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THE IMPLICATIONS OF TECHNICAL CHANGE IN AGRICULTURE

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THE SOCIOLOGICAL AND CULTURAL PROBLEMS ASSOCIATED WITH TECHNICAL CHANGE IN AGRICULTURE

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EVERYBODY seems to recognize that technical progress and change are meaningless if unrelated to a purpose. The only worthwhile purpose in this life is the happiness of man. Yet many people in positions of responsibility disregard this self-evident truth. They differ but little from the Bornean head-hunter who had a beautiful chromium-plated bicycle hanging from the rafters of his house, though there was not a path for hundreds of miles around on which to ride it. Ritchie Calder, science editor of the London *News Chronicle* and chairman of the British Association of Science Writers, has said:

> Those of us who have grown with science and technology cannot dissociate ourselves from it and stand back and look at it. Nor do we remind ourselves that this technological civilization is barely two hundred years old—barely as old as the United States of America. But there is another way to view it, and that is from the standpoint of other communities which have not grown up with it, but which are being suddenly confronted by it. None will be able to resist it, but they can either take it as a crated, prefabricated civilization, a sort of mail-order booking, or they can adapt and assimilate the essentials and use them to enhance the real values of their own way of life. It depends whether they want the jukebox or better seed; whether they want penicillin to cure their yaws and transform their lives, or a chromium plated bicycle to hang, fetish-wise, from the rafters. . . . Science can give us things we need; or things we want, or things we do not know we want until it presents us with them; and also it can give us a thing we do not want but accept because 'it is scientific'. In place of the smashing up of machines, there is a tendency to be too uncritical of scientific and technological benefactions. Science is a good thing, but it is not an end in itself, it is a means toward an end, and that end is human betterment.

Human betterment, the ultimate objective of all worth-while activity, including agricultural technology, is just another name for the gradual elimination of poverty. Poverty is not only lack of money or physical resources, but a vicious circle of disease, underproduction, squalor, ignorance, malnutrition, and again more disease. No human action, thought, or emotion escapes this whirlpool of misery. Consequently, what poverty affects is in turn affected by the

instruments of its elimination, and these instruments cannot be employed without conscientious reckoning of their effect upon the diverse elements which constitute poverty.

We technologists have great faith in the effectiveness of our instruments and tend to underrate the importance of those whose methods and tools are substantially different from ours. For example, I do not know of any medium more effective and reliable for the expression of public opinion than the political party. Yet men in the professions underrate its functions and accomplishments in free societies, and overrate its shortcomings. In my own country we had first to create an effective instrument of political action before undertaking the task of social and economic reform. Pledged to the more obvious aspects of social and economic reform, the government, freely and democratically elected, proceeded to such measures as land reform, salary increases, and increased health and educational services. Soon it was realized that this would not be enough. Health measures, by decreasing mortality, increased the rate of population growth and the demand for additional work. A wider distribution of income without a corresponding increase in production would have led us to a dead end. We learned the hard way that technological change does not operate in a social and cultural vacuum, and its application without due regard to its effects upon man and society must end in failure. For instance, human beings and society must first be willing to accept a health measure, be it a simple drug or a whole system of sanitation, before such a drug or system can be of any use to them.

Agriculture is closely related with and affected by the general pattern of culture. The agricultural technologist who expects to bring about a change in society by correcting the mistakes of others, by steering the good intentions for progress and full development, has to be a healthy, tolerant, and active individual, devoid of superiority complexes that impede the understanding of cultural patterns different from those of his own society or community. In certain extreme cases he even needs a spirit of sacrifice, to hide his technical knowledge if it tends to become an obstacle to the communication of knowledge. He must be fully aware of his responsibility, have a clear concept of the values at stake, and must understand that material technology, which creates productivity, cannot fully satisfy the needs of man. Social technology provides the means for fruitful enjoyment by giving mankind civil rights, representative government, free public schools, higher education, mass markets, and many other social institutions.

The technician may come in contact with people living in social and cultural isolation, at a psychological level that fluctuates between magic and the teachings of religion, and entirely submissive to authority. Upon approaching this kind of community he should use tradition—that is, the sum total of values and practices accepted and perpetuated for generations—as a tool. The only possible way in which the human brain can attain new knowledge and skills is by defining them in terms of the old, like a person advancing step by step, placing one foot upon the next stone while keeping the other for a little while on the previous one. The technologist must have sufficient comprehension of the culture to be able to grasp fully the problems posed and to find methods for overcoming them with a minimum of strain on the individual or community. Culture has been aptly described as a tri-dimensional process fundamentally oriented towards *wisdom* to grasp the essence of life and gather the highlights of human experience; towards a *creed* capable of setting down the leading principles for good human behaviour; and towards the achievement of *techniques* basically designed to conquer worldly possessions to benefit and serve man. To understand a culture the technician has to dig deep into the nature of each society and take into account such social factors as the prevailing political organization, religion, the educational system, population characteristics and trends, health and its allied problems, consumption habits, housing, social participation, income distribution, the use of money, the patterns of land tenure, means of communication, and many others.

The art of government will loom high in this work. The prevalent political organization might make or break a programme. The technician has to take into account whether the system is monarchical, republican, dictatorial, oligarchical, democratic, or any one of the possible variations or combinations of these. Probably, even more important than the constitutional factor of government is stability of policy. Technological progress, especially in agriculture, is a matter of long-term planning and consistency of effort. When a government is unstable and changes of policy frequent, it is very difficult to achieve success.

History is witness to the fact that millions of men have lost their lives as a tribute to their religious principles. The intolerant individual in this respect is a negative one. The question of religion should be studied with care and broadness of mind. The church and its representatives can be a very effective institution for communicating with the people. Legend has it that a town in Panama called Naranjales,

that is 'Orange Groves' got its name and reputation through the efforts of a priest in its early days. Everyone who approached the confessional got his share of expiatory prayers and a special charge to plant three orange seeds. In this way the good priest benefited his parishioners for generations. It all comes to the point that the technician can make use of all the positive phases of religion existing in a community because of the influence exercised by each religious leader.

The characteristics of the population influence habits as well as capacity for progress very considerably. Is one dealing with a stable or a rapidly growing population? Is it mobile or static? Is settlement in villages and towns, or in scattered households? Is the population lavish or thrifty? When meeting new ideas, is the reaction enthusiastic or apathetic? Does it overrate the values of old age or does a reverence for youth predominate? These are some of the questions that a technician can pose for himself when studying the population characteristics of a community.

Work among a healthy society calls for entirely different techniques from what is needed among an unhealthy group. The uppermost questions in this respect should be: What is the death-rate of the community? Is the population subject to epidemics? Are these limited? Do they have a tendency to become pandemic? Are there endemic diseases? Is there a prevalence of the so-called wasting diseases—tuberculosis, Malta fever, malaria. Wasting diseases are a difficult problem to deal with, because they impair the usefulness of sufferers by the slow undermining of their organisms. Time and again technicians working in under-developed areas question the efficiency of the field worker. Lack of energy or initiative they will ascribe to indolence or laziness, when really it may be nothing else than illness or malnutrition. These circumstances can be obviated only by giving proper priority to questions of health. In under-developed areas there are many opportunities to use the approach followed in the building of the Panama Canal. Build your canal, but look also to the sanitary and health conditions.

The shabby shack, lacking the most elementary requisites for a healthy, comfortable living can also be a deterring factor to progress. Improved housing is a stimulus to social participation. Groups organized into villages and well-designed urban housing projects, because of easy access and facility of communication, are inclined to do their utmost to partake in educational, recreational, and civic activities. Moreover, when they have achieved the ability to enter into orderly, carefully guided groups, they are looked upon as an

integral part of the community and are always asked to join in activities of broader economic and social scope.

Upon approaching the subject of education it seems better to begin by studying the attitude of the people rather than the means at their disposal. Experience proves that a right attitude will produce the resources needed for the solution of any problem, but it is still fundamental to ascertain the quality and type of education. Does the system provide for the integral development of man or is it too specialized? What priority is being given to education in the activities of government and of private organizations and institutions? What is being done about illiteracy? Are there any programmes for adult education? Is education for group action and community development an important part of the system? Does education reach the masses? Is there an adequate allocation of educational services and facilities between rural and urban areas? Proper reckoning of these and other fundamental aspects of the educational make-up of a people will help very considerably in the furtherance of constructive technical change.

Land tenure is second only to education as a factor determining rural social behaviour. Agrarian policy and the adequate distribution and use of land still constitute a major problem for agricultural communities as they emerge from colonial, semi-feudal systems. The prevailing system of land tenure will greatly condition the method of approach to be followed in any developmental programme. The nature of each pattern differs. It is impossible to apply one rule for all of them because they are interwoven with questions of proper tillage, harvesting, marketing, and financing. The application of standardized solutions may bring havoc. The technician has to avoid parcelling land for the sake of parcelling. The proper understanding of this may be one of the uppermost trials to his knowledge and skill.

Along with land tenure goes the question of land use. Is the community engaged in the production of only one crop for export or for home consumption? Consumption habits, organization of marketing systems, and other traits also bear on land use and technical change.

Most of the factors mentioned so far depend upon the availability of funds and the practices followed in their investment. Do investors tend to be too conservative or are they willing to take safe risks? Is there a tendency to spend on luxuries rather than on the basic needs of life? Is there an inclination towards thrift and investment for productive purposes? Is money readily available for productive ventures? Is money accessible to the small farmer at reasonable rates and for the

required periods? Are there any provisions for the insurance of plantations, crops, and livestock?

In the majority of cases banks are organized to take care of rapid commercial transactions and they do not always see the convenience of extending their activities to agriculture. If the existing banking institutions of a community are willing to co-operate in this respect, the technicians' load is less heavy. If they are reluctant, the problem must be tackled by private or official action. In many instances co-operation among farmers themselves will provide the answer.

In his planning the technician has to be aware that his activities will bring about a disintegration of existing social conditions. 'In the language of science', according to Arnold Toynbee, 'we may say that the function of the intruding factor is to supply that on which it intrudes with a stimulus of the kind best calculated to evoke the most potently creative reactions.'[1] Furthermore, Toynbee points to the fact that 'the real optimum challenge is one which not only stimulates the challenged party to achieve a single successful response but also stimulates him to acquire momentum that carries him a step further: from achievement to a fresh struggle, from the solution of one problem to the presentation of another'. In other words, if the technician is not ready to produce a coherent whole, rich in lofty ideals, he has no right to provoke disintegration. This is an instance in economics where catabolism and anabolism go hand in hand.

All these factors tend to add difficulties. But remember that Toynbee, discussing the virtues of adversity, says that 'it was only *after* Adam and Eve had been expelled from their Eden Lotusland that their descendants set about inventing agriculture, metallurgy and musical instruments'.

The further he is from home, the harder is it for the technical worker to get acquainted with the ways of living of a people—especially if he is prone to attribute the blessings of civilization to the virtues of some particular race or group of races. Even those who work at home encounter difficulties of this sort, but all of them, if properly equipped, will eventually find out that problems are far from insurmountable. It is for these very reasons that it is advisable to make as thorough a preparation as possible for so important a career.

A complete reorganization of programmes of study for the technician is called for. The new curriculum, besides embodying the subjects now required, should include new studies to help agricultural technicians to understand life's manifestations in different places.

[1] Arnold Toynbee, *A Study of History* (Abridgement, vols. i–vi by D. C. Somervell), Oxford University Press, London, New York, Toronto, 1949.

The development of the integral man should be the sole objective of technological progress.

Another important aspect is the will to develop without which even the best plan will not pass beyond the blueprint stage. The most up-to-date machinery may be imported, the most advanced practices of tillage may be advocated, the most beautiful clinical laboratory may be established; but if those hidden attributes of which I have spoken are not duly stirred up and put to work, money and time will be wasted and, what is worse, a dire impression will linger for years and years, hindering the progress of the community.

It was the will to develop that saved the situation in Puerto Rico. Ours is an agricultural country. Our agriculture from time immemorial was feudal in type. The best lands were in the hands of a few individuals and corporations, while squatter families by the thousands were scattered all over the country. In 1940 yearly income *per caput* averaged but 122 U.S. dollars. Consequently, the population could barely live. One-half of the school population was not provided with educational facilities; there was a death-rate of 18 per thousand; there was only one cash crop of telling importance; and the rural population lacked the most elementary facilities for proper living.

Evidently, those circumstances were not the ideal to enable man in Puerto Rico to enjoy his right to 'life, liberty and the pursuit of happiness'. Then a sensible, fully developed leader—our present Governor Mr. Luis Munoz-Marin—who was acquainted with the ideas and ideals of the two cultures coexisting in the Island, went among the people, especially those of the countryside, and preached about the dignity of man, to be achieved by higher levels of production and by sharing the proceeds more widely; by progress in democratic self-government, reasonably stable and at the same time responsive to the needs and wishes of the people; and by growth of democratic social relations including broadly shared freedoms, opportunities for self-development, and respect for individual personality.

Because Mr. Munoz-Marin was talking their language the people soon realized that, given the will to develop, their needs for an adequate living, a sense of security, freedom and participation, creative opportunities, a sense of belonging, and a sense of purpose, might be fulfilled. So they flocked to his side.

A new order was established and a general reform of unheard-of scope began to operate. It was not a hasty affair. Every step was carefully considered and studied with special reference to its impact on the economy and the culture. Thus, an integrated approach to social, economic, and cultural development was implanted. It included:

(1) political reform, which secured for the individual his right to express himself and participate freely in the life of the community; (2) fiscal reform, which paved the way for providing the necessary services and tools—both private and governmental—to enhance the productive and intellectual capacities of the people, as well as to create incentives and facilities essential to progressive development; (3) educational reform, to provide a fuller coverage of elementary, higher, vocational and professional training, as well as education for self, for mutual help and for community development—striving for that ideal; the formation of the integral man through integral development; (4) land reform, based on three principal objectives namely, broadening of the economic base, achieving a fairer distribution of income, and enhancing the dignity and self-respect of the man who tills the soil; (5) the establishment of minimum wages in all phases of the economy; (6) the improvement of health in all of its manifestations—preventive and curative medicine, nutrition, housing, provision of pure water, &c.; (7) promotion of industrial development through tax incentives, necessary financing, and other facilities and services; (8) the stimulation of a diversified, commercialized agriculture through increased research and educational services, land reclamation, credit facilities, and the fostering of an adequate marketing structure.

By 1955 production in terms of 1940 prices had more than doubled, real *per caput* income had increased by 73 per cent.; over three hundred new industries had been established; two-thirds of all squatter rural labour families had been resettled in new adequately serviced rural communities; school enrolment had almost doubled, and illiteracy had been reduced by 30 per cent.; morbidity rate had decreased to 7·5 per thousand, and life expectancy increased from 46 to 61 years. Agriculture is sharing the benefits of the new order. Improved farming techniques are being adopted, the labour force in agriculture is decreasing and commercial diversification is becoming a reality.

Integral development has brought about a change in people's attitudes—a social and cultural change—that is at least as important as simple economic betterment. The people now live under their own constitution which only they can alter; and their relationship with the United States is founded in a compact submitted to them by referendum and overwhelmingly accepted as a free choice. Puerto Rico is no longer a dependency, but a free people linked with the United States on a basis of mutual consent and esteem. We called the fight to abolish poverty Operation Bootstrap and the constitutional

struggle Operation Commonwealth. Now there is a third operation which we call Operation Serenity. It attempts to give to economic effort and political freedom objectives that can commend themselves to the spirit of man in its function of leader of, rather than servant to, the economic process. This is the most difficult of the three. In the words of Governor Luis Munoz-Marin:

It aims to give some kind of effective command to the human spirit over the economic process. It attempts to make the human spirit an effective ruler, albeit, a constitutional ruler limited by the strong parliament of economic forces. It aims at making high objectives for man's earthly life real, familiar, and simple in the daily life of the community. Serenity may perhaps be defined as the habit of seeing your world whole, as the living society of men and forces and facts in which you, as an individual, conduct your life.... Someone has said [continues Governor Munoz-Marin] that possessions divided by desire give the measure of happiness. The formula is unlikely to contain the whole truth, but it does seem to contain an important part of it. Oriental and other peoples who are not economically advanced tend to pursue happiness by minimizing desires; we westerners tend to pursue it by increasing possessions—an unending way if it is viewed as a progression from the no-house family to the three-car family and beyond. The highly developed West has wonderful productive powers. All underdeveloped areas would like to have them, and it is the wise policy of democracy to help them to develop those powers and to share with them the know-how for their use. Obviously we are not going to scrap our wonderful machinery. We are going to keep on improving it. Why not use it to produce more wonders than gadgets, to extend freedom rather than to multiply the possibilities of unsatisfaction; to extend educational opportunity and to deepen its reach till we have no man less understanding and less able than God meant him to be. Let the highly developed nations of the West help the under-developed areas of Asia, Latin America, Africa; help them to help themselves to defeat hunger, slums, evil living conditions; but let us not persuade them to scrap philosophies of good, decent, modest material desires. It is beyond the imagination what freedom and happiness great science can produce for a civilization of fine modest wants.

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Mr. Colon-Torres has listed every sociological and cultural problem which is likely to arise, and he has told us about the success of Puerto Rico in solving the problems there. We are told that they are reducing their agricultural population. I would not presume to comment on the Puerto Rican situation, but are they providing employment for the redundant workers at home or are they finding a place for them in the United States? One of the biggest social problems now facing the under-developed countries is what to do with their

surplus populations. Yesterday we had many speeches from people who know these areas and who are facing the problem of introducing technical changes. I know nothing of these countries, but I agree that merely to copy the techniques of Western agriculture would be disastrous. I would even say that, from our experience and history, they could learn of methods to avoid because of their social implications. Technical developments commenced long before the engineer and chemist were active on the farm, but even the early technical advances ran into many difficulties. In England, for instance, less than 200 years ago the enclosure of the common lands—the dispossession of the common people—led to a social problem that dogs us still. Curiously enough in Scotland which began the conversion later, it presented no social problem because there was enough waste land to keep us all fully employed. The introduction of rotations, new breeds, new plants, and improved seed was as great a revolution for that period as the technical revolution has been in this century. Although the social problems of our friends in the East and in South America today are similar to those of the earlier days, emigration which used to make the solution easier, is no longer possible to the same degree.

I came here thinking I might say something about the necessity of being fully aware of the social and cultural implications of technical change, but yesterday I felt that everybody was so well aware of the dangers that they were likely to be deterred from making even the necessary advances. John Morley said long ago that the course of politics was one long second best; the choice continually lay between two evils, and I think that this applies also to agriculture. Should we hesitate to introduce improved technical methods because of the social and cultural risks we run and the resistance with which we shall be faced? I suggest that it is possible to do things too gradually in the under-developed countries. With mounting populations big developments in agriculture are needed to increase food supplies. Time may be too short, but you have to take the risk of very considerable social disturbance short of entire disruption. You cannot make an omelette without breaking the egg, but there is no need to clear out the whole poultry house.

Social and cultural problems due to technical change are not confined to the under-developed countries. They arise in agriculture and in industry. Man discovers a simpler way of doing his work and becomes so enamoured with his machine that he is not satisfied; he forges ahead. Whether we like it or not technical change will continue to be the most dynamic factor in social and cultural life. We

may be able to control it, but it does seem to have a self-generating energy of its own. In some European countries technical developments in agriculture are beginning to have very serious social and cultural effects. Some of our agricultural populations have decreased below the safety point, especially with the increased mechanization of the last twenty years. Some of the upland areas of Scotland—areas between the better arable land and the purely hill land used only for grazing—are used for breeding cattle and sheep which are sent to other areas for feeding. Even before the days of full employment it was very difficult to maintain farming there because of the lack of manpower. And it has been made worse by recent technical changes. We are facing the complete disintegration of social life. How are we to keep these lands going? They are necessary as a source of young stock for beef and mutton production. If we cannot keep the people on the uplands the whole set-up of our agriculture will be seriously affected.

Furthermore, when the proportion of people engaged in agriculture reaches a low level—it is about 7 per cent. in the British Isles—a social condition arises which results in an adverse selection of people for agriculture. The young and vigorous will not remain where there are no communities of their own age and outlook. These, the alert and scientifically minded, must be kept in agriculture if we are to make full use of the new developments. Under modern conditions we require a type of labour and intelligence that is above average, if only because so much of the work has to be done without supervision.

In the industrialized countries the old distinctions between urban and rural areas are largely disappearing, and technical changes are hastening this disappearance. The farmer now depends on the chemist and the engineer. Old differences in working conditions, social arrangements, and cultural influences are rapidly diminishing. The spread and speed of means of communication are tending to create a social life and cultural outlook that is general. We shall hear less about farming as a way of life.

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Living in a technical age we are inclined to overestimate the importance of techniques for human civilization. Progress in agriculture is mainly understood as *technical* progress such as the use of modern machinery, the adoption of fertilizers, the improvement of crop rotations, &c. Development in advanced countries has shown,

however, that technical progress alone is not sufficient to eliminate one very critical problem of modern agricultural life, namely, the rural exodus. By that, I do not mean the decrease in agricultural population which is naturally related to the progress of rationalization. (For instance, in Western Germany the agricultural population at present comprises only 14 per cent. of the total population, and the rural population, agricultural plus non-agricultural, 21 per cent.) In our country the problem is not to keep the agricultural population at the same level, as may be the case in Japan as Mr. Yajima told us yesterday, but to stop the exodus of people needed for agricultural work. It is in this context that we use the term rural exodus.

Rural workers or sons of farmers, sometimes even farmers themselves, demonstrate their dissatisfaction with the conditions prevailing in agriculture by turning to other jobs (and the daughters of farmers do the same if they prefer to marry people in the city). This process is going on in a way which Dr. Duncan has justly called an adverse selection. If we investigate the reasons for this kind of exodus we find that it is caused not only by purely economic considerations but by a feeling of social inferiority. It is a question, therefore, not only of using better techniques and economic rationalization to increase the income of the farm population to the level of comparable groups, but of raising their social standing to a satisfying level. This depends not simply on income but on some immaterial factors which form the social status and, what we call in German, *das soziale Bewußtsein*—the social conscience—of man.

We must try to diminish and finally to eliminate the disproportion in the standard of living between urban and rural areas. In the United States, according to Dr. Johnson, this has already been achieved to a great extent. But it is not so in my country where the problem has been accentuated by the infiltration into the villages of small industries and of refugees who are mainly occupied in non-agricultural professions. This has caused a great change in the socio-economic structure of the villages, where we now have agricultural and non-agricultural people pursuing two different styles of living. This disparity has become evident to everybody who works in agriculture because it is close at hand.

The introduction of modern techniques not only for the improvement of working processes in agriculture, but also for the modernization of rural life—for instance, electricity and radio—can help to eliminate this disparity, while education, cultural institutions, sports, entertainment, &c., are no less important. We must investigate the influence which technical advances have on the social standing and

feeling of rural people. The feeling of a young man may be quite different when he is sitting on a tractor from what it is when he is walking behind a cow-drawn cart. We may observe that some of our small or middle-sized farms actually have excessive investment if they keep tractors, but the question remains whether we should always blame the farmer who makes over-investment of this kind. The economic disadvantages may be compensated for by the immaterial advantages of better social satisfaction. For instance, a farmer may buy a tractor because he knows that it is the only way to keep his son on the farm.

Another feature of the disparity is the longer working hours which usually prevail in agriculture and the absence, for instance, of free week-ends. We should investigate how far technical progress and economic rationalization can help not only to reduce the number of workers in agriculture, but also the number of hours worked in the course of the week, even if it is against the rules of rationalization. We should gradually bring the ways of doing farm work into line with those used in other occupations so far as the nature of farm work permits. Some steps in this direction have been taken on some progressive German farms.

Another important factor for improving the social standing of the farm population is the creation of new and graded posts by more specialization and labour division. The man working in agriculture may find that he is not earning less than he would in the city, but that he has less chance of social mobility. Here again technical progress can help to create new types of specialist such as tractor-drivers, combiners, &c. The type of function and even its name may be of some importance. In one of our co-operative societies the son of a farmer, who after a special training is in charge of the tractor, has not only to drive it but to organize its work on the various holdings. He is called not a tractor-driver but a machine-master and is feeling quite proud about it.

Modern organizational forms such as co-operative societies and other rural associations also can create new positions and open new possibilities for social ascent through the functions of leadership. We must investigate what can be done to promote the organizational and cultural life in the villages in order to improve the social standing of the farm population.

The agricultural economist who is determined to contribute to the progress of agriculture should carefully investigate the sociological and cultural problems which are closely connected with technical change and indicate the possibilities which the promotion of modern

techniques, if adopted in the right way, may give for the improvement of social and cultural conditions in the rural areas. He must therefore be in close contact with the rural sociologist or, still better, he himself must have an adequate knowledge and understanding of the sociological context of his work. What is needed is not technical progress alone but an all-sided rural uplift. Only by a gradual modernization of rural life will we be able in the long run to keep our young generation on the land.

Modern techniques can improve the conditions in rural areas but they can also quite adversely affect the social structure of the agricultural population. This has become clear to me during the last two or three years while I have been working for F.A.O. in Pakistan. Yesterday, Dr. Sen and Dr. Akhtar pointed out that mechanization in over-populated countries cannot be advocated without great reservations and I entirely agree. But there are also social reasons to be taken into account which have not yet been mentioned. As a matter of fact, the number of tractors in Pakistan as well as in India has increased in the last two years. In Pakistan many of them are being introduced by big landowners who have become aware of the great possibilities offered by modern techniques. With the help of tractors they have started to farm land which previously was cultivated by tenants. As a result, some of the tenants have had either to work for the landowner on a hire basis or to look for other employment, unless they could find other land which they could lease. From the social point of view this is an undesirable development, and fortunately there have been few examples of it up to now. Recent legislation has now given more protection to tenants.

Similar observations have been made by an American expert in the densely populated cotton area of Adana in Turkey, and published in the *Journal of Farm Economics*. It has been demonstrated that the use of tractors by landlords may be detrimental to the rural workers and may completely disrupt the existing social structure of the villages. The gradual uprooting of small farmers also has had unfavourable moral and psychological effects. In some villages of this district of Adana, the advent of the tractor is not regarded as a sign of progress and the small farmers decidedly disapprove of it.

These experiences confirm the opinion that the use of machinery, which in the under-developed countries will certainly increase, will be beneficial to agriculture only if the necessary organizational preparations are made for its rational development. There exists a wide field for co-operative and state action in directing technical progress in a way that is beneficial to the masses of small cultivators without

affecting their individuality and their attachment to the soil. It was my task to work on this particular problem, and I think that there are great possibilities for promoting technical progress in such ways as irrigation, the use of fertilizers and improved seeds, the improvement of crop rotations and animal husbandry by co-operative action. And even mechanization, if properly organized on a co-operative basis, could be of great use here and there, provided it is partial and gradual and directed in such a way that it first frees the excess animal power and not human labour. It should lead to an intensification and diversification of production.

These few examples may show that in the under-developed countries as well as in the advanced countries there is a wide field for agricultural economists to promote research, practical organization, and extension work in such ways that may serve for the betterment of the social conditions of rural areas.

M. N. Huda, *Univerity of Dacca, Pakistan*

I take this opportunity to say a word of hope and encouragement to Dr. Duncan who has just referred to technical progress in under-developed economies and its implications for a growing population. Nobody, possibly, is more aware of the growing need for rapid progress than those who are actually responsible for feeding the people. But we recognize that the rate of technical progress depends on the difficulties inherent in particular situations, and we are trying to absorb as much of the population as possible into the growing urban and rural industries.

We recognize the serious difficulties involved in controlling the growth of population, but there are signs that something is being done, although slowly and rather furtively. Some small associations are working towards limiting the size of family in both India and Pakistan. Results are not yet spectacular, and we appreciate that the increase can be checked only in the long run, if at all.

Technical change in under-developed countries is bound to be slow. In Pakistan the pace is conditioned not so much by sociological and cultural difficulties as by economic difficulties inherent to the size and layout of the farms and the availability of productive resources and finance. Cultural life in India and Pakistan is based mainly on Hinduism and Islam which are not opposed to technical progress, but it owes some of its origin, possibly, to superstitions, many of which are passing away very quickly. An average Indian or Pakistani today would not hesitate to accept what his economic interest dictates, even though it may conflict with so-called cultural

interests originating in superstition. Family obligations of this kind and the caste system are also gradually passing away, while those having no adverse effect on progress are retained. I think that small fragmented farms, lack of resources, and finance are more important obstacles than any cultural features.

K. MICHAILOVIC, *Institute of Economics, Belgrade, Yugoslavia*

I should like to add some comments based on the sociological and cultural problems in central East Africa, an area which can be described broadly as a closed economy using very primitive tools. Even such simple tools as the iron spade and hoe, not to mention the iron plough, are unknown. The tools, primitively made within each household without any help from the village artisan, are crude, heavy and cumbersome, and their use requires much effort. The lack of better tools forbids the fuller use of the very considerable national wealth of the area in the form of large numbers of cattle and of settled and unsettled land. The most telling illustration of the agricultural backwardness of some of these countries is that they do not even use carts.

The introduction of even the simplest tools is very difficult. Many regions are completely cut off from markets, and the domestic urban market is so small that it offers no incentive for the development of production. Because of inadequate transport, many regions are left in a state of natural economy. Even the most elementary division of labour has not begun, as is amply demonstrated by the complete absence of handicrafts serving agriculture. In such an economy with a low level of income and lack of any notion about the market or money, the purchasing of the necessary tools is a considerable financial problem. There is no sufficient understanding of the advantage of a market economy, nor is there any strong desire for progress. The greater part of the population made its first contact with money only very recently. Even hoarding—that very well-known phenomenon in under-developed countries—is not done with money or gold, but with livestock. In spite of all this, however, one cannot say that there is no internal logic or balance. The number of livestock becomes a mark of social prestige, though it loses its normal economic meaning and function. Cattle dying from old age and useless for transport or other purposes exhaust the natural pastures. Most of their production never appears on the market.

A higher level of general education as well as of specialized agricultural skill would give a strong impulse to progress in agriculture, but present conditions are taken for granted, as is also a whole suc-

cession of deeply rooted prejudices and fatalistic conceptions, protected, often, by rigorous religious norms.

Natural and climatic conditions offer no stimulus for the rationalization of agriculture. The abundance of land provides the basic foods for the population who therefore feel little need to work for higher yields. Life requires a minimum of clothes and dwellings. It is quite certain that these natural conditions represent a major factor in shaping the mentality of the population and their attitude towards agriculture.

Sociological factors influence directly or indirectly the development of techniques. The obstacles can be successfully surmounted only by a concerted attack on prejudices and by raising the level of the general and professional agricultural skills. Without this, no other action aimed at progress will have much chance. Every step forward depends not only on changes in techniques but on changes in the whole attitude towards agricultural economy. Speaking about agriculture in Asia, Dr. Sen emphasized the difference between agriculture as a means of living and agriculture as an enterprise. To overcome this qualitative difference will be a very hard and complicated task in central East Africa. But the situation is not without hopeful prospects. Some serious improvements have been made in the political fields in Ethiopia, and we cannot underestimate this as a prerequisite for any advancement. Government has an important role in devising and carrying out development.

U. Aziz, *University of Malaya, Singapore*

There is an important point in Dr. Colon-Torres's quotation: 'Oriental and other peoples who are not economically advanced tend to pursue happiness by minimizing desires.' This sounds innocent, but in many textbooks by Western authorities this view often occurs, especially when discussing the elasticity of demand for income in terms of effort, namely, that the happy-go-lucky, tropical native is not willing to take advantage of opportunities to increase income. (I am not responsible for the jargon.) This was discussed by Professor Robbins in 1931 and recently by Professor J. D. Black who says that in tropical areas people are often satisfied with a certain income.[1] This has never been proved empirically and is a very dangerous concept. Various investigations in the Caribbean and in Asia, and surveys that I have carried out in Malaya, indicate that when people

[1] J. D. Black, *Introduction to Economics for Agriculture*, New York, Macmillan, 1953, p. 536.

have an opportunity that seems to them logical and certain they will adopt new techniques. The misconception very often is the result of the failure of an extension officer or a development agency to sell an idea. I would like to stress that if we accept this dictum that Oriental people are content to remain stagnant and fatalistic, then there is no hope for economic development and the World Bank and other international agencies are useless.

Then Dr. Colon-Torres tells us that because the Governor of Puerto Rico talks the people's language, it did not take long for them to understand that by showing the will to develop they had a chance to acquire a more adequate living. Further, I sense that Dr. Colon-Torres is attempting to educate the technician from abroad. Though this is important, I must stress that the ability to talk the people's language is even more important for the home-produced expert, the *élite* who are associated with economic development. Very often in colonial territories, both in the political and economic sense, this *élite* not only lives in a different world from the masses but also talks and thinks in a different idiom. In influencing and directing farmers you must be able not only to talk their language but to use their slang and idiom. Failure in this is excusable in a foreign expert, but inexcusable in the case of those who have been brought up to think, talk, and write in the language of the dominant political and economic power. This calls to mind the deficiency of literature in the vernacular language—except for religious works and newspapers. Your farmer wants books on how to repair a tractor or a bicycle, or how to do simple book-keeping. To promote technical progress, those of us who come from under-developed areas and who use two or more languages must try to produce literature and learn to put things across in ways that can be readily understood by the masses with whom we have to deal.

D. PAARLBERG, *United States Department of Agriculture, Washington, D.C., U.S.A.*

Before I left the United States last Wednesday, Secretary Benson asked me to extend his greetings to this group and to express his regret that he could not be here in person. As you may know, he is an agricultural economist. He has travelled in many lands and would have enjoyed the privilege of being here had he been able.

Now having gained the platform by means of extending this greeting, I should like to capitalize by making a remark on Dr. Schiller's comments and then, if he wishes, he might perhaps make a rejoiner to my rejoiner. If I interpret him correctly, he indicated a

wish to keep a larger percentage of our population on our farms. At the same time he indicated a wish to overcome some of the difficulties and shortcomings of rural life which he enumerated—long hours, hard work, lower returns, lower social status, fewer chances for advancement—things that concern us all about rural life. While we may feel a wish to maintain a higher rural population because of the advantages this has for a balanced society and at the same time desire technological advance, I think we should recognize that these two objectives are not fully compatible. Through a lower return and these other seeming discriminations against rural life, society is endeavouring to tell us that it would prefer to have additional industrial products rather than additional agricultural products. A natural consequence of technological advance and the substituting of machine power for muscle power is to release people from agriculture. If this process is going to be carried forward to its logical and unavoidable conclusion, we must then be prepared to accept the social consequences of transferring people out of agriculture. We cannot wish to make these technological advances and at the same time retain a high percentage of our people in agriculture. I think we should face that problem realistically. We cannot have both these objectives simultaneously.

N. B. TABLANTE, *Farm Economics Association of the Philippines, College, Laguna, Philippines*

I agree that social and cultural problems cannot be totally divorced from economics. In the Philippines rural community development has recently received considerable attention because the new administration of President Ramon Magsaysay sympathizes with the problems of the masses and recognizes that the dissident movement which is endangering the political existence of this young Republic can be subdued not so much by the use of force as by the institution of basic social and economic reforms. The underlying problem is the widespread condition of poverty in the rural areas. Between 1918 and 1939 the population increased from 10 to 16 million, an increase of about 55 per cent., and from 1939 to 1948 it reached 19 million, a further gain of nearly 20 per cent. The annual rate of increase has averaged between 2·2 and 3·1 per cent. since about 1900.

A large proportion of the land area is still under forest. Only 19·3 per cent. of the total land area of 29·7 million ha. is being farmed. About 65 per cent. of the total area in farms is cultivated. With this rapid growth of population and the delays in settling undeveloped land and in applying better farming methods, the problems become

intensified. The small farm unit predominates. On average, the area of an owner-operated farm is about 4 ha. of which only 2·3 ha. are cultivated; that of tenant farms, 2·5 ha. with 2 ha. cultivated. Forty-eight per cent. of the 1·6 million farms are of less than 2 ha. and only 16 per cent. have 5 ha. or more. Seventy-eight per cent. of the farms are of less than 5 ha. Fifty-three per cent. are operated by full owners, 10 per cent. by part-owners, and about 37 per cent. by tenants. Some 95 per cent. of tenant farmers work their farms on share, paying from 30 to 50 per cent. of the gross produce as rent.

Small farm size, extensive cultivation based on a one-crop system of farming, low yields, and lack of alternative employment give an income inadequate even for the bare necessities. A recent survey showed that the average income per family in the areas surveyed amounted to about U.S. $325 of which U.S. $136 represented the farmer's labour earnings and the unpaid family labour. This means that an average family consisting of 5·8 persons had less than a dollar a day for living expenses. This situation prevails generally in the high-tenancy areas of the Philippines which are characterized by low production, low income, lack of satisfactory tenure arrangements, malnutrition, continuing debt burden, low literacy, poor health and medical facilities, lack of modern living amenities and welfare services, unsatisfactory credit facilities and lack of an orderly marketing system. These conditions tend to check further economic growth and, as a result, the incentives for part-time or off-season activities that could absorb part of the under-employed or unemployed are lost.

The lack of material means and social benefits affects not only the levels of living of these people but also, from a psychological standpoint, their outlook and attitude towards life. Fortified by a low level of education, some of them resist efforts to improve their lot. This group constitutes the hard kernel of the problem of agricultural extension and adult education. Under conditions of extreme poverty, they become highly susceptible to alien ideologies and agrarian agitation. They have no surplus funds for productive enterprises, and the rural youth which is the potential industrial labour force grows up unprepared to meet the challenge of a growing economy and lacks the training and mental flexibility needed for a new environment.

These are some of the major socio-economic problems that lie within the province of technical change in our agriculture. No doubt, they are not confined to the Philippines alone. They are many, varied and complicated, and present a challenge to agricultural economists.

V. M. JAKHADE, *Reserve Bank of India, Bombay, India*

I would like to stress that people in the under-developed countries are quite willing to adopt technical innovations, and that there are no serious social and cultural obstacles in the way of technical progress. Given the opportunities and the necessary resources, farmers do adopt new methods. For instance, in India, when new irrigation facilities were made available, farmers switched from the production of food grains to sugar-cane, fruits, and other garden crops. When the terms of trade during the war were favourable for agriculture, farmers adopted many new technical improvements such as better equipment, electric pumps, improved seed, and fertilizers.

There is the desire and will to develop, but there are certain factors which limit the pace of mechanization. Some rough calculations for India show that the surplus of agricultural population is nearly 40 per cent. If we go too far with mechanization, the problem will be how to absorb the large number of displaced labourers. This can be done by developing new industries, but the rate of savings and capital formation in India is very low. Therefore, the inadequacy of capital resources sets a limit not only to the development of industries, but also to the rate at which the industrial sector can absorb the excess rural population, if we are to avoid social disturbance.

Another consideration is that in India a large part of the population is employed in small-scale and cottage industries. Care must be taken that these people are not thrown out of employment with the development of large-scale industries, because many of them have their roots in the soil and are likely to revert back to agriculture. But when we advocate a go-slow policy in regard to mechanization, it is not because of lack of willingness to adopt technical improvements; it is merely a recognition of the employment situation.

K. SKOVGAARD, *Royal Veterinary and Agricultural College, Copenhagen, Denmark*

It appears to me that to some extent we are over-emphasizing the problems of the so-called under-developed at the cost of the problems of the more highly developed countries. It is really surprising to observe the many problems that general development has produced in the agriculture of the Western World. I am in full agreement with Dr. Duncan, who emphasized this side of the picture.

These problems are due not so much to the technical advances inside as outside agriculture. A predominant cause is the full employ-

ment policy which we have been pursuing during the last fifteen years. This policy drains agricultural areas of surplus population—surplus in the economic sense that it is under-employed or under-paid compared with other occupations. I am very much in agreement with many of Dr. Schiller's observations, but I disagree with him when he claims that the exodus from agriculture is due more to immaterial than to economic causes. My observations lead me to think that the whole problem can be considered as an economic one. Is it possible to have wages in agriculture to compare with those in other occupations? As the economic pattern of the Western World develops, technical advance may lead ultimately to our having to pay considerably higher wages in agriculture than in other occupations, in order that people may be kept in the countryside at unpleasant work and long working hours. Dr. Schiller was justified in emphasizing immaterial considerations and the feelings of inferiority, but they are mostly due to the low economic earning power of agricultural people. So soon as they are able to earn incomes and receive satisfactions equivalent to those in urban occupations, this feeling of inferiority will disappear. This is not a very serious problem if we consider the direction in which Western countries are evolving. Dr. Paarlberg said that we had two choices—either to accept the costs of keeping people in the countryside, or to let them go to other occupations. He is possibly right, but I think that we really have only one choice—the last one.

J. O. MORALES, *Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica*

There are two ways in which planning has been applied—planning as a way of imposing change and planning as a way of educating in change. I think that Puerto Rico is an excellent illustration of the latter, which also agrees with the results of community development work. At a small community of 20,000 people we undertook very careful and extensive studies over a three-year period. On the basis of this information we began educational activities by training teachers and other agents. We thought we had information about the felt needs of the people but, like many economists and other social scientists, we had in fact done all the thinking ourselves—a very mistaken attitude. When our teachers went out to the communities, they found that the main interest of many communities was recreation, a subject which we had entirely neglected. Of course, we could not cover all aspects of human activity so we changed our approach by working on what the people wanted, and it is only now, after eight

years, that we have got on to the question of diets and other things which initially the people did not consider as problems at all.

On another point, I think that Puerto Rico and possibly Switzerland and some other countries have provided very excellent examples of investment in *people*. Often the choice is between investment in machinery and improvements of land or investment in people. I have already stressed that investment in people pays many times better than investment in non-human resources.

L. A. NAZARIO, *Bureau of Production and Marketing, Department of Agriculture, San Juan, Puerto Rico*

Dr. Duncan implied that migration of Puerto Ricans has been the main factor in the movement of the rural population to urban areas. As a matter of fact, a large number of Puerto Ricans have migrated to the United States and this has had an effect on the mobility of the rural population. But for the period 1940–54 the population of Puerto Rico increased from 1,868,000 to 2,240,000. This does not include the Puerto Rican population in New York City. During the same period employment in agriculture fell from some 240,000 persons to around 170,000, a reduction from 38 per cent. of the labour force in 1940 to 27 per cent. in 1954.

Dr. Duncan suggested that economists should also be sociologists or anthropologists. I think that the economist need not be a specialist in these subjects, nor in adult education, but he definitely should be familiar with the basic principles of their specialized fields so as to be able to use their services effectively. Some training in these fields may also help him to develop the proper attitude for dealing with farmers.

Apparently Mr. Aziz did not interpret correctly Mr. Colon-Torres's statement that the hon. Mr. Muñoz Marin talks the language of the people. In Puerto Rico there is only one vernacular, Spanish. What he meant was that Mr. Muñoz Marin speaks in terms of the scale of values of the rural people and with a simple vocabulary which they fully understand. In contrast, many of the publications that technicians prepare for farmers are so complicated and technical that the farmer cannot understand them. In many cases the one-page pamphlet with illustrations and simple explanations is much more effective.

G. P. HIRSCH, *Institute for Research in Agricultural Economics, University of Oxford, England*

It should be clear that we are dealing with two types of sociological and cultural problem: first, those connected with the acceptance of new farm practices; and secondly, those created by technological

change itself. We have had a whole catalogue of the problems which prevent the acceptance of new techniques, but we know very little indeed about how to solve them. Furthermore, I agree that there does not exist a super-human being who fully understands all the specialities that have been mentioned this morning. Teamwork is called for.

Next we must consider how technological change affects the function and structure of the family and the community. The development and history of my own country could be an object lesson in this field, even in regard to changes which are taking place at the present time. Finally, we ought not to forget that equivalent human and sociological problems arise from technological change in industry, and we should be well advised to learn from the work which is going on in various countries in the field of human relations in industry.

J. P. BHATTACHARJEE, *Visva-Bharati University, India*

The discussion this morning has left me with a sense of disappointment somewhat similar to that expressed by the previous speaker. The discussion so far seems to have centred on the economic problems associated with technical change in the context of certain socio-cultural patterns or types. Having mentioned these patterns, we have conveniently left them aside, only to dwell on the economic difficulties faced by such societies. Does this really amount to a discussion of the social and cultural problems associated with economic change in relatively backward countries? Even the sociologists, social psychologists, and cultural anthropologists have not yet been able to evolve a systematic approach to the dynamics of the problem. Some of the difficulties arise from the inadequacy of the concepts and categories that are used in studies of under-developed societies, and the system of relationships based thereon. Based on the experience of advanced Western societies, these often prove confusing when applied to under-developed societies and cultures. Somewhat similar difficulties are faced by economists who attempt, for example, to apply concepts like full employment to problems of economic development of such societies. For instance, take the concept of urbanization. It is hypothesized that increasing urbanization is a consequence and an index of economic development, and that urbanization, in its turn, affects attitudes of individuals to social institutions such as the family, the class and the caste, and to economic and social pursuits such as occupation, work, and leisure. Urbanization is considered a desirable and positive force because it is possible for the

urban population more readily to break away from the traditional attitudes towards social institutions and pursuits than it is for its rural counterpart. Social change takes place more easily in the urban sector than in the rural. At least, this has been the experience in the advanced Western countries.

Is the same thing being repeated in the under-developed countries? Census statistics of these countries invariably show progress of urbanization at a phenomenal pace. Thus in India between 1941 and 1951 urban population increased by 41·3 per cent., as compared with an 8·9 per cent. increase of the rural population. But some recent studies of the nature of the city population in India have shown that a large section of it is really rural at heart. These people display predominantly *Gemeinschaft* or familistic characteristics in their social attitudes and behaviour. It is obvious, therefore, that the efficiency of urbanization as a dynamic social force is much smaller in India than it has been in the Western countries. Why is it so? How can this efficiency be increased without causing a breakdown of the social-cultural system? These questions are not easy to answer. We need to know more of the processes of social and cultural dynamics if we are to fill up these gaps in our knowledge.

Let me now consider change in the nature of society. In the Western world the societies that have been successful in adopting technological change at a very rapid rate have been characterized in their organization by the employer-employee relationship. Many important factors such as the nature of the industrial organization, innovations, entrepreneurship, and productive efficiency are intimately linked up with and influenced by this social organization.

In India, however, development does not seem to be in this direction. A study of the last census reports and the latest developments show that India is fast developing into a society composed predominantly of self-employed small producers. In the rural areas, the recent and projected land reforms have contributed to the further development of small peasant proprietorship. The emphasis on cottage and small-scale industries to be given in the Second Five-Year Plan, presumably to provide additional employment, will again reinforce this line of development. In fact, the ideal of society that the leaders of India have adopted is one characterized by a co-operative social organization which is bound to raise questions of value orientation. The societies in advanced Western countries are based largely on adherence to the so-called rational values, values linked with and dependent on organizations with legalistic entities. The force of law and respect for law in such societies are based on these

values. Will the new type of social organization contribute to the adoption of these rational values in India? The social and cultural dynamics of economic change are not merely linked with the apparently manifest institutions of society but also with social and individual psychology.

Finally, I would like to direct a critical remark towards Mr. Colon-Torres. There seems to be a little lack of consistency between the first and last parts of his paper. In the first part he has emphasized the fact that traditions are very strong in under-developed countries. Reading between the lines, one can sense a conviction in him that traditions should be preserved and not destroyed. It is true that traditions cannot be changed overnight. From the normative angle, however, I would say that traditions, particularly the inhibiting ones, need to be changed and changed as rapidly as possible. What after all are traditions? They are historically derived and selected ideas and attitudes. When society is making progress at a rapid pace, traditions should be changed, or modified, at the same rapid pace. This may create some amount of social disruption. But I agree with Dr. Duncan that there is need for such disruption in these societies as a condition of rapid social progress. The only thing to be careful about is the direction of the resulting change, and the process of absorption of new ideas. The danger of losing cultural identity is not really very great; for, in established and stable societies, cultural change rarely comes about through a process of complete displacement or replacement. What happens usually is modification and integration.

The direction of the resulting change can be noted from changes in the social character of the people in as much as the most important vehicle of creative disruption is constituted by the totality of human beings in a society and their interactions. To what extent and in what direction the social character of the people is changing are perhaps as good indicators of the nature and direction of social change as any. The under-developed societies (where population is usually of the 'high-growth potential' type, where social institutions are strong and rigid) have a type of social personality characterized by tradition consciousness and 'tradition direction'. With economic development and the consequent social development, population tends to reach the stage of 'transitional growth', and social institutions tend to become rather flexible. In the West this change has already taken place, and has brought about a type of social personality characterized by 'inner direction'. These concepts have been used very effectively by David Reisman in his famous study, *The Lonely Crowd*. In the case of the under-developed countries, what we should try to measure is the

extent to which tradition direction is giving way to inner direction in the social attitudes and behaviour of the people.

We really know so very little about this field.

O. SCHILLER

I fully agree with Mr. Paarlberg's remarks, but my English may be the cause of a misunderstanding on one point. My statement on the rural exodus was as follows: If I say rural exodus, I do not have in mind the decrease in agricultural population, which is natural to the process of rationalization and which results in the agricultural population in Western Germany comprising at present only 14 per cent. of the total population, and the rural population 21 per cent. In my country the problem is not to maintain the numbers employed in agriculture at a steady level as, according to Mr. Yajima, it may be for Japan. What we need is to avoid a decrease below the number needed for agricultural work.

Prof. Skovgaard indicated the possibility that wages might need to be higher in agriculture than in industry. Higher wages may compensate for the immaterial factors which I mentioned as contributing to the rural exodus. But I think that such a wage relationship is still a long way away as we have not yet reached even equal wages. In the case of equal or lower wages in agriculture as compared with industry, the immaterial factors will continue to exercise their influence, and the rural exodus will continue.