c.? Here are means of conveying these benefits without destroying the forms of life which have grown up in agriculture, certainly not by chance but in natural organic growth. I will return to this subject later.

I would now like to deal with another problem also broached. That is the problem of population policy. I seem to have expressed myself rather clumsily if I was heard to say that I only wish to

maintain a strong rural sector in order to prevent the extinction of the cities. Far from that. I do not consider the growth of the cities to be such a desirable feature that I would exhort the rural section to make exertions simply for the sake of the cities. For one thing I do perceive that in all civilized countries the birth-rate is dropping at an alarming pace and that the surplus of the rural sector is greater than that of the urban sector; therefore it seems to me to be important that the civilized countries should foster this rural sector which mainly contributes to the maintenance of the whole population, in order to check a decrease of the total population. It may be that my views are unsound, but I believe that the studies of O. E. Baker and many others confirm my opinions. That, however, is not so very important.

Now a further question touched upon was fear of the collective. I do not know why I should be afraid of the collective. I can well feel anxious that the execution of such experiments as have been made on a large scale in creating collectives may plunge innumerable people into misery. If Mr. Ashby emphasized that my suggestions are so immensely dangerous, I, on my part, believe that the ways he advocates are fraught with much greater dangers; for they are based on theoretical conceptions and on the wish to transfer operations to new fields for which we have no precedents. Here is an experiment, and experiments always are accompanied by danger. We have had a few experiments, such as Russian collectives. They offer no evidence of any benefits that might be found in collectives. One thing is correct that to-day more achievements of civilization are to be found in the Russian villages than formerly, that they are more opened up, e.g. by wireless. It is also correct that in many villages much more is being done in the way of schools, hospitals, &c. But all that has not grown up out of the collective, but has developed as the result of very systematic State guidance which consciously created this rural progress. What the collective has brought so far, according to what can now be seen, is primarily boundless misery and destitution and destruction of what previously had been; and whether the collective be able to offer any equivalent must yet be awaited. Certainly it has not yet been proved. And if we regard things coolly, the doubts will be greater than the hopes. Of course, if the State strives with immense energy and with the greatest display of power to increase production, then certainly a higher output can be attained in certain areas where the population had hitherto lived in a state of complete self-sufficiency. But if the same amount of energy, force, and will-power had been spent in another

direction, in the preservation of the family holding, the purely economic effect would most certainly have been greater.

Perhaps the whole discussion or controversy between Mr. Ashby and myself may have arisen from the fact that we misunderstood each other, as often happens. Partly it has a different source, namely, a difference in what is essential to human happiness and the ways of making men happy. These things we cannot mutually prove to each other. We must believe or not believe. On matters of faith one should not enter into controversy. One should fight, if need be, *for* one's faith, but not *about* one's faith. But I think it has been useful that we have again taken up this subject; for the decisions as to the paths that should be followed are so momentous in their consequences that the pros and cons cannot be weighed seriously enough. I do not think that I have convinced Mr. Ashby by my remarks any more than he has convinced me. We have both struggled in thought too deeply in these matters and cannot change our convictions in a conversation of half an hour. But I hope my answer will give him food for thought, just as his remarks have given me food for thought. And I hope that this discussion will contribute to impelling us both to re-examine most conscientiously our ground. For the consequences of our convictions, if we have the chance of putting them into practice, have an immense reach.

J. F. DUNCAN, *Scottish Farm Servants' Union.*

I wonder whether in five minutes I can do anything to cool down this heated atmosphere. This I thought was a conference of international economists, but whenever the small farm is brought into discussion there seems to be a danger of lapsing into the usual politician's rhetoric. Now I want to put one or two questions to the economists present. A great many of you here were like myself reared on small farms. Why do we not go back? Why do we all see to it that we get away as far as we can from the small farm? For exactly the same reason that we have in every country, every peasant country as every other, the land flight—I think Zörner will recognize the term as it was Germany which gave it to us. These people do not leave the family farm and they do not leave the peasant areas unless for a very good reason, and therein lies the test whether rural life is better or worse; whether rural life is more attractive or less attractive than urban life. That question is settled by the people who live in the rural areas because they desert the rural areas, and so it is not a question of whether *we* think the rural life is better. (We did not! We thought it was much better to go and advise them about rural

life.) The question is not whether we think the rural life is better. The question is: What do the people who have got to submit to the rural life think about it?

I heard Professor Warren telling us about the family farm—the ideal family farm, where when the men feel like it they work hard, and when they are not feeling like it they do not work hard. I was not reared on one of that kind. On the one I was reared on, we worked hard all the time, and we had to work hard and never slackened at all. I do not know any life in which the worker is more engrossed, more held to his job, as we say, with his nose to the grindstone, than the life of the small farmer who has got to arrange his own affairs and has got to carry through. There is no use trying to shirk that fact. The farm worker who is working on regular hours and who is working for a regular wage has a very much easier time of it than the farmer who is working his own farm. The children of the farm worker have a very much easier time of it than the children of the small farmer. It may be different in America, I know it is not different in Scotland. I have seen the children in Denmark; I have seen them in Germany; I have seen them in a good many of the European countries; and wherever I go I find the same thing is true of farm life, that the children are robbed of their childhood, robbed of their youth, and that it must be so, otherwise the family farm cannot keep going.

What I wanted, however, to bring you back to was—how are we going to decide this question? Is it on our traditional notions of the family farm, our ideas of a populated countryside, or are we going to discuss it on the economic results and the social results? Are any economists here prepared to contend that the product of labour on the family farm is greater than the product of labour on the well-managed farm which is conducted on scientific lines? All the figures that I have ever seen produced by the economists, not produced by myself, have shown that where there are small units of farms the amount of human labour required is greater and the product per unit of human labour employed is less. The purpose of agriculture after all is not only to provide a living for the people in the rural districts, but also to provide food for the community as a whole. And surely, if we are going to see an improvement in the standard of the people engaged in the agricultural industry, whatever other governmental regulations we make, whatever sort of rigging of the price structure we may engage in, every economist's figures that I have ever seen come back to this, that unless we can increase the productivity per unit of labour em-

ployed, we cannot hope to increase the standard of living of the people in the rural districts to anything like the level of that in the industrial areas. That is the fact to which I would like the economists here to apply themselves. If the economists can show that it is possible to produce more per man on the family farm, that the smaller unit in agriculture is different from the small unit anywhere else, and that the more labour there is employed in agriculture the more productive it is going to be, then we have something to go upon. I think that whatever differences there may be in the organic nature of agriculture and in the structure of industry, the test of productivity is going to be the unit of labour, and if it can be shown that the unit of labour is more productive on the small farm, then we will simply have to buckle to and make all the small farms we can. But if you are not going to do that, then cease issuing these statistics over which I have worried and all these figures that you put before us, and get back to the politics of the question, and abandon the economics. If we keep to the economics of the question, it is not a question of what happened in Russia, it is not a question of a comparison of what happens in America and what happens in any other country, it is a comparison within an area, the unit on the same kind of land, in the same social setting, and under the same economic conditions. That is the comparison we have got to get to. We can make no effective comparison between what happens in America and in Europe. American agriculture is entirely different from ours. We can make no effective comparison between a social structure such as we have in this country and a social structure such as exists in some other European countries. It is within the same social structure that the comparisons have got to be made, and I suggest that, if the economists apply themselves to that and keep within relevant facts, farm management is just as capable of improvement on the larger scale, just as capable of being handled on the larger scale, as it is on the smaller.

Finally, the era into which we are entering, whether we like it or not, is an era of controlled and planned agriculture. We take some steps in this country, which at once affect the agriculture of Denmark, and Denmark, whether it likes it or not, has got to plan what it is going to do with the production that it cannot get rid of. As soon as planning of that character is applied, I want to put it to you economists: Is it easier to apply a national plan to a multitude of small units, or is it easier to apply a national plan, even to make a national plan, if the units are larger and are on a scale that can be handled? I think that, if these facts are taken into account and if

the thing is discussed from the point of view of economics and not from the point of view of sentiment, the case for the small unit, as against the large unit, certainly has not been put in this Conference so far.

W. SEEDORF, *Göttingen, Germany.*

Thanks to the divergency of opinion which has arisen between my colleagues Zörner and Ashby, I think we have come right down to the root of the matter we are dealing with. And the statements which Mr. Duncan has just made also lead us there. I believe I have already made the remark—and others have also voiced it—that we easily misunderstand each other. That is partly a matter of language, but it is more a matter of the personal store of experience which each one of us carries in himself and which is expressed in his thoughts and all his actions. It is not possible for a German to understand fully things in England and America; and when things are presented to us from those countries and are presented to us as satisfactory or as excellent, we often cannot quite follow the reasoning. I think this mutual misapprehension is a reason for the failure of many of our discussions. I would like to tell you something of my experiences in America and other countries. Mr. Tolley has told us to-day something of the classical theories of economics. These theories were evolved about 120 years ago, particularly in this country by Adam Smith, and were subsequently further developed in a certain direction in Germany. In this period of the first development of economic thought, sentiment, as Mr. Duncan called it, or a perception of the human element, as I would like to call it, was pushed very far into the background. This lack of attention to the human element still clogs us to-day, in our agricultural science as well in economic thought. We owe thanks to the Americans, at least in my opinion, for the development of rural sociology as a special science. But there are also other branches of agricultural science which deal with the human element. I would only mention labour science, which has received little or no attention hitherto.

Now one fact made me ponder greatly, a fact which I observed in America. Up to now we have always spoken of the physical and economic factors which affect the systems of farming and also the size of the holding. I would like to point out that we have treated our subject only from one angle. If we add the human element as a dominating factor, we gain a different view of these problems. In the United States, I was told that farms that had been abandoned by farmers of other races could still offer a good living to Germans.

And what is true of the Germans also applies in similar manner to the Danes, Swedes, and Norwegians. These differences seem to me extremely interesting, and I would have liked to pursue further investigations in America, which is, so to speak, the great experimental field for these questions. The problem is how men of different racial origin, farming side by side, form their systems of farming. I will only state one striking example from the State of Wisconsin. Here there is one area in which Swiss cheese can be made, because the area is settled by Swiss. The others have not been able to learn the process. Such differences are to be found in all countries. Take just one example from Germany. A study of the distribution of the pig population shows that the pigs are mainly to be found in the north-west corner where the Low Saxons live, who are somewhat related to the Anglo-Saxons, and indeed, about a century ago, imported their breeding stock from Great Britain. The feed for the pigs is not produced in the north-east, but in the east. It was thought possible to transplant the fattening industry from the north-west to the east, but it was found impossible. In my opinion, that was mainly the effect of the human element, because the men, in this case the Low Saxon peasants, had a special aptitude for this enterprise.

But I would not like to conclude without making a remark about the collective—without, however, any political implication. In my opinion, if a collective is established by a capable man with a thousand backward peasants, this collective will undoubtedly operate more successfully than if the thousand peasants had been left to their own devices. But if a collective is established with a thousand efficient peasants under the charge of a manager who is less competent than the peasants, it will be a failure. It is only, therefore, as we succeed in making people more efficient that we can hope for success.

Finally, I would like to ask the question: What is the aim of the Conference? My colleague Zörner already pointed out that our aim was the happiness of men. At Eilsen our president expressed our aims very finely by saying that we were to induce sick people to go not to the quack with his sign-board, but to the trained medical man, meaning by that the economic scientists. We wish the health of agriculture, of world agriculture and, when we aim at that, we must aim at the health of the whole world. For this, we must realize the place of agriculture in the whole economy and we must, above all, realize the place of the rural population in the whole population. If we pose this question, we shall perhaps find in this room as many opinions as there are men in it. No fixed scientific statements can

be made. But it is necessary that the States should be guided by these considerations. We want healthy individuals, healthy nations, and we in Germany are now convinced that at least a certain proportion of rural population is necessary for the health of the nation as a whole. If we want to maintain this proportion of rural population, we must keep agriculture, as the economic mainstay of this population, sound, and this is in my opinion one of the vital questions which we must face in the future.

H. C. TAYLOR, *Farm Foundation, Chicago, U.S.A.*

First I want to agree with Mr. Duncan that a family farm that is not large enough for a family farm is too small a farm to be a family farm, and is to be condemned as such! The main point I wish to bring forward is just a bit of information. Back five or six years ago, when the insurance companies of the United States were finding great numbers of farms turned over to them because of the depression and because the former owners could not pay the debts, it was a serious question with them how this land should be utilized. Many of the men in charge of the land management of the insurance companies believed that the way out of the problem was to convert these farms into corporation farms and thus find a way to make the land profitable. Some of the insurance companies were more timid than others, but one large insurance company arranged for the organization of a large corporation in Iowa, the purpose of which was to farm, by modern large machine methods, a large number of farms. Mr. Collins was at the head of the corporation, and he took farm after farm. His men went to each farm one after the other and planted, seeded, and then later went and harvested. All the fences on the inside of the farm were taken up because they were not needed and because he wanted to make each farm into one field. The farm buildings were neglected and it was not long until the farm houses were deteriorating very rapidly. I remember that at the American Country Life Association, in 1930, Henry A. Wallace, the present Secretary of Agriculture, made a little statement with regard to the inevitable trend of affairs in this respect and how it might affect rural life. Within the last two months I have made a point of visiting a large number of the insurance companies and having conferences with those in charge of land management. There is not one of them that does not look upon corporation farming as he would look upon the strongest of poisons. Tremendous losses were made by the companies that undertook this, and at the present time there is a unanimity of opinion

among the larger insurance companies of the United States that the one thing to do is to lease the farms, to put the buildings and the fences in good condition, and provide lime and various fertilizers that may be needed, but especially lime, and seeds for legumes and grasses, and re-establish these as family farms and sell them back to the family farmers as soon as possible. I was talking to the chairman of a joint committee of fifteen insurance companies on this subject just the other day, and he told me of the losses other companies had made and of his good fortune in being a little timid in proceeding along this line. I said to him, 'Didn't you think five years ago that perhaps the other fellow was right?' He said, 'Yes, I did, but fortunately the other fellow made the demonstration.'

ALEXANDER HAY, *Essex, England.*

I would like briefly to refer to the types of farming which exist north of London, with special reference to two particular types. The first is the smallholding, and the second the farm employing labour. After the War there was a considerable settlement of smallholdings in the county, as there was in other counties, both by men who had experience of agriculture and by ex-service men. I had the opportunity of advising these holders over a period of fifteen years. I should say roughly 40 per cent. of the original smallholders have gone, of the ex-service men 85–90 per cent., simply because they could not live. In the case of a few of the ex-service men, if their health did not break down, the health of their wives did, and they had to go out of farming.

Now, take the other type of holding, the holding employing labour. Small or large, it is immaterial. What has happened to this type of holding in an area adjacent to a huge market such as London? Two new types have gradually grown up during the last fifteen years. One type is a small unit of land, specializing in glass, market-gardening, flowers, fruit, poultry, employing a moderate amount of labour, but gradually ascending in the scale of efficiency; and in many cases becoming not only an efficient farm, but a farm employing labour of a very high degree of skill. Leave that and take the other type of farm, the mixed or the arable farm. Many of the farmers in this area went bankrupt during the depression in 1890. They were superseded by farmers from the north without capital, grass farmers from Ayrshire, and more recently by immigration of farmers from northern and other districts. What is the position of this immigrant farmer? He is a man of considerable educational ability, a very high degree of skill in management, and ability,

such as you saw in Fife the other day, to organize his unit so as to get a maximum output from more than one source. The result is an increase in the efficiency of this holding with a higher degree in skill of labour, but specialized labour—by specialized labour I mean a skilled cowman, a skilled tractor-driver, a skilled horseman, if necessary a skilled shepherd, a type of labourer getting a much better wage and more efficient. So that the final conclusion we get in areas adjacent to London is that the larger unit employing more capital can give a higher turnover, and at the same time employ a more efficient and better paid labour in the country-side.

S. SCHMIDT, *University of Cracow, Poland.*

I think that all the papers presented this morning and this afternoon were most valuable contributions to the problem under discussion. But, nevertheless, I venture to express the opinion that discussion has revealed how far we do not know each other; and that sometimes too we are inclined to draw general ideas upon observations which perhaps do not justify any generalization at all. I do not want to touch on Mr. Ashby and Mr. Zörner any more, but I take for instance the very interesting remarks of Dr. Lang. I could hardly agree with his statement that what is being observed in Germany, or in eastern Germany at least, holds true for east Europe as a whole with the single exception of Russia. We in Poland, on the contrary, do notice a quite different movement from that in Germany. Peasant farms of the smallest size are increasing in number, the middle size being wiped out. The high rate at which the population increases is responsible for that movement. Social problems are involved here along with economic ones. After all I realize that Professor Sering was right in putting forward an investigation of landowning and farm organization in different countries. We need such an investigation, and after it has been completed we may have more room for drawing generalizations.

J. P. MAXTON, *Oxford, England.*

There is just one issue which I would like to place before the Conference. We have not heard a great deal about economics in any of this discussion, and it is interesting that while Mr. Bridges's paper, I think, places before us a very closely reasoned economic discussion of this problem of the size of farm and the type of farm organization in all its various aspects, we have not had very much discussion on his paper. It is significant that Mr. Ashby and Mr. Duncan (and Mr. Hay also to some extent), who have spoken from

this country, have all emphasized the economic efficiency aspect of the system of farming. They have emphasized, in other words, the approach which any one would have to take if he set out to organize farming for the purpose for which, when all is said and done, it is necessary to organize farming, namely, to produce food to exchange for the goods other people produce.

Now, there may be a great deal of fun to be got out of farming on a small scale, but I do not think any one can come forward and ask the rest of the community to pay for that fun. The miner gets no pleasure out of digging coal, but we have to get coal. And therefore I do not think we should ask the miner to pay for the pleasure which some of you tell us the small farmer gets out of producing on his present scale. If any one were asked to organize farming purely on a basis of economic efficiency, it would not be the welter and mess of sizes and all sorts of conditions of things which we have at the present time, which is almost like an aerial view of a Woolworth store.

I have been expecting some one to get up and say to the British delegates, 'Yes, you people, you are looking purely at the economic point of view, and you are forgetting the social point of view.' We are not forgetting the social point of view. It is not legitimate to say that the attitude which Ashby and Duncan and myself are trying to put forward is purely an economic point of view and that we are neglecting the social point of view. The fact is that it is two opposite *social* points of view. On the one side there are people who believe that the social structure of society is built up on a system where the one man owns the farm, where the same man owns the capital invested in that farm, and the same man does the work. Few other industries nowadays could be organized efficiently on those lines—we could not produce baths and the plumbing which the Americans are so keen on; we could not have all these microphones and dictaphones that are helping us to run this Conference, if production was organized on that system. The reason why we do not have a modern system of organization in farming is not due to an opposition between economic and social attitudes. It is due to a different attitude to social conditions; on the one side this idea of the small man, the distributivist point of view as we call it in this country, and on the other side a system of society where we accept that some people own and control the capital—it may be the community that owns and controls the capital—where somebody owns the land and controls the land—again it may be the community—and other people do the management and other people do the

work. These latter are the forms of handling and controlling the factors of production, land, labour, capital, and management, which we have in all the industries which have made our standards of life possible in the twentieth century, and it is very little use talking in terms of the eighteenth century.

G. F. WARREN, *Cornell University, New York State, U.S.A.*

If I may be permitted to speak twice, I should like to correct some misunderstandings. So far as I have observed, governments almost universally divide the land into too small units. When New York was settled after the Revolutionary War, they had the 50- to 100-acre farm idea. These were too small for family farms at the time, so that no sooner was the country settled than they began to combine farms and tear down houses.

When my native State of Nebraska was settled, it was under the policy of 80-acre farms except for soldiers who were allowed 160 acres. No sooner was this settled than the farmers began to unite farms and tear down houses. In 1880, there were 886 farms of 50 to 99 acres in the county. Nearly all of these were 80 acres. Ten years later, there were only 482 of these left; and by 1920, only 117 in this size class.

It is a mistake to expect a man to make his living on a farm that is too small to furnish full employment when modern machinery is used. This is dooming the man to perpetual unemployment, unless industrial work is available. The movement to have country homes for industrial workers is exceedingly desirable. Such places need not be large because the primary source of income is from industrial work, but a real family farm should be large enough to employ the family. As the representatives from Denmark and Czechoslovakia have just stated, it is the family farm or middle-sized farm that produces farm products most cheaply, so in the United States. In the United States, this is generally a two- to three-man farm.

I. DE ARLANDIS, *Madrid, Spain.*

I did not mean to speak, but I will just make a short reply to Mr. Duncan and Mr. Maxton. Mr. Duncan said that the children of the wage-earners live better than do those of the small farms. From my own experience in Spain I must say 'on the contrary'. How otherwise can one explain the Spanish social revolution, where people who worked as labourers on the big estates will give it up and will work a little farm of their own?—very hard work, I agree. Since they have passed nearly 500 years working as wage-earners and the children

of wage-earners—if they had lived better in their old condition, I think they would continue to do so. Then there is another factor, namely, the instability. Mr. Duncan presupposes the existence of social legislation which guarantees rights to the wage-earners, and which protects them from being chased off the day after to-morrow. It must be recognized that the farmer's children know that if they all work hard they will have their home and they know where they are, but if there is no social legislation the farm worker's children never know where they will be to-morrow. Then as to what Mr. Maxton said, we never could organize agricultural production in the same manner as industrial production; but because of social, political, and moral reasons, I would say not only, 'we could not organize agricultural production in the same method as industrial production', but 'even if we could, we would not'.

O. H. LARSEN, *University of Copenhagen, Denmark.*

I would like to say in reply to Mr. Duncan that if he would only come to Denmark, I should be very glad to show him our small and middle-sized farms. I did not quite understand what he meant by saying that the hired labourers enjoy better conditions than the small farmers. On the whole the investigations in Denmark over twenty years show that on the average we have 20 per cent. higher labour income for the small farmers than for the hired agricultural labourers. As to the living standards I would say that naturally the small farmers must work longer than the hired labourers, but with regard to the children I should think that the conditions for the children of the farmers are much better than for the children of the hired labourers.

With regard to the living standards on the middle-sized farms, while of course I know best the conditions of the Scandinavian countries, but also a little of those of Germany, I can tell you that the standard of living during the last thirty years has been raised very much. Of course it was raised too much during and after the War, but this was due to the large income during these years. But if we compare the standard of living as it was on the middle-sized farms before the War with the standard now, we shall find a very big difference in all the Scandinavian countries, and especially in Denmark. I do not know very much about the conditions in Great Britain, wherefore I am unable to make any observations; but it is a fact that in our country the living standards are, from an economic as well as a social point of view, very much better for the small farmers than for the hired labourers.

Dr. Warren said that in America the investigations show that—just as in Denmark—the middle-sized farms have given the best results. Naturally I know that what I have called 'middle-sized' farms in Denmark are somewhat different from what Dr. Warren has called 'middle-sized' farms in America, but as far as I can see the difference is not big enough to make any difference in the results, as, even in America, the middle-sized farms have proved to be the most profitable.