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ABSTRACT

The book contains eight lectures on technological progress and social change in Europe. The lecture titles are: Social and Economic Aspects on European Technological Progress; Migration Between Poor and Rich Countries in Europe: The Exceptional Case of Finland; The Scandinavian Countries Faced with the Third World's Problems; Policy Measures to Level Economic and Social Regional Differences in the Scandinavian Countries; The European Family Farms in a Technologically Changing World; The Entrepreneur's Ability and Educational Level as Change Agents in Farming; Social and Economic Consequences of Technological Development and Land Settlement in Finnish Agriculture; and Post-War Technological, Economic, and Institutional Development of Agriculture in the USSR. (JR)

NILS C. WESTERMARCK

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LECTURES FOR PROGRAM ON TECHNOLOGY AND SOCIAL CHANGE IN FOREIGN CULTURES

Sponsored under the auspices of the graduate college, Iowa State University, with the aid of a grant from the Office of Education, U. S. Department of Health, Education and Welfare

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LECTURES BY

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PREFACE

Dr. Nils Christian Westermarck delivered the following lectures in April and May of 1973 while he was at Iowa State University as "Distinguished Foreign Scholar." These lectures were part of the new interdisciplinary graduate program on "Technology and Social Change in Foreign Cultures."

Dr. Westermarck's lectures have generated considerable interest among the Iowa State University staff and students in many disciplines such as agricultural economics, sociology, home economics and international studies. Our committee received many requests for making these lectures available to the University community. We were very pleased when Dr. Westermarck agreed to have the lectures reproduced for limited distribution. Miss Marsha Armstrong worked with him on editing the manuscript and was responsible for typing the final copy.

The committee in charge of the Iowa State University program on "Technology and Social Change in Foreign Cultures" proudly presents these lectures. On behalf of the committee I would like to thank Dr. Westermarck for making the lectures available to us and to express my appreciation to Miss Armstrong for her contribution to this effort.

A. A. Fouad, Chairman
Committee on Technology and
Social Change in Foreign Cultures

SOCIAL AND ECONOMIC ASPECTS ON EUROPEAN TECHNOLOGICAL PROGRESS*

The concept of Europe as used here will comprise eighteen Western European countries: Sweden, Denmark, Norway, Finland, Iceland, Ireland, the United Kingdom, the Netherlands, Belgium, Luxembourg, the German Federal Republic, Austria, Switzerland, France, Spain, Portugal, Italy and Greece.

With only 3% of the world's land surface and 10% of its population and no longer possessing overseas natural resources of great variety and abundance, the people of Western Europe create close to 25% of the world's national income, produce nearly 20% of the world's food supply, 30% of the steel, nearly as large a proportion of the coal, and account for 40% of the foreign trade of the world.

Although per capita income and labor productivity in Western Europe are still less than half what they are in the United States and some of the British Commonwealth countries, they are far above the levels of the rest of the world. This prosperity has been achieved partly be development of Europe's limited range of resources, but increasingly through exploitation of its own advanced technology in serving as a workshop for the rest of the world. In performing this function, Western Europe has de-

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*A large part of this lecture consists of excerpts taken from articles contained in the handbook Europe's Needs and Resources, the individual authors of which are listed in the bibliography.

veloped an elaborate network of foreign trade whereby it imports large quantities of raw materials, together with food and simple manufactured products, and pays for these by exporting a wide range of highly processed manufactures and supplying to other regions such services as shipping, insurance and banking. No other major region has come to depend so much on, and contribute so much through, the exchange of goods and services with the rest of the world.

The standard of living at the immediate end of the Second World War, though varying widely from one country to another, probably averaged no more than half the prewar level. Faced with the necessity of exporting in order to survive and of importing in order to export, the trading nations found themselves with a large part of their merchant fleets at the bottom of the sea and their foreign exchange reserves approaching exhaustion.

However, Western Europe's economies, with the benefit of early American Marshall Plan aid, entered into a period of vigorous growth. As a result, Western Europe's more than 300 million people today enjoy a standard of living far higher than ever before and at least a third above that of the people who were living in the same territory before World War II.

Though its roots extend far into the past, the welfare state has come into flower in Western Europe only in the postwar years. High employment, higher real wages and such social provisions as family allowances and subsidized housing have greatly improved the economic position of those at the base of the in-

come pyramid. Steeply progressive income taxes and sharp increases in the costs of domestic and other personal services have brought a radical alteration in the living standards of those at the upper income levels.

These changes, which have gone furthest in the northern and central industrial countries and are hardly yet substantial in the poorer countries of the south, are bringing profound changes in the social hierarchy and a transformation in the character of the market for consumer goods in Europe. The traditional class society and the class markets organized to supply necessities to the poor and luxury goods to the rich have not yet disappeared, but no observer can fail to note the emergence of a new attitude on the part of consumers and suppliers alike. What was formerly a class society characterized by wide differences in income and manner of living has become a much more democratic community with a much narrower range of spendable income. The trend towards income equalization means that for the first time the average family can contemplate the purchase of types of goods, such as washing machines, refrigerators, television sets and automobiles, that were previously out of reach. Manufacturers are responding to this new mass demand by developing mass production of standardized articles, as their American counterparts have been doing since the 1920's.

Foremost among postwar political developments are the attempts at closer economic and, in some cases, political integration. Hitherto for decades, and in many cases for centuries,

the countries of Europe held tenaciously to their individual separate existences, their separate sovereign governments, their separate defense establishments and economic policies.

The most impressive step towards economic, and perhaps eventual political, integration came with the establishment in 1958 of the European Economic Community by the six countries. Recently, as is well known, the number of countries has risen to nine.

It should be emphasized that in Europe man was long in Nature's bonds, while the relationship is now one of symbiosis. The European has often regarded the progress of technology as an attack on his natural way of living. This is in contrast to the American view, because the American way of living, as I have understood it, is made possible precisely by technology.

Louis Armand, the French philosopher, has said that everything that is produced by technology and comes from a factory is real to Americans, while that which is of Nature awakens their doubt.

Technology, on the basis of fundamental knowledge and experimental checks, develops the know-how and shows how scientific facts can be made to "work for their living" in an industrial process.

Technics, which should be included in the modern spectrum of science, is the actual industrial operation vested, say, in the process engineer or the qualified technician.

The "good workman," in the honorable craft sense, can main-

tain the traditions of quality, but innovations, pace setting and the breakthrough depend scarcely at all today on the "inspired hunch," but rather on systematic and correlated application of scientific knowledge. This is what indeed is meant by "technology" today, and this is something which depends upon training.

The "stop-go" signals in any system of technological change in Western Europe depend not only on this intellectual attitude; there are the craft and guild traditions, deeply rooted in history. In Western Europe these traditions have not been broken either by emigration to America or by revolution, as in the Soviet Union.

After World War II, when Europe was faced with the task of reconstruction and modernization, the philosophy of productivity was spontaneously influenced by the trends prevalent in the USA.

When the European nations lost their colonies, this implied the loss of geographical bases which had given them a material experience of ruling the world. At the same time they also lost touch with that which had been inspiring in the colonial experience, in spite of all its many negative aspects.

The question as to the significance of know-how for the rate of progress in a European society is one that has occupied my thoughts a great deal during the last few years.

An interesting study concerning the economic and technical significance of human ability and skill has been published by Aukrust and Bjerke, two Norwegian political economists. During

this century the Norwegian national product has increased by an average of 3% annually. While one third of this increase is accounted for by incrased capital investments and one seventh by an increase in manpower, over half is attributed to a factor labelled improved production technology.

Also, Finnish economists have lately directed their attention to the economic significance of technological progress. Dr. Niitamo has found that a steady increase of the industrial labor force accounts for nearly half, and investments for one tenth, of the increased industrial production in Finland during the last 25 years. One third of the rise is due to a factor that Niitamo labels "know-how."

Professor Lundberg of Sweden gives an interesting example of the importance of technological progress. He narrates the story of a forgotten enterprise within a large industrial concern. During a period of 15 years this enterprise achieved a mean annual rise in production of nearly 2%, although practically no new investments were made. In other enterprises within the same concern, production rose by almost 4% annually with the aid of new investments. That it proved possible to raise production without making new investments can obviously be attributed to an organizational factor. The profitable innovations that had not demanded new investments were, of course, the result of know-how and due consideration.

Speculating upon the conditions of economic and technological progress, Yugoslavia is a very interesting country because

of the obvious relationship between the present level of development in this country and certain historical facts. Counted from west to east, the Yugoslavian Federal People's Republic consists of the following parts which possess a considerable degree of autonomy: Slovenia, Croatia, Serbia, Bosnia-Herzegovina, Montenegro and Machedonia. When travelling in Yugoslavia, I have often been struck by the fact that Slovenia and Croatia are so much more advanced than Bosnia, Machedonia and Montenegro. Serbia occupies a middle position. The fundamental cause of these differences is that Slovenia and Croatia for the greater part of the last few centuries belonged to the Austrian-Hungarian monarchy and not, except for quite a short period, to the Turkish Sultanate, viz. the Ottoman Empire. Bosnia and Machedonia, on the other hand, were under Turkish rule for 400 years, until the period of World War I. Serbia became independent earlier, after 300 years of Ottoman oppression.

It is striking that the longer the period of Turkish rule in the various parts of Yugoslavia, the lower the standards of living, the more frequent illiteracy and the less developed economic life in general. Although the Turks did not succeed in conquering the mountainous Montenegro, even when they were at the height of their power, Montenegro was almost completely isolated from western cultural influences and outlooks. The philosophy of progress that I am propagating is above all supported by the distribution of the gross national product per capita between the various parts of Yugoslavia. According to

data for 1969, the order was as follows: Slovenia, 820 dollars; Croatia, 570 dollars; Serbia, 400 dollars; Machedonia, 270 dollars; Bosnia-Herzegovina, 240 dollars; and Montenegro, 240 dollars. The various regions also differ with regard to educational level. In Croatia, 98% of the population was able to read in 1961, in contrast to only 64% in Bosnia-Herzegovina. In 1961, 80% of all Yugoslavs over 10 years of age were able to read.

Somebody might, of course, contend that in the case of Yugoslavia a kind of colonialism is involved. But the problem is different. We are speaking of different parts of the same country, not of colonies. Moreover, we do not have on the one hand a modern industrialized mother country with an advanced culture, while on the other hand a number of underdeveloped colonies.

It seems obvious that the development of a nation depends to an essential degree on the progressive aspirations, rational behavior and personal initiative of its citizens. Progress is also a function of current social attitudes concerning reforms. Gårdlund, the Swedish expert on development questions, states that rich countries are those in which scientific and technological achievements have continuously been appropriated and applied to agriculture and industry. Poor are the countries in which the capacity to so proceed has been lacking.

Underdevelopment originates in a society's incapacity to utilize its natural and human resources. Toynbee, the distinguished British investigator, has pointed out that since the

dawn of history, material improvements as well as intellectual progress have derived their origin from a few great brains, from individuals who succeeded in disentangling themselves from striving for their daily bread. Progress is not a gift of Nature, it is the result of intelligent utilization of resources.

In point of fact, certain European countries, for instance Bulgaria, Greece and Portugal, must be considered less developed due to their low gross national product and also for other reasons. In many of the developed, industrialized countries, natural resources have proved to be of secondary importance for economic growth. Switzerland, Norway and the Netherlands are examples of European nations which can boast of a high gross national product without possessing natural resources.

The older industrial countries in Europe, and conspicuously Britain, are the heirs of a later tradition - that of the Industrial Revolution itself. It is not merely a question of recapitalizing or retooling an industry, but of drastic social and psychological readjustment.

Economic growth depends to a great extent on clever and ambitious utilization of technological and economic innovations. The industrial and economic revolution in England in the last century was chiefly a result of the outstanding enterprising and economic skill of a group of pioneers. In agriculture a corresponding evolution took place.

Since World War II productivity missions have crossed and recrossed the Atlantic in a lease-lend of experience, and there

have been constant exchanges of missions between European countries and, recently, an anxious reappraisal of the technological achievements of the USSR. However, remarkable differences still exist, not only between Europe and America, but between the historic values of individual European countries.

When we speak of the Second Industrial Revolution, we mean the revolution which has been produced by the scientific and technological breakthroughs of recent years. Progress in the nineteenth century was stage by stage, but today it is by leaps and bounds.

Within the Second Industrial Revolution there has been another - the "domestic revolution." The two are socially, as well as technologically bound up together. The machine, in its present-day connotation, is the release from muscle drudgery. That "goes" for the housewife and that disappearing genus, the domestic servant.

The change has been slower in Europe than in the United States because of habits and traditions. But even without full emancipation, European women have gradually insisted upon their right to muscle emancipation. The difficulties of getting domestic help and the equipment offered for installment purchase have led to an increase in the demand for electrical appliances - vacuum cleaners, washing machines and clothes dryers.

According to Frederic Dewhurst, Western Europe is becoming increasingly a "have not" region so far as most of the essential raw materials of modern industry are concerned. This is due to

a complete absence of some raw materials within its boundaries, though more commonly, as for coal and iron ore, domestic reserves are bountiful, but foreign supplies are available at lower costs. In either case, European countries are faced with the prospect of rising costs for many industrial raw materials and with the necessity of investment in facilities for the extraction and transportation of materials from newly developed resources overseas. This means that in the future, even more than in the past, Western Europe must fill the role of a "fabricator-in-transit" or "workshop" for the less developed parts of the world - importing raw materials, food and simpler manufactures from regions where they can be produced more cheaply and exporting in payment the highly processed and valuable products of its own advanced technology. In so doing, and in supplying the world with such services as banking and insurance (which require no raw materials), Europe will be making the most effective use of its most valuable resource - its skilled and educated manpower.

On a vastly larger scale, Western Europe, especially the industrial center and north, is in a position somewhat analogous to that of Switzerland vis-à-vis the rest of the world. Without metallic ores, the Swiss export to the world metallic products in their most valuable form -as watches, precision machinery, and electrical equipment. With barren and rugged mountains composing much of the country's territory, Switzerland has developed hotel management to a fine art and introduced summer and winter sports

to attract tourists from all over the world. Lacking mineral fuels, abundant waterpower has been harnessed to deliver electricity everywhere in the country. With no great accumulation of wealth in the hands of its own citizens, Switzerland has maintained a solid currency and a solid integrity that has made it a refuge for capital and a world center for banking and insurance.

Despite the retarded development of the southern European countries, one of the most significant features of Europe's postwar recovery has been the sharp and sustained rise in average output per worker and per man-hour. Large productivity gains were, of course, to be expected with the restoration of war-damaged facilities in the immediate postwar years. However, even after 1950, by which time recovery was complete in most countries, labor productivity in Western Europe as a whole increased at an average rate of 3-4% a year - 50% more than average American gains during the same period and close to twice European productivity increases during the long period before World War I. But the level of productivity in Western Europe still remains substantially below that of Canada and the United States, even though these postwar gains have narrowed the gap. Although differences between countries with different price levels and living patterns cannot be measured with precision, Frederic Dewhurst in the book Europe's Needs and Resources states that average labor productivity in Western Europe is around 40% of that of the United States, in the industrially

advanced countries such as Switzerland and Sweden, about 60%, and in such underdeveloped countries as Greece and Portugal, little more than 20%.

It is possible, says Dewhurst, to suggest some of the factors that appear to account for Europe's lower productivity levels. The growing shortage and rising costs of many domestically produced industrial raw materials are undoubtedly factors, though their influence is often overemphasized. In any event, Europe's economic gain will be found, not in costly efforts to achieve a greater measure of domestic self-sufficiency in primary material, but in concentrating even more on supplying the world with the high-value goods and services that involve the most effective use of her skilled labor and advanced technology.

Two developments since World War II are helping to enlarge the domestic European market and contribute to greater productive efficiency in export markets as well. One has been the gradual liberalization of trade under the OECD and now the prospect of the creation within a decade of two free-trading groups (if not eventually one) with an aggregate population of more than a quarter of a billion people. This is a welcome contrast to the previous self-defeating efforts on the part of individual European nations - many of them no larger in population or area than some of the states of the United States - to achieve self-sufficiency during the interwar period.

Although the newer mass production industries operate at high levels of efficiency, there are large segments of the Euro-

pean economy in which manpower, which is Europe's most valuable resource, is still used ineffectively. Apart from the intractable labor surplus on the family farms of the southern agrarian countries, a relatively large share of Europe's labor force in other areas is still engaged in producing food for itself and the rest of the population. For the eighteen countries as a whole, the nearly one fourth of the labor force engaged in agriculture in 1955 produced less than half that large a share of the gross product.

Industrialization always promotes the evolution of agriculture. The productivity of agriculture cannot be raised without progress in other branches of economic life. Industry creates a market for the agricultural produce at the same time as it supplies agriculture with machinery, equipment, tools and other means of production. To put it somewhat differently, these industrial products are a condition for the productivity of agriculture.

In general, it is easier to raise the productivity in industry than in agriculture, because in agriculture hundreds of thousands of farmers have somehow or other to be persuaded of the usefulness of new methods.

As to the technological aspects involved in agriculture, the West German economist Woermann points out that the effect of technology on agriculture is twofold. Technological inventions can, as such, lead to improvements in the biological and mechanical sectors, but they can also function as an aid in the

manufacture of means of production.

In agriculture, the application of technology serves two purposes - that of replacing manpower, and that of raising the productivity of the soil. The advances in technology are on the one hand bio-technical, on the other mechanic-technical. Bio-technology includes plant and animal improvement, soil fertilization and livestock nutrition, the manufacture of pesticides and veterinary drugs, as well as other similar measures and sectors. The introduction of new organizational techniques and methods can also be referred to the group of bio-technical improvements. The mechanic-technical advances have also contributed to an increased production, but their main importance is in saving manpower. The order in which these technical improvements have been introduced has differed from country to country. In the USA it may be stated that agricultural production previously increased mainly as a result of mechanic-technological progress and an extension of the sown area, while bio-technological means of intensifying agricultural exploitation were adopted later.

The use of fertilizers may be mentioned as an example. Fertilizers previously played no noteworthy part as a means of production in the USA. In most of the European countries the sequence of events has been a contrary one.

In the FAO yearbook for 1963 it was pointed out that an increase in production is mainly a technical problem, although economic, social and organizational factors also play a part.

The differences in productivity measured by surface unit and man-hour are due chiefly to the rate of technological development, and only to a lesser degree to variations in climate and soil.

Along with changes in the organization of industry and agriculture and in the attitudes of workers and businessmen, consumers also are playing a different and more significant role in the changing European economy. Perhaps the most important change results from the rise of per capita incomes to a high level. Together with increasing urbanization and wide-spread social security, this is creating a mass demand for many products, such as automobiles, previously beyond the reach of the average family. The continued drift of population from farms and villages into urban occupations and communities is lessening the traditional conservative influence of family and church on consumption habits. Women are steadily gaining greater influence as consumers, not only because more of them are entering urban occupations at higher pay, but because jobs in the city provide them with greater independence in spending their incomes. Woman has not yet displaced man as head of the household, as Europeans fear has taken place in the USA, but she is being emancipated from her subordinate role in the patriarchal family and is gaining a new partnership with her husband in earning and spending the family income.

More important than new products and new wants, however, is the changing attitude of consumers towards the satisfaction of their desires. As one observer puts it, their "time perspec-

tive," or their willingness to delay the satisfaction of their wants, has been drastically shortened since World War II.

Of the service industries, tourism has a fair chance of promoting economic growth. Most of the money spent on foreign travel is flowing into the classical tourist countries - Spain, Italy, Yugoslavia, for example.

Fritz Baade, the West German economist, analyzed the income elasticity of foreign travel. Using the expense of travelling to the Mediterranean countries as a criterion, he found that in the German Federal Republic an income increase of 10% per person meant a 25% increase of tourism. He arrived at the conclusion that while in 1962 the foreign tourists brought the Mediterranean countries a revenue of 1.6 billion dollars, the corresponding sum in 1970 exceeded 3 billion dollars.

Changes in the structure and organization of industry and in ways of doing business, in the attitudes and practices of workers and employers and in the habits and tastes of consumers are often ascribed by critical European observers to the Americanization - or disparagingly, to the "cocacolonization" - of European life. In the sense that the changes now occurring in Europe occurred a generation ago in the United States, this contention appears to possess some validity. Americans find a striking similarity between the economic developments, especially the changing consumption patterns, in Europe since World War II and those taking place in their own country in the decade after World War I. In the adoption of social security and health,

housing and welfare measures, on the other hand, America follows in Europe's footsteps - again a generation later.

The outlook of the French writers Louis Armand and Michel Drancourts on the future of Europe is rather pessimistic, but they also make some fruitful suggestions. The great challenge that the future has in store will not wait, they say. Before the end of this century China will be much more powerful than today. The technological and economic potential of the United States will be increased every two years by an amount equalling the potential of France. In less than 30 years Japan will be a mightier state than the European Economic Community, the EEC. The global influence of the Soviet Union steadily increases. According to them, the world develops while Europe only survives, but are they right?

Personally, I believe in Europe's chances in the race, provided that co-operation between the West and East European countries as regards technology and research is intensified so as to result in joint activities of a permanent nature over the national borders. Of course, the Soviet Union constitutes, in a way, a separate world.

Armand and Drancourts advocate the view that the European nations ought to institute a common office to deal with all the harmful effects emanating from technological activities. As is well known, the research in this field aims at control of air and water pollution and noise. It is impossible to bring about reforms without international co-operation. By way of example,

pollution of the Rhine in France cannot be dealt with separately from pollution of the Rhine in Germany. And why should separate measures be taken to combat air pollution from the smoke in the Ruhr Valley and in Great Britain, since Scandinavia is threatened by both sources.

To date, Europe has not introduced harmonized regulations, not even on matters involving the hazard of radioactivity. Some time ago, for instance, different rules were applied at the nuclear power stations in Belgium and the Netherlands, situated some 100 kilometres apart, although both were in principle controlled by the EURATOM.

To solve future problems such as water shortage, it is necessary for the European nations to engage in close co-operation to make possible the planning, construction, financing and utilization of large water-pipe systems between distant areas, such as one day will prove indispensable in any case.

As an example may be mentioned a project that has been drawn up for a main pipe for drinking water from Norway to Belgium, which would run through south Sweden, Denmark and north Germany. It would supply Copenhagen, Hamburg, the Ruhr District and the Netherlands. The construction costs would be reduced if a parallel gas-pipe system were laid to supply Scandinavia with natural gas from Groningen in the Netherlands. The main problem involved in this kind of project is the financial aspect. The only possibility of reducing the investment costs lies in planning and financing on a Pan European level. The organs for

research and planning have to unite their efforts if Europe is to assert herself in the global race.

As an example of integration or co-operation, one may mention the Research Institute for Nuclear Physics in Copenhagen, founded by Niels Bohr, the Danish Nobel Prize winner. This institute is attended by research workers from Germany, France, Great Britain and even many other overseas countries.

Technological progress is always intimately related to the level of human knowledge and skill, the degree of enthusiasm and belief in the future that inspires individual men, but also to their physical capacity.

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MIGRATION BETWEEN POOR AND RICH COUNTRIES IN EUROPE
THE EXCEPTIONAL CASE OF FINLAND

Since the end of the Second World War, migratory movements on a quite unprecedented scale have taken place throughout Europe. Millions of people have been driven from their homes and the population structure of entire countries radically altered. Political upheavals involving the redrawing of frontiers, transfers of sovereignty and changes of regime have forced entire populations into exile and caused mass movements far in excess of those normally resulting from supply and demand on the world employment market. Thus, a characteristic feature of migratory currents during this period, apart from their size, has been the existence of political, as distinguished from economic, migration movements.

The political movements were the product of exceptional circumstances and in most cases were sweeping and precipitate, their momentum quickly spent. Economic migration currents, on the other hand, have tended to flow fairly steadily in fixed channels. This lecture deals only with the economic and social migration.

The term "economic migration" must be understood as applying not only to the migrant workers themselves but also to mem-

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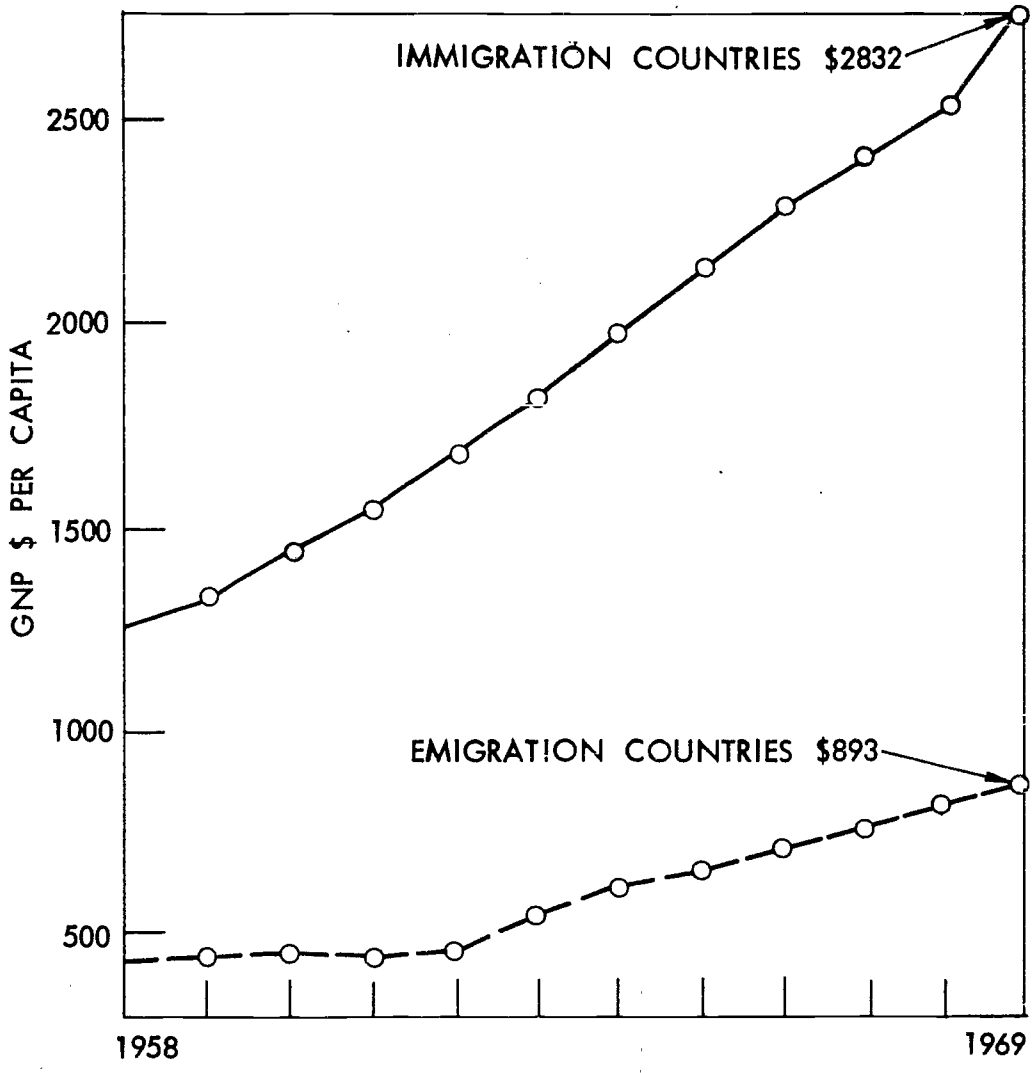
*A large part of this lecture consisted of excerpts taken from the OECD documents and the conference document of European Ministers of Labor listed in the bibliography.

The Average Per Capita Gross National Product in High Immigration Countries versus High Emigration Countries



Emigration countries: Italy, Portugal, Spain, Yugoslavia, Turkey, Greece

Immigration countries: Belgium, France, German Federal Republic, Sweden, Switzerland. United Kingdom is not included because of the overwhelming non European immigration.

bers of their families accompanying or rejoining them, as well as to persons traveling abroad for the purpose of marriage.

As we can see from the diagram, the background to the present migration pattern of labor in Europe is economic and linked to the differing rates of industrial development achieved by European countries since the Second World War. In contrast to the rapid development achieved in countries of Northern Europe, where manpower resources have been unable to keep pace with demand, industrial growth in countries bordering the Mediterranean has been slower, and has been accompanied and aggravated by excess labor.

This imbalance resulted in a gradual movement of manpower away from the stagnating economies of southern Europe, searching for employment to the north, in countries with a thriving and expanding economy. For a time, especially during the 1950's and early 1960's, this trend was welcomed both by emigration and immigration countries as a solution to their respective economic problems of the moment.

But attitudes gradually changed. As the movements continued and increased, so the strain upon the infrastructures of the receiving countries was accentuated. The housing shortage in particular became acute. During the mid and late 1960's the new arrivals who had once been welcome, or at least tolerated as assets to the economy, came to be viewed in some regions with disquiet and even a measure of incomprehension.

The migrant, for his part, was faced with increased hard-

ship. In his attempt to find a livelihood for himself and his family, he had to overcome the many material problems which accompany establishment in a foreign community.

By the late 60's and early 70's, the serious social tensions resulting from this situation, together with inflation within some national economies, led almost all governments of immigration countries to modify the liberal policies hitherto applied and take measures to reduce, or at least stabilize, the flow of immigrant labor, while efforts were also made to ensure that suitable conditions were offered to those who were admitted.

It might be mentioned in this context that although the EEC Regulation (1612/68) relative to the freedom of movement of workers within the Community exempts citizens of member states of the Community from restrictions of this kind, it has nevertheless given rise, in the application, to certain difficulties. The desire for some form of limitation has been expressed in certain quarters and has led to careful reconsideration of the question as a whole.

Indeed, it is generally agreed both within the Community and at the wider European level that liberal policies with regard to the admission of immigrants may only be successfully applied if satisfactory solutions, in the form of adequate amenities, are offered to meet the problems of an essentially social and human kind, which still face many migrants at the present time.

It is widely acknowledged that statistics relating to mi-

gration are often incomplete and unreliable. However, a table drawn partly from a non-official source is presented here. It indicates the size of total and working foreign populations within eleven European states, as well as their ratio to national population, and reveals that the host countries with the highest active immigrant populations, in relative terms, are Swtizerland, Luxembourg, the United Kingdom, the Federal Republic of Germany, France, Sweden and Belgium.

Table 1. Foreign population in eleven countries.

	Total foreign population	% of total population	Foreign working population	% of total working population
German Fed. Rep.	2,381,061	3.8	1,575,000	7.0
France	3,500,000	6.9	1,600,000	8.0
Belgium	678,797	7.0	181,555	5.0
Luxembourg	80,000	24.0	30,100	21.0
Switzerland	999,309	16.1	865,228	28.8
Netherlands	204,028	1.6	83,500	2.2
Sweden	416,600	5.1	219,000	5.6
United Kingdom	2,579,849	4.7	1,782,000	7.3
Austria	. .	. .	63,487	2.0
Denmark	. .	. .	31,900	1.4
Norway	58,947	1.5	19,500	1.4

As for the origin of these migrants, those of European origin come mainly from six Mediterranean countries - Portugal, Spain, Italy, Yugoslavia, Greece and Turkey. It has been estimated that their approximate numbers from 1961-1969 were as follows: 2,357,400 Italians; 627,900 Spaniards; 621,000 Yugoslavs; 532,800 Greeks; 481,300 Turks; 391,900 Portuguese.

It is interesting to note that the average yearly number of emigrants moving from these Mediterranean countries to the German Federal Republic, France and Switzerland has increased from approximately 500,000 in the early sixties to over 750,000 in 1969. During this period, however, emigration patterns have changed considerably from one country to another. The number of emigrants from Italy has decreased quite substantially; those from Spain have increased slightly; and emigration from Yugoslavia and Turkey has risen sharply. Emigrants from Turkey, for example, where emigration is a relatively recent phenomenon, have increased from 1,000 in 1961 to over 100,000 in 1969.

The loss to these countries through emigration may be measured by Table 2, which indicates the approximate ratios of emigrant workers to the total working population in the country of origin.

Any attempt to determine the specific characteristics of these movments and, in particular, to ascertain exactly the kind of employment occupied by migrants within the various host countries again meets with a lack of reliable and com-

Table 2.

Countries	Emigrant workers per 1,000 active individuals in the country of origin	
	1960-1969	1969
Portugal	7.5	6.9
Spain	4.9	6.3
Italy	9.6	7.2
Yugoslavia	6.9	27.1
Greece	13.6	9.2
Turkey	3.6	11.9

parable statistics.

It would seem, however, that the majority enter unskilled or semi-skilled occupations for which sufficient numbers of national workers are hard to find.

The housing shortage which exists in most industrialized countries of Europe inevitably poses acute problems for the accomodation of migrant workers and their families and has led in many cases to the intervention of governments. Thus, in several countries, the issue of residence permits has been made conditional upon the availability of suitable accomodation.

In principle, foreigners are on the same footing as nationals in respect of access to housing. Responsibility for ensuring that all housing, including housing occupied by immi-

grants, complies with police requirements concerning construction, fire and health lies with the cantonal or municipal authorities.

The ability of migrants to speak the language of their new country is an essential asset to enable first, their integration and later, their social promotion.

Governments are indeed aware of the necessity to help immigrants in this respect and have in some cases organized special courses to enable them to acquire at least an elemtnary knowledge of the language.

Despite measures such as these, however, the situation continues to be viewed in several countries as unsatisfactory.

The lack of statistics on migratory movements already mentioned again makes it impossible to determine, with any degree of certainty:

- the yearly rate of emigrants returning permanently to their country of origin (excluding those, especially seasonal workers, who return only for short periods);
- the length of their stay abroad;
- the social and professional status both of those who stay and of those who return;
- the rate of subsequent re-emigration.

The Italian Institute of Statistics estimated that for every 100 Italian migrants in the main European countries of immigration, 50-80 return home each year. Despite wide fluctuations, the general trend throughout the sixties has been towards a

rise. It is not clear, however, whether this rate indicates permanent or temporary return.

The scale of return movements would appear to vary according to the country of origin. In 1969 the departure rate from Germany has been estimated as follows: 67% to Italy; 20% to both Turkey and Greece; and 42% to Spain. It should be borne in mind, however, that in all likelihood, many of these returns were for short stays.

The migrant rarely acquires any real skill while abroad and merely becomes familiar during this time with the way of life in an industrial society. Upon return he will tend to seek employment either in agriculture or in the tertiary sector and will invest his savings in a small-holding or a shop, neither of which is likely to secure him a satisfactory income. Chances are that sooner or later he will seek to emigrate once more, without having brought to the national economy the productive contribution expected of him.

The solution proposed to end this vicious circle is that returning migrants should be actively encouraged by their authorities to make more rational use of their savings and to seek employment in the secondary or in the primary sectors, according to the needs of the national economy.

Upon his return, the migrant and his family are inevitably faced once again with problems of adjustment and adaptation, which may necessitate special measures on the part of governments.

Among the major difficulties they must face is that of the integration, or re-integration, of their children into schools. The efforts of several immigration countries, and in particular of Switzerland and the Netherlands, to ensure that these children do not lose touch while abroad with the culture of their home countries, may be recalled here as a partial solution to this problem.

Another major problem concerns the professional status of the migrant worker, particularly if he has acquired some qualifications since leaving his country. It is indeed essential that his skill should be recognized when he returns.

In the short term, migration brings to emigration countries a relief from the pressure of unemployment, as well as assets to the national income in the form of savings transferred home. Within the receiving countries, migrants compensate for the shortage of manpower, especially of unskilled labor for which nationals are hard to find, and thus allow the economic expansion to continue and increase.

In the long term, however, these benefits are likely to give rise to serious problems unless appropriate measures are taken in time. For the emigration countries, a steady loss of active population can only aggravate the economic underdevelopment which is the cause for their departure. This loss is all the more serious if, as is beginning to be found, the workers leaving are skilled. On the other hand, the return of migrants who are unable either to make use of the professional experience

they may have gained while abroad, or to invest proftibaly the savings they have accumulated, will do no more than add to these difficulties.

Again, in the longer term, the steady inflow to immigration countries of foreign workers may lead, in its turn, to economic imbalance and to social tension, especially if infrastructures are insufficient to cope with the new arrivals.

Despite the measures taken by government to improve the situation of their migrant populations, it is acknowledged that many of their problems, particularly those of a social kind, remain unsolved. The search for more satisfactory solutions is thus seen as a priority objective for future governmental action programs.

In the centrally planned economies, corresponding availabilities of surplus manpower do not exist, although there are differences of manpower stringency between the different countries. In Czechoslovakia and the German Democratic Republic, labor is in general very scarce. In Bulgaria, Hungary, Poland, Rumania and the USSR, shortages exist in particular categories and in particular regions but not in general. International co-operation in manpower fields is therefore not treated as an instrument for solving manpower surplus but as an integral part of overall mutual assistance among the countries belonging to the Council for Mutual Economic Assistance, SEV. The movement of labor is associated with other economic objectives such as training, technical assistance or dissemination of advanced technology, and the long-term

manpower aspects are taken as one of the criteria for international division of labor. This may mean that "the labor intensity of the various economic branches could, for example, be included among the criteria for determining specializations.

In 1967 Bulgaria and the USSR signed an agreement for the establishment of two Bulgarian timber enterprises in the autonomous Soviet Socialist Republic of Komi. Under this agreement the USSR provides the equipment, machinery, instruments, etc. for these enterprises, and Bulgaria supplies about 3,000 workers (including engineers, technicians and managers) to run the enterprises. These two enterprises are to produce for Bulgaria about 500,000 cubic meters of first-class timber for the furniture, cellulose and paper, and woodworking industries.

Under another bilateral agreement, Hungarian workers are employed in the German Democratic Republic, mostly in the electro-technical and machine-building industries, for a period of two years; they will be trained in advanced methods of engineering and will then be offered jobs in this field in Hungary.

Now we turn to the case of Finland. The GNP per capita in Finland in 1969 was $1940.00, compared with $893.00 in the mentioned southern European emigrant countries. In the global rank order Finland usually takes the twelfth to fourteenth place, while Sweden is next to the USA with $3500.00 per capita.

In recent years, the emigration of Finnish workers to Sweden has assumed surprising proportions and taken on cer-

tain new features. In 1969-1970, it reached a record level, which was the more disturbing as the movement took the respective authorities in both countries by surprise, developing abruptly and in the absence of any official machinery to specially prepare, guide or control it.

The migrant flow from Finland to Sweden is substantial in both absolute and relative terms. The extent of the migrant flow is such as to reflect directly on the size of the population of Finland. "The population of Finland decreased in 1969, the first time this has happened in non-war conditions since the famine years of the 1860's."

Finland is thus the remarkable case in present-day Europe of a nation with a relatively high GNP whose population is declining largely as a direct and indirect result of emigration.

The growth of the migrant flow to Sweden, which reached a culminating point in 1970, is, in detail, the result of annual movements of rather varying importance. The zigzag course of the rising curve of departures reflects cyclical fluctuations in the Swedish economy; these determine the rate of flow of Finnish migrants with some accuracy.

In 1971, however, returns to Finland from Sweden began to accelerate and in 1972, 18,000 returned while 10,000 emigrated from Finland. It would, however, seem more likely that after the recession in 1971, which continued into 1972, the Swedish economy will soon be once again in a position to call up a sustained supply of Finnish immigrants. In both Sweden and Fin-

land it is expected that the migrant flood will rise again as soon as the recession in Sweden eases off.

However, a large proportion of recent returns cannot be seen as the direct and immediate consequence of the recession in Sweden; it must be remembered that emigration to Sweden was so heavy in the preceding years (1968-1970) that it had not yet been thoroughly absorbed into the Swedish labor market and become settled. By a compensatory process, the surplus began to flow back in 1971, for too many departures could only be followed by a large number of returns. It is this process which is now starting, temporarily accelerated by the recession in Sweden in 1970-1971.

Finnish emigration to Sweden involves workers with varying skills. Although it is not always possible to go into great detail, an examination of the geographical origin of emigrants shows that their social status and occupational levels vary. A large proportion of the emigrants have an agricultural and forestry background in central Finland and especially in Finnish Lapland.

However, a by no means small proportion of migrants to Sweden belongs to the skilled, and even highly skilled, category who come from small and medium-sized towns in southern Finland and the Swedish-speaking coastal region in Finland. For these socio-economic groups, emigration is a more carefully planned and reasoned step, in which such "attractive" factors as working conditions in Sweden play a decisive part when set

against the "repellent" factors in the regional economic environment left behind.

Finnish migrants arriving in Sweden usually have such a good formal school education that they are well able to acquire the necessary qualifications. In this respect, they are a much appreciated source of labor.

The basic education of Finnish immigrants places them well ahead of all the other immigrant groups to Sweden. The Finnish newcomers outdistance even Swedish workers, the more so as the average age of the Finns is far lower than that of the Swedish workers. These observations underline one of the most original features of Finnish migration to Sweden; unlike any other European migration, it does not attract people who have lost their status or whose knowledge or ability is marginal because their mother country has not met its primary responsibility in educating them, but, on the contrary, in the case of Finland, it prepares people of considerable potential with the necessary skill. Provided the language barrier can be overcome, they invest in Sweden the capital of learning built up in Finland when they were of school age.

The problem which immediately arises is that of economic disparities within the Nordic Market of the Scandinavian countries, and the need to determine the driving force behind such an unusual shift in the geography of manpower.

The legal provisions controlling labor movements between Finland and Sweden are those which have been in force within

the Nordic Common Labor Market since its creation in 1954, in other words, that people are entirely free to move around. Every citizen is free to choose where he lives and in what country he works, and this sacrosanct principle is part of the political ideology to which each of the five nations in the Nordic Labor Market subscribes without reservation and that each appreciates.

The difference in wage rates between the two countries is undoubtedly, together with unemployment, the most important migrant factor.

According to a survey, the net earnings of a skilled toolmaker were between 51% (single) and 64% (married, two children) higher in Sweden than in Finland. At the same time, the net wage of an unskilled assembly line worker was between 78% and 92% higher in Sweden than in Finland.

The wage gap is not as great in all branches of activity, however; income distribution is more inequitable in Finland than in Sweden from one socio-occupational category to another, and for those with top "intellectual" jobs and in the liberal professions, salaries and living standards in the two countries are rather similar.

In the case of less-skilled workers, however, it is not far wrong to say that, so far as we know, wages in Sweden are on average twice as high as in Finland - or are reputed to be.

The present situation in Finland is one of underemployment. The employment situation has lately shown a marked improvement,

a particularly noteworthy development since it is taking place during a period of heavy release of agricultural labor encouraged by the public authorities. Yet the Finnish economy is still unable to absorb a substantial part of the country's labor force despite the economic expansion since 1969. This underemployment is very uneven, varying as to the type of activity, and from region to region.

These findings appear, moreover, to confirm those of other surveys which found that among Finnish migrants living in Sweden, 78% of the men and 60% of the women had been in paid employment in Finland before leaving and only 9.1% and 3.6%, respectively, had been really unemployed.

This is a situation which threatens grave consequences and shows that the migratory flow from Finland to Sweden does not entirely depend upon the Finnish labor market but much more upon the level of demand for labor in Sweden and upon the wages paid there. The lack of any direct correlation between the rate of migrant flow to Sweden and the state of the labor market in Finland was demonstrated for the first time during the flood of migration in 1968-1969; Finland was then enjoying two years of strong economic growth and an increase in the number of jobs available. Yet, paradoxically enough, it was precisely then that net emigration to Sweden assumed such proportions that it came to be considered as one of the main structural problems of the Finnish economy.

It seems that what encouraged people to return to Finland

and stopped them from emigrating to Sweden was much less the positive effect of the relative improvement in the Finnish economy compared with that of Sweden, than the sudden downturn of the Swedish economy.

As a general rule, owing to the slow increase in the Swedish population and to the gradual shift of the country's manpower towards tertiary occupations, factors which show every sign of continuing in the near future, the Swedish labor market seems likely to be left largely open to immigrants from Finland. These, then, appear to be an absolute requisite for maintaining present Swedish economic growth.

The authorities of the two countries concerned have recently embarked upon a program of information using all possible media (press, pamphlets, radio and television) in order to rationalize and bring some reason into emigration, since they are unable to control it.

Other factors by no means commonplace also account for Finnish emigration. The scarcity and inadequacy of <u>housing</u> in Finland compared with Sweden is an important reason for emigration and one acknowledged by the Finns themselves. The reason for this is easy to find; the damage caused to property in Finland by the last war has not yet been entirely restored.

The outcome of this situation is threefold:

1. the lack of housing appreciably hinders the internal mobility of workers in Finland;
2. the hope of finding better housing conditions in

Sweden than in Finland is a strong incentive for many Finnish families;

3. the lack of housing impedes the return of emigrant workers.

The regional economic disparities in Finland, which still seem far from removed, are another cause of emigration.

All in all, after examining the factors likely to generate the migrant flow between Finland and Sweden and comparing those existing in Sweden with those in Finland, one is forced to conclude that the "attractions" which bring Finnish workers and their families to Sweden are stronger and more important after all than the factors prompting them to leave Finland.

The scale of the effect upon the populations of the two countries produced by a yearly migratory movement of 50,000 people is due first of all to the small population of the two countries: 4.6 million in Finland and 8.1 million in Sweden. The population level is directly affected by any emigration or immigration and cannot make up for it.

In Finland the rise in emigration coincides with an appreciable fall in the the birthrate and hence effectively contributes towards the country's population decline. The combined effect of the fall in the birthrate and the increase in emigration resulted in a net decline in the population of Finland of 15,000 in 1969 and 25,000 in 1970.

During the 1950's, net Finnish immigration accounted for 14% of the total population increase in Sweden, and during the

period 1961-1965 for 20%. The proportion now is probably even higher.

In 1945, there were only 3,300 Finns in Sweden, while now, 25 years later, their number approaches 200,000. If account is taken of the total number of naturalizations, the population of Finnish origin now settled in Sweden is some 300,000 strong, or 3.6%. Finns number more than half of Sweden's foreign population.

Such a situation is generating a series of social and cultural problems in Sweden.

On the Swedish side, the core of the argument centers on one major problem - should the policy with respect to the Finnish minority be to choose integration or social and cultural assimilation? Should they be brought up within or outside the Swedish community of which they are now a part?

The most fundamental result of departures to Sweden is thus that they increase the shortage of workers capable of satisfying the growing demand for labor in an expanding Finnish industrial economy.

It is estimated that 40,000 Finns have now settled in Sweden as metalworkers; this is roughly the number Finland would need for full employment and maximum progress in this industry.

Thus, earlier departures and the present continued labor drain now put Finland in the same situation as Sweden from the standpoint of industrial manpower requirements, but Sweden's industrial wage levels explain why it so strongly dominates

the competition. It is clear from this how difficult it will be to reverse the migrant trend over time.

In theory, emigration to Sweden might be expected to help relieve the tensions of unemployment in Finland. However, in regions where it is a consequence of underdevelopment, emigration hinders development in its turn by causing a dearth of population and in fact accentuates underdevelopment, which results in fresh unemployment and renewed emigration. This is a process well known in the very depressed areas of Europe, whereby unemployment generates migration, which in turn generates fresh local unemployment, followed by emigration, etc.

The establishment in Finland of Swedish industries which could directly employ Finnish manpower and thus obviate emigration is variously assessed and commented upon. It is, in any event, a recent development and of limited effect. Five hundred foreign firms have industrial holdings in Finland and employ about 30,000 people, in other words, 6 to 7% of the industrial labor force. Swedish firms employ more than half this total, or about 20,000 people.

In the textiles industry, the purpose of setting up Swedish factories in Finland is to make up yarns and cloth imported from Sweden, the finished products (clothing) then being re-exported to Sweden. Only the making-up work takes place in Finland; this is because of the short distance and the convenience of transport between the two countries, yet it is a measure of the limited economic effect of such an operation for Finland.

The transfer of Swedish factories to Finland is affected by the uncertainty of the latter's position with respect to the European Common Market, with which Sweden recently has made a free trade agreement. It may be that Swedish industry will in the future be more inclined to invest in Common Market countries than in Finland.

In Finland today it certainly seems that the question of manpower emigration ought to be considered as the number one national problem. The demographic and economic future of the country may well depend upon how the problem is approached and handled; ways must be found to prevent Finland from becoming the poor relation of the Nordic family (and getting poorer), supplying labor for its better-off relations and thus helping to consolidate their prosperity.

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THE SCANDINAVIAN COUNTRIES FACED WITH THE THIRD WORLD'S PROBLEMS

The importance for developing countries of technological adoption and innovation has never, perhaps, appeared more crucial than at the present moment, when unemployment in the Third World is among the most worrisome problems for the years to come. According to a recently published OECD report, it would be dangerous to confine the notion of "transfer of technology," with which many international organizations are currently involved, purely to the acquisition of technical knowledge through equipment, patents, documentation, etc., and neglect what is most essential, i.e., the selection and adaptation of techniques to conditions prevailing in developing countries.

It is understandable that previous colonial powers considered it their duty to assist their former overseas territories for some time after the latter had become indpendent. But it is an almost revolutionary thought that industrialized states which never had any colonies, such as the Scandinavian countries (with the exception of Greenland as a colonial part of Denmark), should feel responsibility for developing countries, considering, moreover, that their general knowledge of the conditions and political trends in the recipient countries is mostly vague. It is not surprising, therefore, if it takes some time to create an atmosphere of understanding for development assistance and the philosophy of cooperative promotion of progress. It must

be noted that the concept Scandinavian coincides with the term Nordic, referring to Denmark, Finland, Iceland, Norway and Sweden.

The citizens of the rich countries sometimes read in their newspapers that developing countries come out with magnificent plans of investing their limited resources in nuclear plants, steel factories and new airlines, while the crucial problems of improved food production and nutrition receive little attention. In an industrialized society news of this kind is received with amazement and certainly does not contribute to a favorable attitude to development assistance. Particularly in countries which never have had colonies of their own, the enormous difficulties associated with the creation of a new state are hard to grasp. It must never be forgotten that the cultural background of these new states is entirely different from that of modern communities with a market economy system. Moreover, their educated class is small and the potentially capable political leaders are few in number.

There is also a tendency to disregard the fact that economic growth invariably implies changes. Defects and shortcomings are always a characteristic feature of a rapidly changing society striving for harmonious economic growth. In certain branches of trade and industry, development is slower than in others or even comes to a standstill. This is true in particular of agriculture with its low income level. Almost all industrialized countries subsidize domestic agriculture in various ways, and the

subsidies often exceed the amounts allocated to development assistance. The subsidization of agriculture frequently implies protectionism against developing countries producing the same commodities, for instance cotton and sugar. Importation is regarded as a menace to domestic production, and the idea of supporting rivals even indirectly is not willingly accepted. The same is true for industry. Shipbuilding and textile industries, as well as mining companies, fear the developing countries as potential rivals.

The odds against international development co-operation are increased by the presence of less-developed regions at home, which are considered to have a primary right to support.

Balance of foreign payment can also have a restraining effect. If there is a deficit in the account current, allocations for foreign aid are likely to be cut down in order to attain economic balance in domestic affairs.

As long as the world lives in a constant fear of war, expenditure on armaments will remain a heavy burden on the developed countries. Increased military costs are one of the main causes of the regrettable fact that aid allocations have lately shown a very slow increase. The theoretical and technical progress made in all fields, especially perhaps in communication, has increased the possibilities of direct confrontation and thus contributed to a more acute awareness of possible conflicts of an ideological, political or religious nature.

Even rich countries are slowly drained of their resources

by several obligations. State budgets show a tendency to grow much faster than gross national product. The miserly contributions of rich countries to development assistance are thus in part accounted for by internal economic problems. However, in spite of all these inhibiting influences, it is obvious that the Scandinavian countries in their official policies are beginning to pay increased attention to the problems of the developing countries.

The question as to whether aid should be extended bilaterally or channelled as multilateral programs through international organizations has been a matter of much debate. Donor countries generally tend to prefer bilateral development co-operation agreements, and bilateral aid is estimated to comprise 90% of the financial flow to the developing countries.

On theoretical grounds, multilateral programs ought to be given priority, in particular as regards the transfer of know-how. But with regard to the transfer of capital, it seems obvious that donors and lenders also will insist in the future on preserving the amount of control guaranteed by bilateral transactions.

However, bilateral aid does have some unsatisfactory aspects. In the first place, political conditions are contained in this form of assistance. When politics and co-operation are coupled, the recipient country will sooner or later be subjected to political pressure. In this connection mention should be made of the political skill displayed by numerous recipient

countries which have succeeded in staying outside the cold war while receiving aid from various sources.

A recent trend among donors is the formation of a kind of donors' association for certain recipient countries. Aid and co-operation activities are then planned so as to fit the economic strategy of the recipient. As an example, the Aid India Club may be cited, whose members include the World Bank, the German Federal Republic, Great Britain, the USA, Italy, France, Canada, Austria, the Netherlands, Belgium and Japan. The Scandinavian countries as a group can also be considered an association of the same type.

In tackling the problems of technical assistance, previous work experience in developing countries is a great asset. Unfortunately, those countries which have shown a special interest in this kind of aid, as for example the Scandinavian countries, almost entirely lack such an experience. The development co-operation personnel may thus be divided into two categories. The first group includes experts from the previous colonial powers, such as Great Britain, France, the Netherlands and Belgium. Both for advisory services and administrative purposes these can draw upon a fund of experience dating back to the colonial period. On the other hand, they often enter upon their tasks with preconceived ideas and doubts concerning the possibilities of the country where they are placed, while, by the same token, the local administrators are liable to distrust them. The second group of experts consists of novices in technical co-operation

activities - Americans, East Europeans and Scandinavians - who have a strong faith in the importance of international aid but lack experience.

The personal field work experiences of Gårdlund, the Swedish expert on developing countries, are interesting and informative. He considers teaching to be the job with the best chances of success. A teacher is familiar with his subject, he will work at an existing school, and he may perhaps even be in a position to use his native language. He is thus in a favorable position from the outset, irrespective of whether general school education or vocational training is involved. In the developing countries people are used to listening to missionaries and colonial civil servants, and they have, moreover, a traditional respect for learning.

Conditions are also favorable as a rule for members of the medical profession. A doctor will most certainly never lack patients.

Foreign experts may also be of great help in administration, for instance in dealing with some particular task, where experience gained elsewhere in the world can prove useful.

As regards the causes of failure, let us analyze the problem from the donor's point of view, says Gårdlund. Insufficient professional skill and personal inadequacy may of course be partly responsible. However, he states that he has met very few poorly qualified experts, and he concludes that those who fail because of personal shortcomings certainly are in the minority.

An expert may often fail in his work because he cannot get hold of the tools and equipment promised or due to him. Housing problems take up an incredible amount of time, and customs formalities and the transport of equipment can bring him to despair. It is quite usual that the local administration conceals relevant plans and projects from the colonial era, because they are unwilling to admit that certain questions were already tackled at that time. On the other hand, examples could also be given of donors not bothering to pay attention to previous efforts in the same field.

Gårdlund emphasizes the importance of organizing the relations between individual experts and their headquarters in such a way that the former are able to do their work without undue interference and without deliberate delay of information and unnecessary obligations of reporting. In an underdeveloped country where almost everything is floating, it often proves necessary to deviate from the original plan, which may even have been for the most part a product of imagination. People at headquarters need not know all that the individual experts knows; it suffices that they know enough to help if need arises. The best way of controlling development assistance activities in a developing country is to send a mission from headquarters every now and then to find out what really is happening or has happened. The mission need not be so well informed that the members can ask questions about everything, but they should possess a sufficient amount of administrative skill to put things right

if something has gone wrong.

One cause of failure of a particular project may be that the project was never wanted, but for some reason or other the donor country forced it on the recipient.

Everyone who has been working in the jungle of development assistance bureaucracy knows that he must follow up his correspondence, watching the course of his letters from one office or department to another, until his initiatives lead to results. He also knows, says Gårdlund, the nightmare-like conditions of struggling with customs and other officials in order to secure the import of the equipment and machinery required for his project. And he must never give up waiting to be received by important decision-makers who by all means try to avoid seeing the expert. On the other hand, he must himself avoid people who are likely to cause additional difficulties. The third world is full of administrative labyrinths.

A Norwegian colleague of mine, Professor Oddvar Aresvik, worked in Pakistan for several years. When I met him a couple of years ago he mentioned that it had proved necessary for him to turn directly to Ayub Khan, the President at that time, in order to implement his plans, thus ignoring cabinet ministers and other officials. This is not, of course, an example of correct behavior, but I do not doubt its efficiency. The Ministry concerned continued to disregard Professor Aresvik, but once he had gained the confidence of the President of Pakistan and started utilizing his direct channels without hesitation, his

plans and initiatives were successfully accomplished.

No foreign expert can fail to notice the dislike of practical work which is traditional in the Third World among both the citizens in general and the new leaders. Agronomists with training acquired in the West tend to prefer research work and administration to practical field work. Veterinarians are more likely to stay in their offices than to go out to cure sick animals. Project planning on maps seems to be more interesting to the forestry man than making himself acquainted on the spot with what happens in the woods.

Experts ought not to be scattered over wide areas. When living and working far from each other they lack the chance of exchanging opinions, thoughts and experiences with colleagues. In the absence of contact with brothers and sisters inspired by the same ideas, the intitial enthusiasm is prone to fade. Therefore, experts should be sent out in groups.

To place an expert all by himself in a developing country seems reasonable only in the case of individuals with such outstanding professional and personal qualifications that they can be expected to cope with unexpected situations entirely on their own. Since personal resources are in general restricted in the Scandinavian and other small countries, these countries are wise in concentrating their development co-operation in a few recipient countries. Activities can then be planned on a scale sufficient to justify a local aid administration unit on a high level.

Looking at things from another viewpoint it is notable that an expert returning home full of enthusiasm and enriched by his experiences often is chilled by the welcome he receives. It tends to silence him and usher him quickly back to his previous routine duties. His valuable experiences are seldom utilized in the training of new experts. Moreover, until quite recently, Scandinavian experts working in developing countries have not been allowed to count this period of years in office, and their re-engagement in business and administration at home is often a problem. But a change for the better is on the way.

It should be borne in mind that in the West administration rests on an enormous number of civil servants, while in the developing countries a small, highly qualified group has to do the job without any capable assistants. Under such circumstances, improvisation is the only alternative left. There is also an important psychological aspect that must not be overlooked. When the former colonies acquired independence, the struggle for freedom was controlled by passionate political leaders. But the evolution of an independent state demands men and women of judgment, who possess not only administrative experience and skill but also technical and economic know-how.

The pioneers of a new nation are for many reasons oppressed by a burden of uncertainty and doubt. The presence of foreign experts continuously reminds them of their own lack of capacity. Moreover, it implies an increased pressure from the mass of people, because the need for foreign assistance is taken as proof of

the inferiority of the domestic leaders, who are therefore regarded with less esteem. Although the pioneers recognize the importance of the foreign aid, they look forward to the day when the last foreign expert leaves the country for good. The more an expert becomes involved in the turmoil of politics in a developing country, the greater his difficulties in accomplishing his task.

Gårdlund has formulated three general conditions for the success of development co-operation projects. First, it is necessary that the situation of the field workers is improved. Considering the unsatisfactory circumstances under which they are working, they are in particular need of material support from headquarters. Second, the administration of a project must not be entrusted to headquarters officials thousands of miles away. Just as business enterprises established abroad, a development project needs an experienced, authoritative and ambitious local director. The third condition of success is that the recipient country makes a real effort to promote the implementation of the project.

So far, I have tried to analyze some general aspects of the technological evolution of developing countries and the development assistance that European countries, amongst them the Scandinavian countries, offer the Third World. I shall now give a brief account of the development aid extended by the four Scandinavian countries and the projects they have planned and implemented together. With only 200,000 inhabitants, Iceland is too

small a country to play any noteworthy role as a donor.

The undertaking of joint activities parallel to other engagements in development assistance co-operation seems to be a unique phenomenon. I am not going to report on the respective shares of the Scandinavian countries in development assistance of the various forms in which aid is given but shall concentrate on the joint Scandinavian projects and discuss the problems that have arisen in connection with them.

Since 1953, the so-called Nordic Council has functioned as a body for interparliamentary and intergovernmental co-operation between the five Nordic countries - Denmark, Finland, Iceland, Norway and Sweden.

Initially, the Nordic contributions to international development assistance were almost exclusively channelled through the United Nations and their specialized organizations. Nordic co-operation at that time was confined to consultations concerning particular issues. Bilateral and joint Nordic activities were started later, when projects were planned on a scale demanding greater resources than any Nordic country alone had at its disposal.

As already mentioned, the Scandinavian nations, unlike the previous colonial powers, are not compromised in relation to the Third World, but on the other hand, they lack the experience accumulated in the former mother countries. In general, the problems connected with international development co-operation are therefore new to them.

I wish to emphasize that the Scandinavian countries do not attempt to exercise any political pressure; they restrict themselves to technical assistance, which may not always be the case with the big power nations.

At present, the joint Nordic development co-operation programs are administered according to an agreement of 1968 between the governments of Denmark, Finland, Norway and Sweden.

The distribution of costs for the joint Nordic projects is proportional to United Nations membership fees. Since 1971, Sweden has paid 45%, Denmark 23%, and Finland and Norway 16% each.

Personnel is recruited from all the Scandinavian countries, while the administration of a particular project always rests with one country. The principle of Nordic development co-operation has thus been that all input is co-ordinated while the management of a project is delegated to <u>one</u> country. Decision-making and practical implementation would otherwise turn out to be too complicated.

It was no easy task in the initial stage to select recipient countries and devise appropriate projects. It was decided fairly quickly that the recipient country must be English-speaking, since knowledge in French and Spanish is not common in the Scandinavian countries. The second criterion agreed upon was a stable and democratic constitution and absence of radical discrimination, which could jeopardize the implementation of the assistance projects. It was also considered essential that the

general level of development be low in the recipient country, and that its government welcome the project and give it high priority.

As to the kind of project, it was considered important to create something that could serve as a pattern for the future development of the recipient country and for other similar enterprises.

Guided by these principles, the Nordic countries decided to concentrate their joint development assistance activities in Eastern Africa.

So far, four joint Nordic projects have been started, namely, the Nordic Tanzania Project Kibaha, a co-operatives project in Kenya, an agricultural project at Mbeya, Tanzania, and a co-operative project in Tanzania.

In 1962, the government of Tanganyika, now Tanzania, and the governments of Denmark, Finland, Norway and Sweden entered into an agreement on the establishment of a Nordic-Tanzanian education center. This was to comprise a health center, a secondary school, a farmers' training center and a rural development program. It was decided from the outset that, when fully developed, the center should be handed over to the Tanzanian government. It is at present run by them under the name of Kibaha Education Center.

The administration of the Kibaha project rested with Sweden. When Tanzania had taken over the administration and the financial responsibilities, the obligations of the donor countries

ceased, except for a contribution of personnel and investment assistance on a limited scale. Nordic experts are therefore still working at the school.

With regard to education and standards of living, the population in a developing country may be thought of as a flat pyramid with a short peak on a very extensive base. There is a small group of intelligent, well-educated and highly qualified people at the top, but among the masses only about one fourth are literate.

In the joint Nordic programs particular emphasis has been laid on the education of young women. It is a well-known fact that the educational level of women is much lower than that of the men in the developing countries.

In 1970, the four Scandinavian countries entered into an agreement with Tanzania on another joint project, the establishment of a major agricultural undertaking at Mbeya. A Nordic expert group drew up plans and cost calculations. The undertaking includes an administrative unit, a research center and a farmer's training center. The idea is to have it all accomplished by 1975, when the center will be taken over by the Tanzanian authorities. July 1, 1973, is the day appointed for the opening ceremony. Fifteen agricultural research workers will be engaged in studies on livestock, poultry and food crops.

At the farmers' training center 50% of the students are expected to be women. Tanzania defrays part of the running costs and investments, while the bulk of the financial responsibili-

ties rests with the donor countries, who also extend technical aid and personnel assistance. A scholarship program aimed at the training of domestic personnel for the future administration of the center forms part of the scheme. This joint Nordic project is administered by the Finnish development assistance authorities.

In Kenya, the Scandinavian countries are contributing to an evolution in the field of marketing co-operatives. As is widely known, producers' co-operatives play a very important role in the Nordic countries. The same is true of the consumer co-operative movement. A joint effort in this field therefore seemed an appropriate assistance project. An agreement was signed in 1969 between Kenya and the four Scandinavian countries on the establishment of a co-operative center. Individually, Kenyan farmers have little chance of improving their economic situation, but with common marketing of their products a better future ought to be within reach. The training of appointed representatives and personnel of the producers' co-operative societies, offered at both a central school and regional training centers, seems to have been successful.

The Kenyan government was at first unfavorably disposed towards these activities, probably because those in possession of political power had an idea that the co-operative movement could be used against them. These fears have been overcome, however, and today the attitude of the Kenyan authorities toward the co-operative project if favorable. The administration of the pro-

ject rests with Denmark. The original plan was drawn up for five years, but a five year extension has been signed.

Producers' co-operatives offer the smallholders and farmers a chance of enjoying the advantages of large-scale production with regard to financing, credit, transport facilities and marketing. Co-operation represents an economic arrangement aimed at promoting individual freedom and independence. The co-operative movement, moreover, offers its members training in various activities, and this may benefit the general economic and social development in Kenya.

As was to be expected, the establishment of a co-operative movement in Kenya met with considerable difficulties. It was no easy task to implant co-operative ideas among the farmers, most of whom are illiterate and strongly tied by tradition. The democratic co-operative form of management has, moreover, been misused. It has not been unusual for relatives and friends to be favored in the allocation of credits.

Besides the joint assistance projects, the various Scandinavian countries have started separate undertakings, particularly in Eastern Africa. But to me it does not seem altogether sensible that Norwegians work separately in Uganda, Swedes in Kenya, and that Sweden and Finland have separate schemes of their own in Tanzania, in addition to the joint activities already mentioned.

In 1962, the Nordic countries established an Africa Institute, affiliated to the University of Uppsala, Sweden. The pur-

pose is to study African conditions, to offer information and advice concerning international assistance co-operation in Africa, and to arrange courses, seminars and lectures for the training of personnel. The Institute also functions as a documentation center for research and extension on Africa.

Apart from these joint Nordic projects, carried out by all the four Scandinavian countries together, there are a number of so-called partly joint undertakings supported by only two or three of the four countries. Mention may be made of a school for journalists at Nairobi, Kenya, secondary schools in Tanzania, and a co-operative center in Tanzania, all of which are already established. There is also a draft agreement between the governments of Tanzania, Denmark, Finland and Norway on the establishment of an institute for the training of managers.

An objective evaluation of the joint Scandinavian contributions to international development assistance and consultants' services would, of course, be of interest. Internationally, the Scandinavian countries are small and are very much alike with regard to internal structure. A joining of forces therefore seems sensible. But of course it is not always possible to avoid clashes due to differences in national character and national interests, and a certain amount of national competition has occurred.

It should also be mentioned in this connection that the whole strategy for development assistance has met with criticism. Among other things, some Danish sociologists contend that devel-

opment assistance is a direct continuation of the colonial tradition and that international development co-operation is a product of pure capitalist thinking. Even if not explicitly stated, some kind of compensation is expected. According to them, development assistance in any event results in that amount of political and economic influence that is always linked to capital and technical know-how.

The early handing-over of the Kibaha project to the Tanzanian authorities has also been criticized, and it has been pointed out that the lack of sufficiently trained Tanzanian people has caused problems. Scandinavian aid experts are today willing to admit that it would have been wiser to wait until the managerial question had been solved to satisfaction. Moreover, the activities at the center have to some extent been cut back, because Tanzania lacks financial resources for running it. On the other hand, it is emphasized that the Tanzanian government accelerated the handing-over for reasons of prestige.

Scandinavian experts, just as experts in general who start working in a developing country, must not only be skilled engineers, agronomists or co-operative officers, they must also be excellent diplomats with an acute sense for playing the game, and they must be humble in approaching their tasks. They must also be prepared to cope with personal problems. Two aspects of these deserve mention. First, it is striking that the aid personnel rarely have private contacts with their African co-workers and neighbors. It is possible that the cause is African re-

serve more than European isolationism. Whatever the reason, however, the result is that the aid personnel live in white population enclaves in Africa, which superficially resemble neo-colonies. Second, service in developing countries is not always counted as a merit in the Nordic countries. Two or five years in Africa are not considered as a source of increased professional experience. On the contrary, these people are looked upon more as pupils who have failed to make a career.

The Tanzanian authorities have expressed their great appreciation for the Kibaha project. In January 1970, when the project was handed over to Tanzania, President Julius Nyerere said in his speech that this kind of project is a challenge, that similar undertakings in other sectors are needed, and that Tanzania would welcome many more Kibahas.

John Malecela, a Minister of the Tanzanian government, also expressed a very favorable opinion on the Nordic contribution. "I really think," he said, "that the relations between our countries could not be better, and we highly appreciate the technical co-operation carried out in so many sectors. If other nations would follow the example set by the Nordic countries, the world would look different." Malecela probably wanted to stress the fact that the Nordic countries do not attempt to gain political influence and strictly refrain from expressing any political opinions in the recipient countries.

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POLICY MEASURES TO LEVEL ECONOMIC AND SOCIAL REGIONAL DIFFERENCES IN THE SCANDINAVIAN COUNTRIES

A recently published OECD report presented on behalf of an OECD committee on "Policies for Regional Development" states that in recent years there has been a growing awareness among West European countries that a regional development policy has become indispensable for supporting a general policy of technological, economic and social development. The rise and decline of particular territorial areas of national economies is not a new historical phenomenon, but the concept of the region as a means of furthering economic growth and ensuring the sharing of the fruits of technological and social progress among the people living in all parts of a country is becoming increasingly relevant in modern society. Attention to problems on a regional scale provides a means of counteracting centripetal forces inherent in economic and technological development which tend to widen the existing disparities between one part of a country and another, between cities and rural areas, and within cities themselves, creating tensions and distress in the midst of plenty.

The over-riding characteristic of three of the Scandinavian countries - Sweden, Norway and Finland, is the vastness of the area, the wide differences in climatic conditions and vegetation and the low density of population. These conditions give rise to particular problems, among others, with regard to communications, agricultural production and the development of manu-

facturing industries. A small number of core areas can be distinguished where the rate of economic growth is very rapid. In terms of population density, industrial diversification and degree of urbanization, these areas present similar problems to those encountered in other European countries in the control of urban growth and development. But, outside the core areas, the economy in great tracts of the Nordic countries is generally dominated by scattered, mainly primary industries undergoing radical transformation or decline. This development involves an influx of population to the industry and services of the core areas and from rural to urban areas in general. By and large, the main problem regions in Finland, Norway and Sweden are to be found in the north. They are remote from the core areas and have a hard climate and a one-sided industrial structure involving a constant risk of unemployment or underemployment. Denmark is an exception from this pattern which, however, faces special problems because of the large number of islands of which it is composed.

Against this general background, differences in degree and structure of economic and social development give rise to important qualitative and quantitative differences in present and anticipated regional problems. Sweden, which has one of the world's highest levels of per capita income, is faced, in addition to the problems already mentioned, with a number of problems associated with affluence: the difficulty of providing people remaining in depopulated areas with a standard of ser-

vices equivalent to that available in other parts of the country; the highly developed and expanding motorization of the population; the increase in the amount of built-up area per capita; an unplanned use of land resources. Norway's regional development problems largely stem from a dispersed type of settlement and geographic and topographic conditions causing an imbalance between employment and production. The agriculture, forestry and fishing sector accounted in 1969 for 15% of total employment but for only 6.5% of the GDP (Gross Domestic Product at factor cost).

These factors explain the extensive internal migration, especially since the last war, leading to more concentrated settlement.

Two distinct features are particular to Denmark's regional problems: the dominance of Copenhagen, where 35% of the whole population lives, and the far reaching effects on the growth pattern of the population and of economic activity arising from structural changes in agriculture.

The principal problem of Finland's development regions is that their productive activity lacks efficiency which manifests itself in the fact that primary production is dominant. In 1970, the primary sectors (agriculture, forestry and fishing) accounted for 14% of the GDP but for 20% of total employment. In agriculture proper the respective figures in 1970 were 7% and 17%. In addition, it is characteristic of these regions that traditional industries grow slowly and labor is being re-

leased from agriculture. This results in unemployment and emigration from development regions. Additional problems are caused by the high birth rate in the North, the low income level and the substantial dispersion between different income groups.

Each country in Scandinavia undertakes its regional development policy on a strictly national basis, although co-operation is taking place on a number of joint projects under the auspices of the Nordic Council. The role of regional policy in general economic and social policies naturally varies from one country to another, but the basics of regional development policy are similar: to promote a distribution of economic resources that is conducive to full employment and growth and which enables people living in different parts of the country to share in the general progress of the nation.

Owing to the fact that Denmark is very small in area compared to the three other Scandinavian countries, the Danish regional problems will be only very briefly dealt with here.

Norway

Norway is, with the exception of Iceland, the most sparsely settled country in Europe, with a population density of only 31 persons per square mile. In the three northernmost Norwegian provinces the density is as low as 11 persons per square mile. One may mention in comparison that the corresponding figures for the USA are 57 persons per square mile and for Iowa 51 persons per square mile.

Norway also has the longest history of regional development policy in Scandinavia but has, perhaps, the most complex problems of all the Scandinavian countries.

Regional dissimilarities are naturally emphasized by a country's special geographical conditions, which one may assume greatly influence the problems created by structural changes in society. For example, a decrease in the primary production occupations raises special problems in a country having large, sparsely populated areas with a broken-up topography and difficult conditions of transport and communication.

Norwegian measures taken to counteract the dissimilarities in the conditions of life can be traced back to, among others, the agricultural and fishing policies of the 1930's. In the postwar period there has been a growing interest in measures to stimulate development in the less advanced regions of Norway. The influence of society on regional development is not, however, limited to measures that have been formulated with a specific regional effect in mind. The regional pattern is also influenced considerably by various programs and activities of the authorities, as expressed, for instance, in the government budget, actions of the State banks, and social security insurances.

By Act of the Norwegian Parliament in 1965 all communes will have to work out an integrated advisory plan for land use within the commune as well as plans for main infrastructure investments. Communes forming a geographical and economic unit are required to co-operate together. In each of the 18 provinces

a planning section has been set up to deal with problems in the province and to co-ordinate and guide physical planning within and between communes. Although there are so far no arrangements for overall physical planning at the national level, four Planning Commissions have been set up to present integrated advisory plans for eight provinces.

The real purpose of a regional policy is to reduce and prevent regional differences in living conditions by implementing and supervising major policy objectives relating, for example, to full employment, distribution of income and welfare, and the feeling of social security. Proceeding from such a definition, it would be correct to say that regional policy aspects have in reality influenced markedly the general economic and social policies in Norway in the postwar years. This influence, which has been exerted by way of, among other, the agricultural, fishing and industrial policies and of the development of transport and communications, education, health care, and social security insurances, has, however, been co-ordinated to only a minor extent with a view to regional policy effects. And it may be assumed that a far more extensive influence has been exercised by countrywide measures of this kind in specifically the agricultural sector than by the special regionally differentiated measures, that is, the district development policy measures which one usually has in mind in this connection.

As already mentioned, Norway introduced regionally differentiated measures at a relatively early date. Regional planning

by provinces, inspired among others by ideas obtained from the Tennessee Valley project in the United States in the 1930's, was begun in north Norway in 1948. The development program for north Norway of 1952, which clearly prognosticated the use of regionally differentiated development measures, had the object of stimulating industrialization and economic development in this part of the country. An important measure has been the founding of a development fund for north Norway which gives financing loans and loan guarantees, primarily to industry, and which operates also in other ways for the stimulation of economic activity in north Norway. The program also includes special stipulations for tax exemption for funds reserved for investment purposes and special grants over and above the government budget for power plant constructions, trade schools, improvement of transport and communication conditions, and special development measures in the fishing and farming sectors.

In 1956, a separate guarantee institution was also established for sparsely settled districts in southern Norway.

The stipulations for tax exemption on funds reserved for investment purposes were made more extensive in 1969, so that in the case of investments in north Norway, 45% of the amount reserved is now free of tax.

Furthermore, use has been made of investment subsidies, a measure that has been common in Western European countries but which has so far been viewed with some hesitation in Norway, among other reasons because of the tendency of such measures to

distort competition.

The subject of restrictive measures, for example in the form of control of the establishment of industrial plants in order to repress expansion in the largest urban areas, has been under discussion in the past few years. A statute now requires compulsory notification of handwork and industrial activities in the five largest urban areas (Oslo, Bergen, Trondheim, Stavanger, and Kristiansand). These areas contain 30% of the country's population and 45% of Norway's industrial employment. Upon expansion or establishment in these urban areas, all businesses or enterprises with more than 15 employees and with industrial premises of a minimum of 300 square meters are obligated to report to a contact organization acting between the authorities and the industries. This contact body gives information and advice concerning alternative locations outside the core areas mentioned and concerning government development aids that the plants to be established may use to their benefit.

Recently, transport subsidies have been introduced for outgoing transports of specified industrial products from certain geographical areas. As a rule, the distance is to be 400 kilometers (250 miles), and the support is paid according to a graduated scale, the maximum support amounting to 35% of the costs.

I already stated that the regional problems in Norway are strongly characterized by the country's special geographical features. There is much to indicate that structural change and urbanization may give rise to an increasing number of heavy

problems in future years. And Norway's regional policy probably has not as yet found its final form.

A positive feature in the picture is the strong political support given to the regional policy. This is something that gives the necessary political foundation for the creation of forces to counteract development towards concentration and centralization, which is a universal feature in the transformation that characterizes society today. The task is to devise means whereby the scarce resources can be administered in such a way that socially acceptable objectives can best be obtained.

Sweden

Sweden, to a greater extent than other Scandinavian countries, and in some respects in contrast to them, has followed a policy of promoting the transfer of labor from the sparsely populated areas of the country to the expanding areas. This is partly because it has been widely accepted by government, industry and labor that it is necessary not only to facilitate, but also to promote, structural changes in order to maintain full employment and a rising standard of living, and partly because Swedish experience has been that only a relatively small number of places are going to be attractive to industry and people. Great importance is attached to social welfare and measures have been taken to alleviate the situation of residual populations in the sparsely populated areas, mainly older people loath to leave their life-long environment. Extensive use has been made of relief

works to provide job opportunities for people living in these areas.

In Sweden the background for localization measures also includes the fact that the State, and particularly the political party in power, viz. the Social-Democratic Party, have desired in principle, at least earlier, to favor the heavy concentration of economic activity that has resulted from the prevailing economic system of purely individual firm business economy.

Only in recent years has the governing political party, because of the growing trend of opinion, taken a more positive attitude than earlier towards measures to maintain population in sparsely populated rural areas. During the decade of the 1960's, in particular, very extensive economic programs were formulated for various types of localization measures.

Regional planning has until now mostly taken place on a sectoral basis (e.g. roads, housing, etc.) in line with long-term economic planning, while co-ordination between the sectors has to some extent been lagging behind. Such co-ordination has primarily been effected through the physical planning of the communes or groups of communes. The ability of the communes to fulfill this task has been strengthened by the new division of the province into blocks of communes, which was completed in 1964. It was further decided that co-ordination between the communes and between the different planning sectors of the state authorities as a basic element of regional policy should mainly be carried out in co-operation between communal and state authorities

under the supervision of the provincial governor's office. This work resulted in 1967 in a provisional form of province planning. Of particular interest in the work being carried out at the provincial level is the attempt to give a more quantitative and specific content to planning in the form of "frames" for the future population to be planned for in various areas, indicating the need for dwellings, schools, roads, etc., and calculations for employment in the various sectors of the economy according to assumptions made under different alternatives. In response to the increasing conflicts between industry, recreational interest and the preservation of nature, work has been started on national land utilization planning.

Differences in the density of population place their stamp upon the measures that may be needed with respect to localization. In Sweden it is not possible to retain even all the large villages and densely populated places situated within sparsely populated areas, especially in northern Sweden. It is not the objective of Sweden's localization policy that habitation should remain in all the rural communities.

Although the land area in Sweden is large in relation to the population - there are 47 people per square mile - industry has been fairly well distributed over the land areas a far as concerns central and south Sweden. This is not the case, however, in northern Sweden. Measures undertaken by the State and municipalities in Sweden to localize industry into critical areas are not only the result of a structural change in agricul-

ture and forestry and of migration from these occupations. Such measures have been made necessary also because of discontinuation of local industrial operations.

The government measures to stimulate industrial development in underdeveloped regions of the country may be divided into the following four groups:

1. Direct government support to industrial plants for localization of industry;
2. The right of industrial plants to utilize for special purposes so-called tax-free investment;
3. Contributions from public funds to certain joint State and community projects;
4. Establishment of State-owned industries.

Direct government support for industrial localization may be granted in the form of:

1. localization support (support paid to the plant itself or for establishment of an industrial plant);
2. training support for the training of labor power;
3. full-employment support (for a limited period);
4. support to workers for removal to another locality;
5. support for transport, research and technical development.

One of the main rules for government support to the less developed regions is that the support must promote the localization of economic activity which is suitable from the point of community welfare as well as from other aspects.

Localization support is obtainable only for activity which is considered to bring permanent employment for the labor force and to attain satisfactory profitability, and which is carried out in a locality where the circumstances for such activity are favorable. The desire thus is to create so-called growth centers.

Localization support can be paid for investments in buildings, machinery, work implements and tools, and for removal of a plant to another locality.

Localization support may consist of the following support measures:

1. Cash contribution by the government;
2. Write-off loan (loan without obligation of repayment);
3. Loan with repayment obligation;
4. Government guarantee for a private loan;
5. Compensation for moving of machinery, tools and work implements.

Training support obtainable from public funds is intended to cover the costs that an established plant incurs for the special training of labor.

Full-employment support can be obtained for the promotion of full employment by anyone who carries on industrial activity and gives to the employees the wages and benefits stipulated by the current collective bargaining agreement. Full-employment support will be paid for a maximum of three years for each addition to the number of annual workers. During the first and

second years the support amount to $1,000.00 per newly employed annual worker and in the third year $500.00 per new annual worker. This means that a part of the wage costs of the enterprise will be covered from public funds at the beginning of operations.

Support for change of domicile can be granted to labor power that moves into an area within which a supported industrial plant is located. This support can be obtained by a worker with the qualified occupational training and a permanent job in his line of occupation in a newly established or expanded industrial plant within the general subsidized area. The support applies to specialized workers only. It therefore can be granted only if workers with the required training are not available in the locality.

If, within the framework of the localization measures by the State, an industrial plant is moved from one locality to another, compensation will be paid for the costs of disassembly, transport and re-assembly. Additionally, there are available special contributions for research work and technical development.

Also there are some measures to support agriculture in weak areas and to help the farmer's transition to other occupations.

The measures on the part of the State that have a direct bearing upon the agricultural sector in the weaker areas may be divided into the following categories:

1. measures to support agriculture in areas of unfavorable natural conditions;

2. measures to help farmers to change to other occupations.

Since 1941 an extra supplement to milk producers has been paid in northern Sweden. It is the object of this contribution to compensate the producers in northern Sweden for the poorer conditions for production because of climate and soil, among other causes. Price supplements for beef, mutton and pork have also been introduced.

The granting of special support measures to agriculture in northern Sweden is an effort to avoid such a reduction of the agricultural sector in these extensive areas of the country that without such support might have serious consequences, for example from the aspect of national defense. It also seems obvious that economic aid to agriculture in these areas has the effect, in this case, of also supporting the measures undertaken for industrial localization.

For a number of years a special support has been paid for the rationalization of farming in northern Sweden. The object is to enable, by means of generous government support, the formation of large family farms with, usually, about 40 to 75 dairy cows. In many cases these farm units also have considerable areas of forest land.

Also, the smaller farms in north Sweden are now the object of special government assistance for rationalization.

A requirement is that the farm holding become a satisfac-

tory basis for the livelihood of the present farm owner and his family.

In 1966, the Swedish parliament passed regulations intended to give to those occupied in agriculture the same support to facilitate moving to other occupations as is granted to other social groups. Such possibilities had not previously been available to the farming population. Farmers who wish to transfer to another occupation can now receive a subsidy for change of occupation in the same manner as industrial labor receives the similar contribution upon moving to another locality.

It can therefore be said that the types of support that have been instituted for the purpose of stimulating small farmers to move over to other occupations signify that farmers now have the opportunity to obtain the same government subsidies for movement-stimulating purposes as are valid for other Swedish citizens. The decision will be made by the individuals themselves, and they will have an opportunity to choose the alternatives that can be considered to provide in the long run the best solution for them and their families.

Finland

Low productivity is a major problem in the Finnish development regions. This is a result of the dominant role of primary production on the one hand and slow structural change on the other. As the rate of growth is slow, the release of labor from agriculture results in unemployment and migration of the popula-

tion to other areas. These problems are further reflected in a low income level and vastly unequal income distribution.

The intensified mechanization of agriculture and forestry and the progress made in the methods of farm cultivation and lumber felling have resulted in the transfer of labor power from these sectors of the economy to other sectors. The great expansion of the industrial and service sectors and their concentration in the southern and southwestern regions of Finland have caused a powerful migration of population to these regions. An adverse consequence in certain centers and their environments has been the evolution of the problems typical of congested areas.

In comparison with most industrialized countries, regional development policy is a relatively recent innovation in Finland. While there have been various government measures affecting some development regions dating back over several decades, a collection of un-co-ordinated measures does not constitute a deliberate regional development policy.

The Regional Development Board was founded in 1966 for continued research and the planning of regional development policy.

In speaking of the goal-setting of regional development policies we quite often use the terms regional policy effectivity and regional policy equality. The "effectivity" goal we can interpret to mean the effective taking into use of wholly unutilized or only unprofitably utilized production resources in the various regions. The "equality" goal, again, designates

a leveling off of the differences existing between different regions in regard to income level and availability of services, or prevention of an augmentation of these differences.

The primary problems in development regions are, on the one hand, an occupational structure characterized by a slow tempo of change and a relatively large proportion of basic production and, on the other hand, a reduction in population owing to migration. Particularly in the case of small, remote and sparsely settled communities, the maintenance of an adequate level of services and the supplying of social services has been rendered difficult by the diminishing population and the decline in public income from taxation. Since a considerable proportion of the work in these regions is related to agriculture and forestry, and therefore is seasonal in nature, and because of the narrow economic and occupational structure, the effects of unemployment have had more serious consequences in development areas than is usually the case. Additionally, there is the so-called latent unemployment. All this leads to a lower level of income in the development regions.

Considerable attention has been paid in recent years to efforts to remedy these drawbacks. With a view to changing the occupational structure and promoting economic activity in development areas, a number of new laws were passed in Finland toward the end of the 1960's and around 1970, the object of which was to create new permanent working possibilities. The economic policy measures include, among others, a subsidy for interest

payments on loans taken for financing of investments necessary for the introduction, expansion or development of enterprises in development areas. The interest on such a loan is paid from public funds direct to the loan granter, i.e. to the credit institution. In the case of bond and debenture loans and of foreign loans, the interest subsidy is paid to the debtor, i.e. the enterprise which has received the loan. In addition to these support measures an industrial enterprise in a development area is eligible for tax reductions. It also can obtain from the State Guarantee Institution a guarantee as security for its loan. To promote enterprising economic activity, communities in development areas can obtain from public funds an interst subsidy on loans taken by the community for the housing of private, industrial and handwork enterprises.

It may also be mentioned that the Finnish Parliament has recently passed a law enabling special transportation subsidies. This subsidy, and the just mentioned forms of support that are already in effect, are a more effective contribution to capital-intensive industries. There also is under study the possibility of developing some type of support that would, better than is the case at present, help to increase the number of employment opportunities in developing areas.

The year 1971 was a highly important one for economic life in development areas. In that year the Development Area Fund, Inc. was established by law.

The law as now in effect provides possibilities for the

Development Area Fund to carry on activities such as:

1. granting of loans;
2. investment in company shares;
3. promotion of the marketing of products;
4. promotion of product development;
5. investigations concerning enterprise activities and their possibilities in undeveloped areas;
6. improvement of consultative assistance on questions relating to business management and technical matters;
7. facilitating an increased supply of trained labor power;
8. inititatives for establishment or expansion of enterprises in development areas.

The operations of the Fund can be expected to promote a more diversified economy, increased employment for the labor force, increase in production, and other goals that are important for development regions. The Fund operates primarily among small, medium-sized and other labor-intensive enterprises that offer possibilities of development. It directs its measures particularly to enterprises which are active in export trade or which produce goods that can be a substitute for imported commodities. The Fund will also assist in raising plant capacities and in improving operational possibilities in other respects.

The development area policy measures that were applied in the 1960's did not lead to a sufficiently large expansion of production nor to a more diversified structure of production

in the areas concerned.

One goal should therefore be the drafting of an allover regional policy program for the whole country, which should include, among other pertinent matters, the goals of the regional production policy and of the regional economic policy.

The labor force available in development regions is for the greater part not readily adaptable to industrial work. Middle-aged and even younger men, the former small farmers of development areas and their sons, often lack the ability to adhere to time schedules and conform to other rules and instructions effective in industrial work. The older man who is used to working alone or with his son does not easily learn to be a member of an industrial work group. It has been said that from the economic point of view it would not be worth-while to take on as new employees any men over 20 years of age, because three years are needed for the re-training of even younger men and a further two years for their adjustment in other respects.

Instead of directing capital to development areas in an unsystematic manner, development area policies should devote their major attention to young people. Their training in the occupations of the developing society should be begun early. Prior to this it is necessary to train a part of the teachers who are to give this training.

In conclusion it can be noted that industrial growth has been relatively more rapid in the less-developed central and northern areas than in south Finland. In the 1960's the value

of industrial processing carried out in the development areas increased by 50%, but in south Finland by only a third. Although the increase in industrial production was slower in south Finland, the greater part of the increase in the industrial labor force in the 1960's expressed in absolute figures was to the benefit of south Finland. In consideration of the low starting level in the developing regions, one cannot rest satisfied with the more rapid relative increase, and it will continue to be necessary to speed up industrialization in developing regions and thereby to accelerate the leveling off of regional differences.

Summary

Summing up, I should say that there is considerable evidence that the Scandinavian governments now accept that national economic policies must have regard, not only for the economy of the country seen as a whole but also for the disparities between regions, whether in resources, potential or in needs, and that the maintenance of a satisfactory balance between the state of development and growth prospects of different regions is an inescapable objective of national economic policy. The methods adopted vary considerably in scope and effectiveness and in some cases they are at an early stage. However, the gap between the less-favored areas and the rest of the country, especially in living standards and prospects of growth, remains very large. Productivity in the less-favored areas is much lower than else-

where because of unsatisfactory economic structures; too many people are engaged in uneconomic agricultural and artisan activities and in declining industries. This means that special area policies on a regional basis will continue to be needed and, in many cases, intensified in the coming years.

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THE EUROPEAN FAMILY FARMS IN A TECHNOLOGICALLY CHANGING WORLD

The term "family farm" has many definitions. Here it will be understood to be a privately owned operational unit on which agriculture, sometimes combined with forestry, is being carried on for the purpose of income, mainly with the labor force of the farmer's family, and over which the farm entrepreneur himself has the responsibility and the right of decision, often, as is the case of Europe, in concert with his wife.

In a patriarchal peasant farming community the farmer, as a capitalist, invests the labor of his family with his capital, viz. he places it where he obtains the greatest marginal revenue in relation to marginal labor input. Chayanov, who has carried out extremely significant investigations on the peasant farming prevailing in Russia prior to the Great Revolution shows that capital in the Russian and European peasant economy had a different significance than in a pure capitalist economy. He pointed out that the scope of the farm business depended upon the size of the family and upon the balance which exists between the supplying of necessities and the effort thereby involved, and not upon the access to capital. In peasant family farming one aims at increasing the gross revenue with unchanged access to capital through increased input of labor, despite the fact that this leads to a decreasing labor income per hour and reduced recorded net profit.

On family farms with abundant labor there is a preference for investing more hours at a low remuneration per hour than few hours with a high remuneration per hour for the purpose of obtaining a high gross revenue - in other words, typical gross thinking.

One can, of course, debate the validity of Chayanov's theses, stated fifty years ago, for the modern system of family farming in certain West European countries. On account of the continuous depopulation of agriculture, the mechanization of farming when the productive agent labor is exchanged for capital, and the growing tendency towards a weakening of family ties, the significance of the farm family as a unit of labor has undeniably been weakened. The predominating majority of farms in Europe, not to mention Asia, however, still retain their character of family farms. Hence these cannot be regarded as purely capitalist farm businesses, but are in some respects still stamped with features quoted in this connection.

Considered from an entrepreneurial point of view, it is justifiable on family farms to restrict consumption of labor within a certain branch of production, only provided the hours of labor saved can be disposed elsewhere on an increase of income, i.e. by expanding some other branch instead. The question assumes, of course, a different aspect if social considerations are taken into account, when the time of labor saved can be utilized in the form of longer time for vacations, leisure, etc.

In a case study carried out by myself on a number of suc-

cessful Swedish family farms, gross thinking was clearly evident among the farm operators. On these farms, which had purposely been chosen on the basis of their success, it was established that the gross revenue exceeded by 25-30% the average level of all record-keeping farms in the same size group and district.

The costs on these profitable farms were, on the other hand, not by any means lower, but significantly exceeded the average level by 10%. The family labor input was calculated as a cost item in accordance with wages paid to hired workers.

On a family farm the mutual connection between the farm operator, his family and the business is different from that in the industrial and many other economic sectors. The farm holding is in most cases the home of the family, a place where the family members live their daily life and where the children are brought up to be citizens of society. It has been said that modern European family farming has lost many of its earlier features because of the changes that characterize modern society. This statement is true in so far that certain functions have been transferred from agriculture to other economic sectors and that continuous urbanization weakens the importance of rural areas and of farming as a form of life. Nonetheless, I still assert that in our modern times European family farming represents a unique form of undertaking, i.e. a combination of business and mode of life.

In the old European peasant farming system the head of the family had patriarchal dominance and dictated in detail what

work was to be done, how it should be done, and who should do it. Quite certainly such a patriarchically directed family farm holding had to wrestle with many serious conflicts. Certainly the fact that a number of persons more or less related to each other were living in the same household, which also included a large staff of servants, brought conflicts when the master's authority passed from father to son or to other members of the family.

There is no reason for specialization as long as labor is available at a low cost and farm labor finds no alternative employment in other branches. Under these circumstances the difference in price between products bought and products sold is considerable, compared to the price for a man labor hour. It pays, therefore, to put in a fair amount of labor in order to minimize the price margin and save money. However, the era when this situation was typical is drawing to its close in north, west and central Europe, although not yet in south Europe.

The German sociologist Tönnies devised in his time a concept pair that is still in use: "Gemeinschaft," in English perhaps the best expression might be the affinity organization, and "Gesellschaft," or the facts organization. The affinity organization refers to a system which is based upon a feeling of mutual connection between its members and is characterized by emotional behavior, totality and importance given to traditions. The old village community and the family are examples of groups characterized by a strongly bound affinity organization. The concept facts organization refers to a system which is based upon com-

mon goal-setting and joint economic advantages, characteristic of which is the great importance attached to rationality, specialization and formal agreements. The European farm family of today is living in an industrialized society; this society is characterized by a weakening of the affinity organization and a strengthening of the facts organization. In industrialized society, division of work and specialization have become more common; it has become more important to coldly weigh the advantages and disadvantages than to let matters be determined by intuition and emotion. People and their mutual relationships are stamped by formality rather than by spontaneity, and so on.

Nevertheless, when compared with undertakings in other fields of the economy, the family farm today still possesses an outstanding feature of affinity and human contact. The individual members feel a great joint responsibility, but at the same time they tackle their individual duties with greater independence than previously. This development is similar to that in a modern military unit, in which each soldier is given a better and more individual training than was earlier the case. Greater importance is thus being given to the actions and responsibilities of the individual.

The question of the extent to which European family farmers are true entrepreneurs will not be discussed here at length. The word "farmer" is associated first and foremost with a person who is tilling his land. A factor that has contributed to the circumstance that the role of cultivator has

become the central one is that a large proportion of the real farm estates and production apparatus of European farms are passed down from generation to generation and are not offered for sale on the public market to the same extent as the American farms are.

On the modern European family farm, the proportion of work carried out with hired labor has decreased while at the same time the number of family members has diminished. Consequently, the primary producer, the farmer in partnership with his wife, must now assume responsibility for an increasing part of the farm work and for the continuity of farming. This can be expressed in the following figures: While the farmer-operator's share of total labor input on the book-keeping farms in Finland was 35% in 1950, it increased to about 50% in 1960 and to 60% in 1970. The farm wife's share may be estimated at about 20-25%. In Sweden the farmer himself provides as much as 70% of the labor input. These figures do not include work in the household.

Although figures from other Western European countries are not included here, it seems to be quite obvious that European family farming has to an increasing degree become a one-man occupation, that is, the farm unit is increasingly dominated by the farmer, the entrepreneur himself, with respect to labor input. It also is evident that the number of children in active work on home farms in proportion to the number of farm entrepreneurs has undergone a change. For example, statistical data

from Finland show that per 100 farmers there are only 36 children who are working on the home farm.

In a discussion regarding the family farms, one is not to forget the economic part played by the entrepreneur's wife. It would be particularly interesting to investigate the correlation between the wife's daily work and the success of the farm. The more hours the wife devotes to the farm, the more paid labor that can be saved. The wife's share of the labor has frequently been based upon the motive of money saving. It has been said, and aptly, that with the help of the countless hours of labor which the farmer's wife has devoted to tending the cattle, expensive feed concentrates have been saved in feeding. This means that the more expensive agent, feed concentrates, has been compensated for by an agent, the price of which is not recognized.

When Finnish book-keeping farms in two size groups were divided into two sub-groups reflecting poor or good economic success, the result was that on farms with poor economic success the wife had worked considerably more in agriculture than on farms with good economic success. The opposite applied to the amount of the wife's work in the home.

The figures are not, of course, to be interpreted in such a way that the more actively the wife partakes in the farm business, the poorer the economic success. On the contrary, the conclusion is justifiable that on the profitable farms initial circumstances were more favorable in so far as a better level of prosperity had been attained, production had been more effec-

tive and the wife's burden of work had been alleviated. On farms with poor economic success the wife is obliged to carry out a number of agricultural tasks and does not have the opportunity to devote herself to her home to the same extent as on the profitable farms.

What is, then, the role of family farming in Western Europe? According to a recent statistical report from the OECD countries, in 1956 family members constituted on the average 80% of the agricultural labor force in those six countries from which data was available, i.e. Belgium, France, the German Federal Republic, the Netherlands, Norway and Italy. In 1967, the corresponding figure had risen to 82%. In Sweden, family members constitute 85% of the farming population. The corresponding figures for Finland are 90% in 1960 and 95% in 1970.

It is astonishing that even in Great Britain with the largest average area per farm unit in Western Europe the overwhelming numerical importance of small and medium farms is evident. Together they still account for over 90% of all holdings and for over 80% of full-time farms. The reasons for their astonishing power of survival are not ephemeral. There are weighty factors which indicate that economies of scale do not apply to farms in the same way as they apply to factories. Moreover, the association of farmers for group action to achieve more effective production and for commercial and trading purposes can invest the existing structure with many of the benefits of scale.

On the modern family farms in the European industrialized countries an enormous development has taken place in the technical area. This development is apparent in the mechanization of production which, in the economic sense, signifies that capital has replaced manual labor input to an increasing extent. Thus in Western European agriculture labor input decreased in the 1950's by about 20%, while the annual capital expenditure of agriculture, in real prices, was 60% higher at the beginning of the 1960's than ten years earlier. As a further example of such substitution may be cited the fact that in Finland the farm units are operating today with a production apparatus twice as great per man as 15 years ago. In other words, the real value of assets is twice as high per man, although no noteworthy increase has taken place in the area per farm.

The fact that modern farming is able to manage with considerably less labor power than earlier is also connected with a development that is usually called the peeling process. This means that certain functions have to an increasing extent been peeled off from the sphere of primary production and transferred to the food industry, and in some respects to the metal industry also.

Parallel with this peeling process, European family farming is undergoing a process of simplifying the operation itself. The primary producer is beginning step by step to abandon such product lines that for the most part supply only the needs of the farm household. Nevertheless, it is striking how widely far-

mers still adhere to the self-support principle, at least in European agriculture, not to speak of agriculture in developing countries. There still persists to some extent the idea that one must first of all produce the food necessary for the family and that only after this requirement is met can one undertake production for sale. Philosophy of this kind, however, retards agricultural progress in industrialized society.

The reduced importance of total labor in relation to capital as an input factor in West European agriculture is connected with the adoption of labor-saving techniques and also, though to a lesser extent, with a reduction in the number of farm units. This development may be taken without hesitation to be an expression of the fact that there has been considerable disguised underemployment in agriculture and, accordingly, the shift in labor power has consisted of the excess of less effectively used labor resources. The part of labor input composed of a productive element which has been withdrawn from production has been substituted with capital. It would, however, be misleading to think that capital outweighed labor in importance as a production factor in European family farming. To provide an example, it may be mentioned that the net farm income on Finnish family farms keeping account consists of 65% labor income and 35% capital income.

Without further philosophic contemplation on comfort, welfare and economic growth, I at least, as a reasearch worker - and surely many other investigators as well - have many a time

grappled with the question of whether family farming in fact represents the most suitable form of undertaking in an industrialized society, or whether it merely is a relic that has survived from the by-gone era of subsistence barter, a survival for which a more effective form of enterprise should be substituted.

What, then, are the alternatives to family farming? Most people spontaneously think of collectivized farming, and the question is posed as to the prospects for family farming compared to completely collectivized agriculture. In connection with numerous journeys in the so-called centrally planned countries with a socialized economic system I have had the opportunity to notice certain relevant facts. Polish farming in particular offers an agricultural economist very interesting possibilities for comparison owing to the existence of three different forms of enterprise. As is well known, the system adopted in Poland is in principle centrally planned socialized economy. Nonetheless, 85% of the agricultural land is privately owned by farmers practicing family farming, while only 14% is state-owned and 1% is collectively run as kolkhozes. During my last journey to Poland some years ago, I arrived at the conclusion, based on available statistical data and personal statements, that the gross return per acre was at least at that time about 15% higher on the family farms than on the state farms, in spite of the fact that the latter are no doubt favored by the current government price and land policies. It is remarkable that the level of the costs per produce unit on the State farms was

higher than on the family farms. Hence, the net return per acre, or in other words, the difference between gross return and production costs, excluding interest, appeared to be 20% lower on the State farms than on the family farms. It is true that the labor output per produce unit was considerably lower on the State farms than on the family farms, but this was balanced by the low wages and the high prices for the physical means of production compared to wages. Under these circumstances the difference in labor output does not essentially influence the cost level.

The fact that family farming in Poland successfully competes with the State farms is due in part to the greater gross return per acre and in part to the greater adaptability and elasticity of family farming. This form of organization is less fixed and rigid. The family's labor input can be more subtly adapted to changes in the weather. Moreover, the workday can be prolonged to meet the demands of seasonable peaks and variations in the load from day to day. The fundamental difference between farm holdings and business enterprises in industry and commerce is that, in running, the former one is faced with living entities - plants and animals. The production on a farm is biological. It is not a question of mechanical repetition day after day.

In this connection it must be pointed out, however, that the few Polish collective farms, the kolkhozes which comprise about 1% of the arable land, seemed to function rather satisfactorily. They are a remnant from that time when the political regime tried to collectivize the agricultural sector by force.

As is well known, these attempts were later abandoned owing to the stubborn resistance of the farmers and as a result of a liberalization of the political regime. The kolkhozes existing today were established by farm workers after World War II on previously private large estates. They are run by qualified agricultural managers employed by the members of the kolkhoz. The collective farms once established by force among peasant farmers have usually been dissolved by the members.

It is not correct, however, to consider collective farming the only alternative to family farming. Large estates in either private hands or in the hands of shareholders offer another solution. It is obvious that modern technology favors large-scale production. Would it not, then, be wise in farming also to create a basis for more rational utilization of machinery and other technical means of production by the introduction of large-scale production, that is production on such a scale that family labor must be replaced in the main by employed workers.

At a seminar some years ago the future of family farming in a steadily more industrialized Sweden was debated with ardor. Many of the younger economists considered family farming obsolete. They argued in favor of large estates, still in private hands but with qualified owners as managers. The scale ought to be so large that employed workers would have to do the main part of the job instead of the family. On large enterprises of this kind it would be possible to apply the latest technical innovations more promptly and more effectively than

on a traditional family farm. Theoretically, this view is sensible and logical, since it cannot be denied that the manager of a large estate is in a better position to acquire that kind of solid training which creates a better basis for catching up with current trends and making necessary adjustments.

Discussing giant enterprises in livestock production, that is to say, enterprises run without any connection with crop husbandry within the frame of the same farm, the viewpoints of environmental conservation cannot be neglected. Particularly in Sweden, where the trend has been strongly in favor of an expansion of the farm units - a sensible policy as such - some people have recommended the establishemnt of giant enterprises comprising 10,000 pigs and 100,000 laying hens. However, the disposal of manure in such livestock manufactures is a problem not yet solved without considerable pollution of watercourses and arable land, not to speak of the stench in the surroundings. The environmental conservation authorities have therefore interfered.

In spite of technological gains and advances in research, it has not proved possible as yet, in any event, to break the connection between crop and livestock production. The so-called pollution problem is a new factor to be included in the current account.

The continuity of family farming is secured by the cumulative investment of considerable capital in the farms during the course of years. Usually, when a European farmholding is sold, only a partial compensation is obtained for the capital invested.

This is one of the reasons why relatively few farmholdings are sold on the free market in Europe. In the USA, the farmholdings are marketable goods to a much greater extent than in Europe.

It is obvious, however, that family farming is also associated with quite a number of disadvantages. Some of these are:

1. Considerable variation in the number of work hours per day, which implies a low productivity per work hour;
2. The capacity of the family is not effectively utilized throughout the year;
3. The capital invested in the family enterprise is not effectively utilized, which implies a low net return and excessive investments, especially in buildings;
4. The low income level does not satisfy the demands of the younger generation;
5. The scale of production is generally too small to allow the introduction of new technology and new equipment.

In nearly all lectures on the rationalization of farming in Western Europe it is stated that the small area of the farm holdings is one of the fundamental reasons why the farming population cannot earn a sufficient living, and that this inability functions, in turn, as an obstacle to rationalization.

With regard to the low income level, it was pointed out by Georg Blohm, the West German agricultural economist, that in the German Federal Republic, family farming is a matter of

necessity. It is, however, the weakest link in the capitalist economy owing to the fact that it does not yield the same return for labor and capital as other branches.

Since per capita income in agriculture is lower than in other branches almost everywhere in the world, it is not only necessary, it is also possible for family farming to adapt itself more smoothly to a low income group than is the case in farming enterprises where hired labor is chiefly used. This is due to the fact that farm workers' wages in Europe, in any event, have to be paid in accordance with current collective bargaining. Then there is, of course, another aspect that ought not to be overlooked, namely, the question as to whether it is reasonable and fair that those people who supply us with our daily bread should belong to a low income group and must content themselves with a lower remuneration for their work than other actively working people.

In this connection it might be of interest to say some words about certain forms of co-operation in the primary agricultural sector among West European farmers, namely, joint use of machines and so-called group farming. The land in nearly all cases will still remain in private ownership. As a whole, these forms do not play any noteworthy role, except in some special cases and certain West European countries, but constitute interesting phenomena nevertheless.

Recently, difficulties have emerged within the agricultural sector itself, with the growing need for capital and land and the

decline in agricultural labor. These difficulties have considerably slowed down the process of concentration which is essential if farm incomes are to improve. To cope with these difficulties, certain farmers, and particularly owners of family farms, have adopted new forms of organization in the primary production sector.

New types of co-operatives have emerged, largely designed to meet equipment and labor problems. The first type, for the pooling of agricultural machinery, gained in popularity in Germany (40,000 members) and even more so in France (400,000 members). The purpose of the second type, for the pooling of labor, was to provide its members with labor where needed. These co-operatives are widespread in Belgium and Holland where the percentage of one-man holdings is very high.

Group farming, another variant of co-operation among West European farmers in the primary production sector, has recently grown up. Group farming is at present limited and has reached a significant level of development in only two countries, Spain and France, where several thousand groups are recorded.

At the end of 1970, there were about 2,200 registered groups in France, covering 220,000 hectares and employing 6,000 farmers. This represents barely 0.6% of the number of farmers in the country, and 0.7% of the effective agricultural area.

In Spain, it was the rural exodus which was responsible for the creation of farming groups. They were designed as a defense mechanism against very difficult economic conditions,

and the first groups appeared in the 1950's. There are about 2,700 farming groups, representing 2.5% of the country's arable land and are much more varied than those in France.

The primary importance of group farming is that it creates farming units of a size consistent with the requirements of modern agriculture. This point merits consideration in view of the necessity of solving a problem which has arisen in many West European countries and region, i.e. the existence of too many uneconomic small holdings. Group farming makes it possible to move immediately from a small to a large structure without going through a series of intermediate growth stages. A gradual increase in farm size will bring difficult problems, as equipment and buildings cannot be constantly changed or adjusted to the new dimensions. Moreover, certain specialized types of equipment are uneconomic if they cannot be used on a large area. A radical change of scale is therefore often essential if new farming methods are to be introduced.

The improvement in the living conditions of farmers and their wives is certainly one of the main benefits of group farming, even where incomes do not greatly increase. Working hours can generally be reduced and the farmers' wives are largely released from work on the farm. More free time and weekly or annual holidays are the result of shared responsibility.

Although group farming differs from the ordinary type of European family farms, I do not view it as a contrast to the family farm system, because the ownership of the land does not

usually undergo any changes; it remains privately owned and the members of the group are individual farmers who, together with other members of the family, are carrying out the farm work and are jointly responsible for the management.

Among the many problems connected with European family farming, the generational shift merits some comments. The smaller the difference in age between father and son, the longer the son must usually wait to take over the farm. As the mean life span steadily increases, and on the other hand a dynamic society offers the young generation abundant possibilities of employment in other branches, conflict and disappointment will easily ensue unless a decision is made in time as to the succession on the farm.

The results of Swedish investigations indicate that the average length of time that a farmer remains an independent entrepreneur is from 30 to 35 years. This means that his successor must work outside the home farm about 10 years, from the age of 20 to the age of 30, because the prospects for him on the farm are poor unless there is a fair chance for creating a two-family undertaking.

Growing families and higher income demands largely prevent a proper remuneration for this long waiting period on the one-family farms, and the farm holdings that are large enough to bear two-families are far too few.

If the farm is to continue within the same family, it is absolutely necessary that the future entrepreneur is informed

in time that he is to succeed his father.

In connection with the generational shift a serious problem crops up in the form of unnaturally elevated land prices. Unless an alternative land use is within reach, the land price ought to be harmonized with the income value. The realization of this principle is indeed an open question, however. So far, no successful solution has been offered.

At any rate, early planning of the generational shift has proved to be a good policy. If the estate and other property are transferred to the next generation during the parents' lifetime, the heirs usually respect the decision. Such a transfer can very well be made without risking that the parents' economic position will be weakened in their old age.

The fact that European family farming has maintained its position to date, in spite of its many weaknesses, must not, however, conceal that there is a wide-spread anxiety with regard to the future. It is striking, however, that there is a tendency to secure a future for family farming even in the industrialized West European society of tomorrow. Farming based on the labor input of the family is accepted as an organizational form that should be improved. There is no other system that has gained general approval or is recommended. If a family farm is appropriately large and run on modern principles, it has a fair chance in an industrialized society, provided it is politically acceptable.

I admit that this view is personally tinged due to my be-

lief in family farming as a form of undertaking, since it allows freedom of the enterprising spirit, flexibility in rush periods, consideration of the individual's special interests, enthusiasm and progressive thought both in animal husbandry and in crop husbandry.

However, family farming must adjust itself to the changing situation brought about by industrialization if it is to survive. The primary producer will, among other things, have to surrender a part of his right of decision to collective organizations and business firms, and primary production will become more and more integrated, both horizontally and vertically.

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THE ENTREPRENEUR'S ABILITY AND EDUCATIONAL LEVEL AS CHANGE AGENTS IN FARMING

For many years it has been almost dogmatic in the theory of economics to regard the input of land, labor and capital as the dominating factors. During more recent times, however, the conclusion has been reached that technological and economic progress cannot be explained only by taking into consideration land, capital and labor, but that there is also a fourth factor, the human factor, which consists of mental ability, education, vocational training, improved techniques, the stage of knowledge, and so forth.

If one thinks of the farmer's functions in farming, one can say that they are of two sorts. First, one notes the purely manual contribution made by the farmer in his capacity as work executive. Equally important in modern farming is his function as manager. The work that has to be carried out by the farmer in his capacity as manager is determined partly by the location of the farm and partly by executive considerations.

Anyone who has ever had the opportunity to live among practical farmers and learned to know them more intimately must have discovered for themselves what a fascinating field of research is offered by their decision-making processes and the motives which cause them to act as they do. I myself have therefore been very tempted to try and get some idea of the

human being who exists behind the figures and the statistics.

Inter alia, the commonness of subsistence thinking among farmers has been established in one of our studies. Evidently, similar attitudes tend to render difficult the farmer-entrepreneur's production adaptation in a changing world. When a farmer thinks along traditional lines he is not receptive to innovations in the same degree as the manager of a modern business. Within the extension service activity of agriculture, one often presumes, however, and all too one-sidedly, that all farmers completely think and act as entrepreneurs, while their actions actually are partially influenced (at least in Europe) by the thought of subsistence farming.

In order to avoid misunderstanding it is necessary to state that the farm management extension service naturally will endeavor to promote the business-minded thinking of farmers. It is, however, not possible to disregard the existence of traditional subsistence thinking. In farm management extension work the farm is considered as a business unit in which all enterprises are integrated so as to secure the fullest and most efficient utilization of the land and also of the financial resources, the equipment, the financial reserves and the managerial skill of the farmer.

Even if the existence of subsistence thinking is excluded, at a final selection among the various alternatives it is not seldom that the non-economic motives partially influence the crucial decisions. Although one may not select the alternative

that requires the smallest alterations in regard to the prevailing pattern of production, one may decide, on account of emotional and traditional causes, harmony in daily life, convenience, etc., not to accept the most profitable. In the farm management extension service in Finland it has been found that, among others, the following factors have been conducive for rejecting the most profitable technology and business plan:

1. Antipathy toward a certain production branch or technological method. On the other hand, a clear interest toward a certain production branch can lead to an overdimensioned, less profitable selection;
2. Conservatism. Often the activity of farmers is dictated by a conservative attitude toward certain alternatives, for example, the transfer from dry hay making to silage making;
3. Carefulness. Even though a certain production branch or change of a production method is economically superior to another according to calculations, it often happens that the farmer does not venture to take the needed step to change;
4. The example of neighbors. The tendency of most farmers to follow the example of their neighbors in regard to selection of the line of production or a new technique is clearly observed in the cultivation of certain cash crops;
5. Exaggerated interest for mechanization. The farmer

usually has a strong inclination towards production that can be mechanized, although this is not always economically advantageous;

6. Exaggeration of the first year's experiences. Especially when the extent of cash crops are decided, the experiences obtained by the preceding year have considerable influence on the decision. If a new production branch has been unsuccessful in the first year the farmer is inclined to cease it forever. Similarly, an exceptionally good result in one year is allowed to influence the cropping plan of the following year all too much.

However, there is no reason to underestimate the capacity of at least the advanced European farmer to think and act in a business-like manner. It is symptomatic that he mainly thinks marginally and alternatively and not within the frames of average costs and quantities. For example, if he decides to expand a certain production branch, or to change to a new technology, he is aware that within the frames of the scarce resources at hand it requires the sacrificing of some other alternatives. Here the marginal quantities, not the average ones, are decisive.

A study of the literature often leaves me with the impression that the role of the farm entrepreneur himself as a changing agent has not been taken into account sufficiently. We are certainly aware of his significance, but he is often neglected in general economic and technological discussions, if not completely forgotten.

Modern psychology does not accept the classical doctrine of the economic man but considers the motives lying behind human behavior to be usually irrational. The classical economic man is therefore regarded as an abstraction which does not correspond with reality. But it cannot be denied that income plays a very important part as the mainspring of human actions, though alone it is not decisive. The German Friedrich Aereboe, one of the classical agricultural economists who already some fifty years ago laid the greatest possible stress on the farmer's personal contribution to the progress in his branch of industry, maintains, among other things, that a rise in the cultural level implies an increase in the significance of the farmer in the final results. The more agriculture develops, the greater the risks to the farm business that come from unqualified management.

Logically, there would seem to be a connection between the mental ability of the farmer, progress and economic results. One cannot even regard the farmer as simply an economic man in the classical sense of the phrase. It is, nevertheless, justifiable to assume that the farmer's natural gifts - alertness, interest, energy, knowledge, book-learning, physical capacity, etc. - will be reflected in the success of his farm. Above all, it is mental characteristics and equipment that are important as a change agent towards better results.

Unquestionably, it is a very subtle problem of research to determine how far such relationships can be discovered and estab-

lished. And it is just here that certain special difficulties arise, not the least of which are in connection with the methodology of such research. One asks oneself, for instance, in what way mental and physical capacities can be measured between one farmer and another. What measuring stick can be used to make the comparisons? A similar problem arises when it is a question of determining the economic and technical results as a function of the entrepreneurship. It is of paramount importance that there should be some way of measuring the mental ability of a farmer, or at least some means of expressing it.

It is only during the past two decades that increased attention has been given to the direct application of the concepts and principles of economic theory to the practical management of the farm business. The American Reid says pointedly, in fact, that "it is not so long ago that most people considered the ability to manage as an entirely innate art which could not be formulated into teachable precepts."

So long as the farmer has no difficulties in marketing his products, farm-unit thinking to him is not as important as it is in a period of surplus production, such as prevails at present in many developed European countries. As agriculture becomes more complex and problems of adjustment more acute, it becomes increasingly important to adopt the concept that the farm business is a totality and an integrated unit.

In a study carried out in Great Britain by Daw together with Gwyn Jones, each farmer's actual results for a given period

were compared with what he could have earned if he had selected, combined and organized his farm business according to what was physically and technically possible and economically most desirable. The extent to which a farm's actual results varied from its possible maximum indicated a farmer's financial success as a manager.

An investigation that greatly resembles in character that of Daw's was made by Hesselbach in West Germany. He stated that economic results depend upon technical, natural, economic and personal factors. In carrying out a farm by farm comparison between the actual economic results and the calculated realistically optimal results on 24 farms keeping accounts, each with from 20 to 50 acres of arable land, he found that farm size and soil quality played a less important role than the entrepreneur's input as expressed by age and education, as well as the level of farm mechanization. The size and composition of the family also had a notable influence.

In a sample of 16 book-keeping farms the West German investigators Schneppe and Walter studied the entrepreneur's personal influence on farm profitability. The results showed that about half of the divergence from the average net return resulted from the entrepreneur's managerial ability. In this same study the size of farm was found, surprisingly, to have no influence, and even the quality of the soil played only a minor role in the amount of the net return.

Rasmussen and Sandilands carried out a comprehensive eco-

nometric study with results obtained from 1646 British farms keeping accounts for 4 years. Their conclusions as regards the management factor reads as follows: "This analysis emphasizes the great importance of the managerial variance, in other words the great importance of the many detailed husbandry decisions in comparison with the allocation of resources, about which the production function as such can give information."

One can make the hypothesis that a farmer with theoretical vocational education has a better chance of understanding the need for change and adjustment in production and the need for implementing technological changes in order to improve his business than an entrepreneur without such an education. In an opinion study made by myself in Sweden, it appeared that entrepreneurs with theoretical vocational training consider factors in connection with their own mental ability to be more important than do entrepreneurs with only primary school education. Such factors are, for instance, organizational capacity, ambition and one's own theoretical professional education.

Even among farm entrepreneurs with only primary school education, the first two factors mentioned above came high in the ranking scale, but it was simultaneously observed that such exogenous factors as the co-operation of the wife, the help of the children and harmony in daily life were given more significance than was the case with theoretically trained entrepreneurs.

Likewise, I drew the conclusion from the opinion study that a rationalistic way of thinking seems to be relatively common

among persons with vocational theoretical education while emotional factors take a relatively more prominent place in persons with only primary school education.

It seems to be a common notion that farmers preferably think and discuss inductively. In reality, the economic world of thought is a mixture of both inductive and deductive thinking and it is not a question of either/or.

For persons with a mind preferring deductive thinking, we may, when our aim is to improve the farmer's ability as a change agent, start with general information on certain principles, i.e. create a foundation for deductive thinking activity and after certain guidance one can expect that the farmers will be capable of making their own decisions.

The farmers with mainly inductive orientation must first observe concrete facts before they can build themselves a conception of the elements of the measures to be taken and how technological changes and plans can be executed and worked out. They are not able to advance according to a general principle; they must have available empirical solutions.

Little attention has hitherto been devoted to the training of the farmer-entrepreneur in respect to assisting his decision-making and subsequent actions.

A demonstration of a new technique on a farm is an opportunity suitable for the inductively oriented farmer. He understands facts without having to use too much imagination. Another measure serving the same end is to give him a ready-made plan.

There he sees the facts on paper.

The main purpose of the previously mentioned investigation which I carred out in Sweden two decades ago was to find out how much of a relationship could be discovered between the farmer's mental ability and economic results.

In this first research of mine dealing with the human factor, the exponents used for mental ability included the farmer's theoretical vocational education and the farmer's experience, especially his work away from his home farm.

Of course, the exponents mentioned do not necessarily expose any inherent human abilities, for an opportunity to obtain higher education may very well depend simply upon the existence of some private fortune, or be insisted upon by parents or other close associates, etc. On the other hand, there are many gifted and capable youths who, for various reasons, have not been able to receive any training apart from work on their parents' farm. Nevertheless, one can accept the hypothesis that both theoretical vocational education and practice on other farms enrich a farmer's knowledge and ability, provide new impulses, widen his views, and therefore provide a stimulus from an early age towards creating higher potential capacities in him as an entrepreneur.

Expressions for progress in the study included the concepts of net farm income and total net income.

Net far income shows how great a sum remains as remuneration for the labor input in agriculture of the farm entrepreneur

and his family and for interest on capital.

Since it becomes increasingly evident that on many Scandinavian farms, as well as in European farming in general, the economic goal-setting of the farmer should not be limited to agriculture alone but should also include extras and farm forestry, a second expression for the economic result and progress was used in my study, i.e. total net income. This total net income was calculated by adding to the net farm income the similarly calculated net forest income plus net income from off-farm work.

The results from the study were briefly that in all size-groups the net farm income, as well as the total net income for the sub-group of farmers with at least agricultural vocational secondary school education, was higher than that of farmers with only formal primary school education. A certain relationship between outside practice and theoretical vocational education existed more commonly among farmers with agricultural vocational secondary school education than among farmers with only primary school education.

Furthermore, it appeared that in all size-groups the sub-group of farmers with outside practice reported higher net farm income than the sub-group of farmers lacking outside practice. The same tendency was found also as to total net income.

Some years later the Agricultural Economics Research Institute of Norway conducted similar research. The research was based upon the results from 159 book-keeping farms during three

years. Of the participants in the research 95 had gone through farm school, while 64 did not have theoretical vocational training.

The most important expression of profitability used was the family labor income, which was arrived at by subtracting all expenses except the labor input of the farm family from the income of farming (even interest). The labor income of the family shows operation results seen from the point of view of labor input.

The better output for the vocationally trained farmers in the Norwegian investigation was expressed in the form of a greater output of crops, milk and eggs. Farmers with theoretical vocational training had also made greater inputs, i.e. expenses for paid labor, commercial fertilizers, concentrates, machines and equipment, as well as for miscellaneous expenses. Only small farms of less than 25 acres were an exception in this connection.

Within the different size groups the farmers with vocational theoretical training had chosen the economically more profitable type of production than the non-theoretically trained.

The vocationally theoretically trained farmer does not only possess superior qualifications for choosing a suitable line of production and better technology but also the capacity to economize with labor. Farmers with good training generally possess a better adaptivity and inclination for change than their colleagues without such training.

In this connection, there arises, however, a question of further importance, namely, whether the extension service should be primarily directed at the innovators as change agents or at the great majority. One can, on the one hand, assume that extension service is best received and applied by the category of innovators, whose concrete results then activate and stimulate the more passive farmers. On the other hand, one can hypothesize that even though the great majority does not utilize the service to the same degree as the innovators, it is set at their disposal, and because the initial stage is much lower, the effect becomes greater. If one furthermore assumes that the innovators are such that their mental ability helps them to make continual progress even without extension service, the efforts should, according to this view, be concentrated on the great majority.

There is without doubt an interesting field of research opening which seeks to verify empirically the correctness of the hypotheses.

Another question that arises in this connection is whether the total improvement effect (improvement on profitableness) becomes more significant if one concentrates extension services on farms, the technological level and the profitableness of which are relatively low at the initial stage on account of natural and economic conditions and little earlier contact with extension activity, etc., or whether the activity should primarily be directed at farms with better potential on account of bet-

ter natural and economic conditions and earlier lively contacts with extension service activity and which consequently also have a better profitableness at the initial stage. In the following discussion it is assumed that there are no differences in the abilities of the farmers.

In the 1950's I carried out an investigation dealing with this question, inter alia. There were two farm groups, one in Central Finland with rather poor conditions, and the second one in Southern Finland with more favorable conditions. As an expression for progress the concept of coefficient of profitableness was used, calculated in the following way: The net farm income is divided by an amount which is made up of the interest claim calculated according to a normal interest rate for invested capital and the value of the labor input of the entrepreneur and his family calculated at the normal rate for hired labor. The coefficient obtained consequently shows whether the actual remuneration exceeds or falls below that which is considered normal.

The coefficients of profitableness during the five-year period 1954-1959 are shown in Table 1. When both columns are compared with each other it is seen that the level of profitableness of the central Finnish group was, in the initial stage, considerably less than in the southern Finnish group. The improvement of profitableness, i.e. the development effect measured through the difference between the profitableness coefficients during the last versus the first year has, however,

been greater for the central Finnish group.

Table 1. Coefficients of profitableness on two study farm-groups during the five-year period 1954 to 1958.

Fiscal Year	Southern Finnish Group		Central Finnish Group	
	Real value	Relative figure	Real value	Relative figure
1954	0.80	100	0.48	100
1955	0.84	105	0.64	133
1956	1.06	133	0.67	140
1957	0.96	120	0.83	173
1958	1.07	134	0.83	173

Similar results are arrived at when the coefficients of profitableness are transformed into relative index figures so that the coefficients for both groups for the first year are set at 100 and the rest of the figures are computed in relation to the basic figure.

The figure series leaves a clear impression that the improvement thanks to extension services had been more significant for the central Finnish group, with a lower initial stage from the economic point of view. However, one can ask oneself whether the pace of improvement measured in absolute figures would in the long run follow a similar model. One can make the hypothesis that, ceteris paribus, the capacity of the study farms with better conditions to absorb inputs exceeds that of

farms provided with less advantageous potential possibilities, for which reason the level with an optimal allocation of resources is reached later. No answer on this question could be obtained from the analysis of data for a five-year period, but continued research might assist in throwing light on the matter.

This investigation was followed up by another, carried out from 1961 to 1966 as a continuation of the earlier study. In consideration of the fact that the planner's arsenal of planning tools had, in the meantime, been very substantially improved, augmented possibilities were considered to exist for the working out of long-term plans according to a given method and system (the MEL method). The method may be described briefly as a simplified application of the principles in linear programming. Long-term plans were construed to mean plans for mainly a period of five years.

Since one of the objects of the investigation was to study the existence of a possible connection between the mental entrepreneurial ability of farmers and their attitudes towards planning and adjustment activity, the entrepreneurial variables were mapped out according to three characteristics: the age of the entrepreneur at the commencement of the investigation in 1961; his theoretical vocational education; and his mental ability. Obviously, other variables could also have been considered, such as training outside the home farm, his wife's collaboration, his formal education, the number of years he had operated his farm, and so on. However, the inclusion of so many explanatory vari-

ables could easily have reduced the surveyability of the material, and their number was therefore limited to the three variables stated.

In order to map such mental characteristics as may be thought to be connected with the ability of the entrepreneur viz-à-viz progressive measures, a schedule with ten qualities, very similar to the one used for vocational guidance in Switzerland, was employed after certain alterations. This schedule was chosen after consultation with the late Dr. Aarre Tuompo, Professor of Psychology at the Finnish School of Social Sciences.

Every quality was given five points of excellence in accordance with a graduated scale, depending upon how strongly, in a positive sense, the quality in question manifested itself. In the final treatment of the material the point evaluation was carried out in such a way that when the quality in question most strongly manifested itself in a positive sense, the number of points given was 5; in the next grade, 4, and so forth, and in the last grade, 1. The highest number of points for a person evaluated came to 50 and the minimum to 10. Ability was thus expressed as a sum of mental points.

The evaluation of mental ability was performed by the respective adviser in farm management, who can be considered to be best qualified to do so. It cannot be denied, however, that a certain bias may influence such a score-rating of mental abilities. The evaluator may be misled into guaging them on the basis of the results attained. To eliminate such a bias so far

as possible, the evaluation was made before completion of the investigation and the advisers were expressly cautioned not to allow themselves to be influenced by the progress made or not made.

When one aim was to evaluate the effect of farm planning and the individual extension services, it was not enough merely to note the possible technical and economic changes on those farms for which plans were carried out, since it could be argued that the development on farms in general might have been similar; the changes could have indicated development in general rather than an effect of planning and application of new technology. In order that a clearer idea might be obtained of the significance of planning and individual advisory services, the technical and economic changes on the study farms were compared with corresponding changes on account-keeping farms in the same size category and the same region but on which a systematic planning and adjustment activity was not implemented. They were called control farms.

This investigation also comprised 5 fiscal years. The study farms were regionally divided into two sub-groups, comprising 41 farms in south Finland and 16 farms in the west central region of Finland. The number of control farms in south Finland was 75 and in central Finland 29.

An examination of the economic progress, whether on a basis of the total net income, the net farm income or the coefficient of profitableness, revealed that a marked successive improvement

of profitability had taken place in the study farm groups but no corresponding development was seen in the control farm groups (see Table 2 and Figs. 1 and 2). The last years of the investigation period were characterized by a highly significant difference between the study and control farm groups in south Finland.

In a further study consisting of farms situated in south Finland, the attempt was made to determine whether the effect of advisory services and planning had a lasting effect, in other words, the permanence of the changing activities.

In answering the question whether and to what extent the favorable development brought about by farm management planning and intensified advisory services during the study period has been able to persist, the figures presented in Table 3 are elucidative. It is to be noted that the fiscal years 1961/62-1965 embrace the research period and that the fiscal years 1966-1970 comprise the post-research period. Due to the fact that a number of farms had discontinued keeping detailed accounts after 1966, all the farms participating in the research could not be included in the post-research comparison.

The findings during the five post-research years indicate that during this period the profitableness underwent a clearly abrupt decrease in the control farm group as well as in Finnish farming in general. This decrease, however, did not occur to the same extent in the study farm group. It may therefore be stated that the effect was still evident during the five-year post-research period and really was a lasting one.

Table 2. Group means indicating coefficients of profitableness on study farms versus control farms.

	South Finland			Central Finland		
Fiscal year	Study farms (41)	Control farms (75)	t-value	Study farms (16)	Control farms (29)	t-value
1961	1.03	1.07	0.17	0.68	0.86	-2.44*
1962	0.88	0.79	1.46	0.80	0.87	-1.15
1963	1.08	0.85	3.24**	0.87	0.89	-0.26
1964	1.23	0.90	5.01***	0.86	0.84	0.27
1965	1.32	0.88	4.44***	0.90	0.92	-0.34
Trend	0.09	-0.02	3.11**	0.05	0.01	1.91(*)

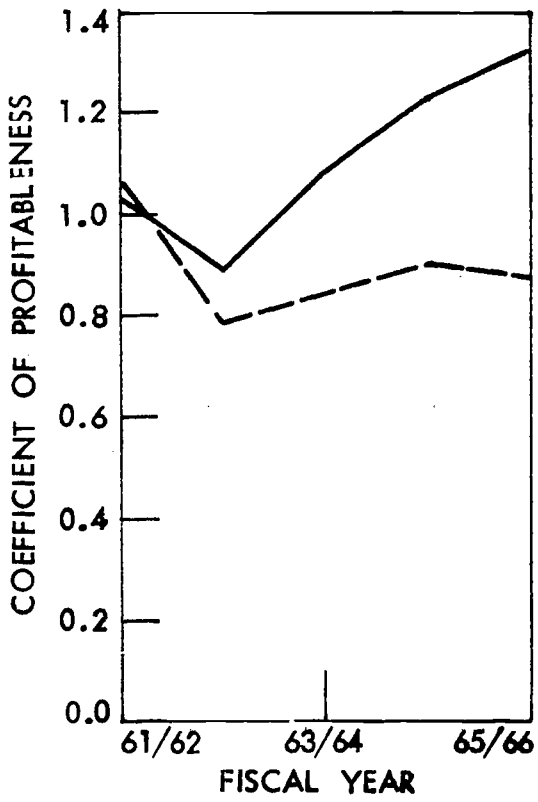

Fig. 1. The economic development on average on study farms versus control farms in the south Finland region. ——, study farm group; ----, control farm group.

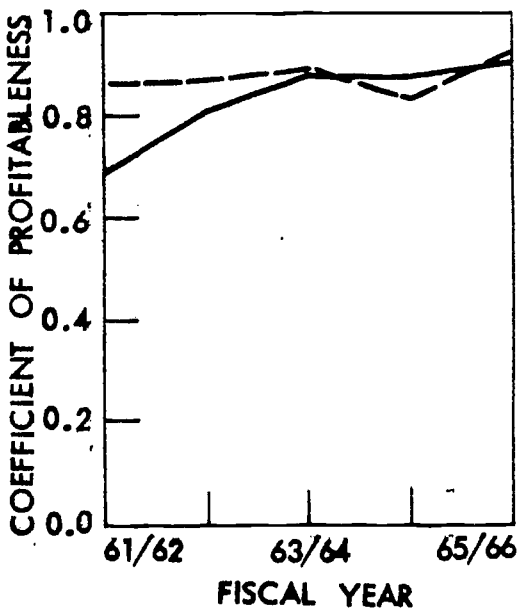

Fig. 2. The development on average on study farms versus control farms in Central Finland. ——, study farm group; ----, control farm group.

Table 3. Group means indicating economic progress per farm in average on 22 study farms versus 32 control farms in the south Finland region.

Monetary figures in Finnish marks converted into real values for 1970.

Fiscal year[a]	Total net income, Fmk			Net farm income, Fmk			Coefficient of profitableness		
	Study farms	Control farms	t-value	Study farms	Control farms	t-value	Study farms	Control farms	t-value
1961/62	16,319	15,666	0.27	12,634	11,454	0.68	0.99	0.94	0.47
1962/63	13,895	12,675	0.73	10,794	9,856	0.72	0.84	0.78	0.73
1963/64	15,520	12,748	1.44	12,704	10,554	1.42	1.07	0.84	1.93
1964/65	18,346	12,845	2.78**	16,041	11,499	2.86**	1.24	0.85	3.87***
1965	19,267	14,145	2.68**	16,933	12,422	2.71**	1.26	0.89	2.85**
Trend	1,035	-287	4.65***	1,415	372	4.11***	0.094	(-0.002)	3.52***
1966	16,515	13,669	1.48	15,119	12,184	1.57	1.10	0.8	1.74
1967	21,578	14,266	3.20**	20,634	12,933	3.18**	1.41	0.89	3.88***
1968	19,018	11,767	2.71**	18,375	10,771	3.20**	1.30	0.73	2.96**
1969	16,984	11,618	2.26*	17,000	10,889	2.50*	1.07	0.73	2.42*
1970	17,432	10,922	2.53*	17,305	9,680	3.45**	1.06	0.66	3.15**
Trend	-276	-814	1.85	81	-709	2.16*	-0.04	-0.06	0.73

[a]Until 1965 the fiscal year runs from July 1 to June 30, from 1965 onwards it coincides with the calendar year.

When analyzing during the research period the influence of the three entrepreneurial variables concerning the study group farmers upon the evaluation pattern, the following hypotheses were formulated.

Hypothesis 1. Since planning done with the object of forming a functional unit out of separate elemental parts is abstract in nature and consists of synthetizations, entrepreneurs with an aptitude for deduction and abstract deliberation find it relatively easy to associate themselves with changes in the production pattern. This would indicate that it is chiefly the younger entrepreneurs, and entrepreneurs with theoretical vocational education, as well as superior managers, who are better able to comprehend the business planning procedure with the goal to attain technological improvements and economic success.

When the χ^2-values were calculated by assembling into one group all the respondents who had reported difficulties (either considerable or slight), the difference between the group reporting difficulties and the group which experienced none was not found to be significant with respect to any of the entrepreneurial variables.

Hypothesis 2. The benefit obtained from farm planning becomes evident in that deficiencies are discovered in the operation of the farm and new ideas are formulated for future managerial operations, while at the same time the planning procedure stimulates and strengthens the ability for logical thinking. The items first mentioned, viz. deficiencies, were given greater

importance by the more inductively minded entrepreneurs, while ideas and logical thinking played a relatively greater role for the more deductively minded entrepreneurs. Consequently, the younger entrepreneurs, entrepreneurs with theoretical vocational education, and entrepreneurs of higher mental ability placed less importance upon items of mainly analytical nature in the individual advisory services and farm planning and greater importance upon items of mainly synthetic nature than did the older entrepreneurs, those without such training, and those of lower mental ability.

This formulated hypothesis was consistent with the data used.

Hypothesis 3. Ceteris paribus, the entrepreneurs of higher mental ability and better theoretical vocational education are better able than are those of lower mental ability and poorer vocational education to adjust their production to possible risks which can be predicted with a certain degree of probability. Consequently, they consider risk factors less important than uncertainty factors.

A χ^2-test of the correctness of the hypothesis, however, revealed no significant differences in the influence of the three entrepreneurial variables upon the evaluation pattern. It therefore did not prove possible to verify empirically the correctness of this hypothesis.

Hypothesis 4. As is well known, one of the most important adjustment measures in agriculture today aims at an increase of

farm size. Obviously, the possibilities for such an increase depend to some extent upon the local availability of land and are, therefore, from the farm entrepreneur's point of view, governed in part by chance. An hypothesis can, of course, be formulated that ceteris paribus the younger entrepreneurs, superior entrepreneurs and entrepreneurs with better vocational education are more alert and possess a great comprehension of, and a more consistent striving towards, area increase than do entrepreneurs of the opposite categories. The same would apply also to the tendency to reduce the labor input, which stands out as an important technological improvement measure, provided alternative employment is available.

The research revealed a statistically significant difference with respect to mental ability. Entrepreneurs with higher mental ability had clearly increased their farm size more than had those of lower mental ability.

Furthermore, when examining the impact of the entrepreneurial variables in the south Finland study vs. the control farm group, there was a certain indication that the younger entrepreneurs, entrepreneurs in the better ability sub-group, as well as entrepreneurs with theoretical vocational education profited more from farm planning than did the opposite sub-groups.

The problems which I have briefly aired here are problems which, in my opinion, have so far had too little attention paid

to them, for they open new perspectives of co-operation between technical, farm management and sociological investigations. It may always be mentioned that it is the farm-manager who plies the bow, while the farm is merely the instrument in plays on.

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SOCIAL AND ECONOMIC CONSEQUENCES OF TECHNOLOGICAL DEVELOPMENT AND LAND SETTLEMENT IN FINNISH AGRICULTURE

For more than 600 years Finland shared the history of Sweden. During the Napoleonic epoch Finland was lost to Russia in 1809. Instead of being completely incorporated into the Russian empire, it was constituted as a grand duchy and was granted a surprising degree of autonomy in domestic affairs.

The 1917 Bolshevik upheaval finally enabled Finland to declare its independence. However, it was not until after a bitter civil war that the constitution of the Republic of Finland was adopted in 1919.

Finland is situated in the Far North, at the limit of human habitation between latitudes 60° and 70° N. A considerable part of the country, about one-third of her total length, lies beyond the Arctic Circle.

The surface area of present-day Finland is 130,000 square miles, twice as large as that of Iowa. As a consequence of World War II Finland had to cede about 10% of her area to the Soviet Union from southeast Finland (Carelia) and north Finland.

The population of Finland is roughly 4.6 million. The average population density is 35 inhabitants per square mile. Among the European countries only Norway and Iceland have a lower density.

Recent developments in Finnish economic life, and particu-

larly in agriculture, havebrought about considerable changes in the magnitude of different industries. Agriculture, including farm forestry, is the source of livelihood of about 20% of the population. Agriculture and farm forestry comprise approximately 14% of the gross national product. Forestry together with the timber and wood processing industry play the largest role in the economy of the country.

In all of Europe Finland is relatively the richest country in forests. In no other European country is the ratio of forest to the total surface area as high as in Finland (71%). Finnish industries derive the main part of their raw material from the forests and Finnish foreign trade is primarily based upon the export of forest products. The majority of these exports are products of the wood processing industries (about 55% of total exports).

In Finland's reorganization of industrial production for delivery of war reparations to the Soviet Union, the foundry, engineering and shipyard industries have been subject to the greatest changes. As a result of this expansion, the production capacity of the engineering industry has doubled that of 1954.

In spite of considerable emigration at the beginning of this century, particularly to the USA and Canada, the farming population continuously increased in number to 2,060,000 persons in 1920 and represented at that time 65% of the whole population. Later, the farming population decreased both abso-

lutely and relatively, owing to the considerable development of industrialization, and consists at present of 1.1 million persons, with 6.6 million acres of arable land.

The reduction of the farming population stemmed mainly from those farm units with areas of less than 12 acres. A pronounced reduction also took place, however, on farms over 120 acres.

We can infer that the larger farm units, due to rationalization, were able to achieve their outputs with a perceptibly lower labor force than before. On the other side of the question, however, the smallest of the farm units were not able to give a satisfactory standard of living to all the farm family members. This factor has also contributed to the migration from the rural areas.

It should be noted that persons occupied in forestry have also been included in the figures for the agricultural population. Owing to the fact that in wintertime the Finnish farmers are generally engaged in forestry, there is some difficulty in dividing the agricultural population into separate agricultural and forestry groups.

The overwhelming majority (95%) of the professional farming population in 1960 consisted of independent farmers. At the same time, the number of farm laborers constituted 5% and tenants only 0.4%.

It is widely known that the people of those areas which were ceded to the Soviet Union by the Peace Treaty of Moscow in 1940 and by the Armistice Agreement in 1944 spontaneously left

their homes and migrated to territory still under Finnish sovereignty. This population totalled 420,000, of whom 200,000 were farming people. The latter comprised about 40,000 families who had been tilling about 750,000 acres.

The military defeats in both 1940 and 1944, therefore, dictated new legislation for the resettlement of the displaced persons. The Land Acquisition Act, passed in 1945, was based on the principle that: first, farmers from the ceded territory were entitled to land; second, disabled ex-servicemen, war-widows, and war orphans; and third, all ex-servicemen who had taken part in military operations.

The land was expropriated from the State, from communities, from larger farms and farms owned by absentee farmers. The resettlement program after the war was an unavoidable consequence of a war involving the loss of territory upon which approximately 11% of the population had lived. The consequences of their resettlement cannot be judged in economic terms alone.

The splitting of middle-sized and large farm units in a country where these have traditionally been operated by the owner and have only seldom exceeded the optimum size, means diminished possibilities of rationalization and technological improvements. Very large capital investments were lost in buildings and equipment that could not be used fully after reduction in the acreage of land on the farm.

The large sums spent in execution of the resettlement program were not, of course, always used very profitably. It must

be pointed out once more, however, that the resettlement program was an unavoidable emergency program. Finland was compelled by very hard facts to adopt such a program in order to redress the economic loss and social injustice that the war had heaped upon a large part of the people.

When the Second World War came to an end, there was a great lack of foodstuffs, as there was, generally speaking, of all necessities. It is readily understandable that at that time in Finland, as in many other European countries, the objective set was that of increasing foodstuff production. An objective which would provide security was especially topical following the loss of substantial field acreage as a result of the war.

In consequence of the rapid progress in production technology and the extensive new clearance work which took place during the fifties, the situation of scarcity no longer exists; quite the reverse, Finnish agriculture has now reached such a position that the overproduction of certain products is now current. Such a development is connected with the well-known fact that when the standard of living in a country has risen to a certain level, the demand for foodstuffs does not increase per person, but increases only to the extent that corresponds to the rise in population. It is common knowledge that a rising standard of living means that people transfer their augmented buying power from food to other necessities.

Finland's post-war economic development has been charac-

terized on the one hand by a severe decline in the value of money, and on the other by vigorous industrialization. The advance in the wage level has been so rapid that it has seriously upset economic equilibrium. There is less chance of an economical reduction in the human labor required for farming in Finland than in many other countries. The farms are too small and the fields often stony and of an unfavorable shape. Economical mechanization is also complicated by the high rate of interest that follows from a scarcity of capital.

The number of farms was still rising as late as the 1950's while in the rest of western Europe, for example, any growth in the number of holdings had already come to a stop or, in some places, there was already a decline.

Any increase in the arable acreage of the holdings was negligible. In 1969, the level was roughly the same as that existing three decades before, the average arable area consisting of some 10 hectares or 25 acres. However, in almost every case a farm unit also includes forestland. On the average, the forest-farm area comprises 32 hectares or 80 acres per farm.

The present-day development of agricultural produce in the world markets has, as is well known, been characterized by over-supply and low prices. This has led to increasing difficulties so far as the agricultural population is concerned in insuring the stability of the moderate level of income. The prices on the domestic market have, therefore, been set apart from those of the international ones, which means, in practice, that ex-

ports are only possible with the aid of government subsidies. The fact that exports bring in exceedingly low profit returns may be blamed on the difficulties of finding customers. The export of butter, cheese and eggs, necessitated by over-production, fetches prices of about (or even below) 50% of those of the domestic market.

There is no reason to expect that the international prices of farm produce will change in any way which would improve Finland's ability to compete favorably with other countries on the world market. An export of agricultural products obstructs, therefore, the possibilities of maintaining domestic price levels which would offer a moderate standard of living to the agricultural population. The export to famine-stricken countries is only conceivable in the form of non-commercial foodstuffs.

As far as the future possibility of being able to achieve some kind of balance between production and domestic consumption is concerned, we should take into consideration that during normal climatic conditions the increase in the harvest per hectare seems to be in the order of an average 3% per year. Due to the high standard of living that is already characteristic of the population's way of life, one can hardly count upon a per capita increase in calorie consumption. The domestic consumption can, therefore, be expected to rise only at the same rate as the population increase, i.e. at less than 0.5% per year. Consequently, there are at present about 1,200,000

acres more of cultivated land than is required for domestic consumption.

To be able to reduce agricultural production, either immediately or in the very near future, is, however, not feasible for the very reason that this would lead to a distressed economical situation for the farm population. On a long-term basis, however, an adaptation of the volume of production so that it meets with domestic demands is a necessary stipulation for ensuring a reasonable income for those engaged in agriculture.

Taken on the whole, the labor input of the farming population diminished by about 2.5% per year during the 1960's. The future rate of diminution of labor input will, however, depend upon the possibilities of other sources of livelihood being offered to those released from agriculture, whether by redeploying them or offering them the possibility of further employment outside their own immediate farms.

Thus it is apparent that Finland faces a rearrangement of its previous agricultural policies, a rearrangement which more markedly than ever before aims at a structural rationalization of the farm units and an adaption of the agricultural production to the existing domestic consumption areas.

The increase in the <u>total harvest</u> may be attributed to several technological factors. Generally speaking, the increase is due to improvements in tilling methods and, to some extent, improvements in drainage, more efficient implements and machinery than formerly, and to plant breeding. All this has

brought about an important increase in the productivity of the Finnish soil. The increase in crop production is, however, in large measure traceable to a very marked increase in the use of commercial fertilizers. During the 1960's, the use of commercial fertilizers doubled.

While mechanization itself does not directly increase the yield of the land, it makes possible improved tillage, greater timeliness of vital operations and in various other ways contributes toward greater certainty of performance, reduced risk of failure, and thus to higher yields.

Farm machinery and equipment has been improved considerably in recent years. The tractors are responsible for some 90% of ploughing and harrowing, and combines for two-thirds of the threshing of the grain crop.

The economic possibility of mechanizing crop production on the small Finnish farms is, of course, rather limited. Some help can be provided by co-operative efforts. The sharing of machines, by free agreement between neighbors is, however, more common than machine associations.

Plant breeding has been of great importance in raising the output of crop production. Up to the beginning of this century major crops consisted of old native varieties.

One of the weakest points in Finnish crop husbandry is, without doubt, the still common occurrence of open ditches. This is, unfortunately, a feature characteristic of the farms and constitutes a limiting factor for the rationalization of

agriculture. The government, it is true, has begun to encourage underdrainage by offering loans, but still no more than 17% of the present-day area under plough is drained. Since approximately 60% of the tilled area of the country needs drainage, the task ahead is a gigantic one.

An essential reason for this low rate of progress with drainage is the general shortage of capital in Finnish economic life. Before World War II, wages were low and the labor force available relatively good; as a result, farmers were not, on the whole, particularly interested in labor-saving measures.

In summary, the following table throws light upon the development of the yields per acre for certain crops, as well as on the average yields. The table shows that the yields per acre have increased during the last decade as a result of the progress mentioned.

Livestock production has always been the Finnish farmer's main source of income. It accounts today for 75% of his income. The prominence of animal husbandry in Finnish farming is partly due to the rigorous climate, a limiting factor for cereal crops in large areas of the country; it is also due in part to the large number of small holdings. These two factors imply that the trend of production is toward animal husbandry, especially dairy cattle husbandry. Finnish cattle breeding has always been concentrated on milk production.

In Finland, women to a rather considerable extent tend the cattle. On small farms this work is done by the farmer's wife;

Table 1. The development of yields per acre for some crops.

	Annual average yield in crop units or pounds per acre				
Year	Crop units	Spring wheat	Oats	Hay	Potatoes
1951-53	680	1,360	1,540	2,620	13,070
1954-56	630	1,330	1,300	2,570	12,600
1957-59	660	1,440	1,470	2,640	12,310
1960-62	740	1,600	1,650	3,080	13,640
1963-65	730	1,470	1,640	2,940	13,250
1966-68	810	1,640	1,790	3,100	12,760
1969-71	960	2,000	2,170	3,120	15,100
1972	1,050	2,250	2,190	3,580	13,250

if hired labor is required, it is often women that are taken on.

In the last few years, however, a change in the old pattern appears to have begun. Men are taking up milking, and the increasing adoption of milking machines has aroused greater interest in cattle tending among men. At the present time, about 30% of the total number of dairy cows are milked mechanically. We must, however, remember that 60% of the milch cattle herds are smaller than 5 cows.

As far as cattle breeding is concerned, artificial insemination was organized in 1947. Cattle breeders are keenly interested and the scheme is developing rapidly. Over 90% of the

cows in Finland are considered to be covered by artificial insemination.

Milk-butterfat recording, which originated in Denmark, was begun almost simultaneously in all the Scandinavian countries at the beginning of this century. At the present time, the milk-butterfat recording associations in Finland are dealing with some 30% of the cow population.

The technical factors responsible for the development of animal husbandry are: first, better tending and richer feeding; second, an increased interest in cattle breeding; and last but not least, the organized marketing of animal products, mainly on a co-operative basis. The improvement of milch-cattle husbandry is evident from the fact that the average yield for all cows is now 3,900 kilos or 8,600 pounds, while the corresponding figure two decades ago was 2,300 kilos or 5,100 pounds. The corresponding figures for the cows belonging to milk-butterfat recording are 4,800 kilos or 10,600 pound and 3,300 kilos or 7,300 pounds respectively, the milk fat percentage being 4.5.

The progress shown by these figures is two-thirds attributable to improved feeding. Intense and planned breeding has accounted for the remaining third of the improvement. This is true not only of milch cattle but also of the other branches of animal husbandry. It may be mentioned here that the number of pure beef cattle is completely insignificant.

A comparison of the technical progress between plant and animal production clearly shows that the increase per beast

(milch cows, poultry) is higher than that of the acre yields. This is obviously connected with the fact that animal rearing is less dependent upon climatic and soil conditions, which are not under the control of the farmer.

The present problems facing Finnish agriculture should be studied from three different viewpoints. First, equilibrium should be achieved between the production of foodstuffs and domestic consumption; second, the structural rationalization of agriculture should be carried out; and third, the farming population should be guaranteed a reasonable income level. The simultaneous realization of these three aims will, on a short-term basis, evidently encounter insurmountable difficulties. On a longer-term basis, however, the task is not an impossible one.

Post-war land settlement has been only one of the factors affecting the imbalance between production and consumption. Land settlement activity is estimated at accounting for one quarter of the increase in production. The most significant factor in raising the level of production is the improvement in agricultural production technique. A further factor is the reduction in the horse stock which, in fact, also implies a result due to technological change. It should be noted that in 1955 there were 300,000 horses in Finland whereas in 1972 the figure had dropped to 60,000. It it is assumed that one horse accounts for the fodder production of three acres, the decline in the number of horses has thus led to a reduction in the arable land

requirement of approximately 700,000 acres.

Before the Government resorted to an organized campaign to reduce agricultural production in 1969, the situation was the following one: Milk production exceeded domestic milk and dairy produce consumption by approximately 25%; the corresponding over-production in respect to wheat and eggs was roughly 30%, while occasional surpluses occurred in the production of beef and pork, resulting in a need to export. The most notable deficits were in the production of sugar and oil plants, where the degree of self-sufficiency was only 20%. There is, however, no reason to increase the degree of self-sufficiency in respect to these products, due to high production costs.

The question is not, in fact, solely that of reducing existing over-production, but equally as much that of preventing a recurrence of over-production. It should, therefore, be taken into account that as the yield per acre continues to increase - a development which, on the other hand, must be continued - 50,000 acres of arable land should be taken out of agricultural production annually for other purposes in order to avoid a recurrence of new surpluses.

It is not, in fact, difficult to undertake measures aimed at restricting production. The difficulty lies in finding ways which do not lead to a reduction in the income level of the agricultural population or a weakening in the employment situation.

People are sometimes heard stating that there is no point in going on striving for greater yield per acre and increased

output per livestock unit, since the volume of agricultural production already exceeds the commercial demand. Considering that the increased production volume is the result of research and new technology, which made the technical advances possible, the question is posed as to whether it is reasonable to spend more money on such activities. If research and the introduction of new technology were given up in agriculture, this might perhaps, to some extent, relieve the pressure of overproduction. But at the same time this would imply an obligation to effect the necessary income increases in the farming profession by political price measures alone.

From the point of view of society as a whole, this is not a desirable trend. It is still less desirable from the viewpoint of agriculture. In the long run it would mean a decline, because increased productivity per man-hour is a condition for the progressive development of any industry. The only acceptable method of balancing production and domestic consumption is to reduce the capacity of agriculture, that is to say the agricultural area and the labor force.

During the past two years the measures aimed at achieving equilibrium have been concentrated upon taking land out of cultivation, paying dairy cattle slaughter premiums and following a restrictive policy in respect to imported feed concentrates.

It is evident that equilibrium between production and domestic consumption cannot be achieved before a reduction in arable land area takes place. As long as no change occurs in

this area, over-production problems will continue even though the product which occurs in surplus may vary from one year to the next.

From time to time it is proposed to restrict total agricultural output by imposing maximum production quotas per farm. Such a system would, however, mean a return to a regulative economy with all the ensuing inadequacies and adverse effects. The system of production quotas per farm cannot be accepted since it would paralyze efforts to raise the efficiency of agricultural production and would presumably lead before long to a reduction in the income level of the farming population.

Since most of the smallest farmers lack the prerequisites for rational farming, attempts should be made to assist their transfer, at least in some degree, to other branches. It is by no means realistic to assume that the arable land freed in this way would be left completely unproductive, but more attention than hitherto should be paid to the re-training of small farmers for new jobs. There are, of course, many problems connected with re-training and transfer to a new job, such as housing, adaptation to a new milieu, etc. On the other hand, it would appear that industry is moving to developing areas to a greater extent than before. New legislation also favors decentralization.

On many occasions, I have put forward the suggestion that small farmers should try and become sub-contractors for industry to a greater extent than before. Big industry does not, however, appear to be particularly interested in this type of

activity, nor does it interest the labor unions.

In the effort to achieve equilibrium, the psychological reactions and attitude of the farming population play an essential part. Traditionally, the progressive farmer is the one who achieves the greatest harvest per acre and the greatest yield per animal. Undoubtedly, these factors do have a positive effect on profitability. Nevertheless, a change in the way of thinking is required, and attention should be paid primarily to activity as a whole. In other words, the decisive factor is the acquisition of the best possible income from agriculture, forestry and other earnings together. This means that in certain instances, at least, there should be a shift towards a less intensive agriculture than before.

The use of the land for other purposes than agriculture and forestry will probably become increasingly common. As this occurs, activities such as summer cottage rental, the use of the land for leisure-time activities and other forms of service would be relevant. The belief that a farmer can produce only foodstuffs may be considered obsolete in today's space age.

It has been estimated that during the period 1969-1972, approximately 420,000 acres, i.e. roughly 7% of the arable land area, will have been withdrawn from agricultural production under the land reserve scheme. The production volume will not, of course, decline at the same rate since the land withdrawn or afforested will be of poorer quality. In any event, these measures have been more advantageous from the point of view of the national

economy than the exporting of this land's harvest. Under the land reserve scheme system a farmer who gives up all of his land for three years in succession gets a premium of thirty dollars per acre per year.

This system does have one disadvantage in that it does not result in larger farm units; in other words, it does not assist structural rationalization. For this reason, a more selective system should be aimed at.

A bill was recently placed before Parliament for the introduction of abandonment compensation. According to the proposed bill, compensation would be paid to those persons selling their farm to the state or as additional land for afforestation purposes. Land sold and still in use as arable land would not be eligible for compensation. Another measure with the same purpose is the implementation of an abandonment pension scheme.

Problems connected with technological development and agricultural policy matters have been discussed above. Equally as important as the achievement of equilibrium in production is structural rationalization and a reduction of the income gap between the farming population and those employed in other branches of the economy.

The low income level of the farming population has constantly been a burning agricultural policy problem. Without going further into the question here, it may be pointed out that the latest available analysis, which concerns 1966, shows that the farming population's labor income was equal to only 60% of that

of a rural industrial worker.

The goal is to direct development in such a way that it permits the distribution of state budgetary funds in a way which directs larger sums for rationalization and adjustment purposes. This will in turn lead to a reduction in the need for subsidies. This brings us, however, to a very contradictory and intricate situation. It should be remembered that although agriculture is a declining branch in an industrial society, all those engaged in and still required by agriculture should be given every support and encouragement to improve their holdings in order to make them as vital and as rationally operated as possible. The number of farms will decline in the future but requirements in respect of skill, training and managerial ability will continually increase.

The average Finnish farmer in 1969 was fifty-two years old. During the next few decades a relatively strong decrease may therefore be expected in the number of farmers. Finland is not unique in this respect since a similar situation generally prevails in Europe.

In connection with the last agricultural census, information was requested concerning the generation change. Farmers over the age of fifty were asked whether one of their children or their relatives would carry on their farm. Thirty-one per cent replied in the affirmative, 18% in the negative and 51% did not know.

As already indicated, one of the weakest points in Finnish

agriculture is the small size of the farm units. This tends to be a progress-retarding factor, since as we all know, modern technology favors large units. Even though there are signs of an increase in the size of Finnish farm holdings, a considerable length of time will elapse before a satisfactory farm size is generally attained. Consequently, there is good reason to study various means that may make it possible to carry on production on a larger scale than is permitted by the individual farm's own resources. One of these means is organized joint activities extending across the limits of the individual farms, and centralized production operations. When looking for ways in which efficient production units can be developed in agriculture, it is useful to develop group action models that are applicable under certain conditions and in certain circumstances. The land still remains under private ownership.

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POST-WAR TECHNOLOGICAL, ECONOMIC AND INSTITUTIONAL DEVELOPMENT OF AGRICULTURE IN THE USSR

Almost 10% of the total area of the USSR is under field or tree crops. Livestock are raised both in conjunction with crop farming and on separate natural pastures. Cropland and natural pastures together occupy about 25% of the total area of the country and about 25% of the total employed population is engaged in farming. Farming only provides about 15% of the total gross domestic product and, therefore, has considerably lower value of output per worker than the manufacturing industry which is, in fact, a common feature of many other countries as well.

Farms are either organized on a collective basis in kolkhozes (collective farms) or are run directly by the State in sovkhozes (state farms).

The sovkhoz is entirely owned and controlled by the State. Sovkhoz workers have paid summer holidays and other social privileges; for example, they are paid the same wage even in poor years. The kolkhoz farmers lack these advantages. In passing from private ownership to complete state ownership, the kolkhoz represents a transitional form. A kolkhoz farmer can influence decision-making and thus has a double function; he is both employer, as a member of the kolkhoz, and employed.

It is commonly known that after the winding up of the New Economic Policy in the USSR with the 1928-32 Five Year Plan,

land tenure was reorganized. Most of the agricultural land was collectivized, but some was allocated to state farms. Since that period there has been a fairly consistent tendency to increase the number and extent of sovkhozes in relation to kolkhozes. Whereas at first sovkhozes occupied only 20-25% of the sown area, in 1970 they occupied around half. Their share has been increased both by the almost exclusive creation of sovkhozes in the new land areas and by the conversion of kolkhozes to sovkhozes.

As seen from Table 1, in 1970 there were still more than two times as many kolkhozes as sovkhozes, but the average sovkhoz had more than two and a half times as much sown area as the average kolkhoz. Although kolkhoz members and state farm workers are not directly comparable, there are clearly more persons per unit of farmed land in kolkhozes than in sovkhozes.

Kolkhoz households are allowed to have private plots. Sovkhoz workers have had less freedom, though even they have access to some privately operated land. Land in both cases is owned by the State. Kolkhoz families have been criticized for devoting much more effort to their private plots, which occupy only 3.2% of the farm area but are used intensively and have high yields, than to the collective land.

Kolkhoz and sovkhoz farms differ according to payment of workers and what is produced. In the past, kolkhoz farmers have often fared badly since they have depended upon a small, sometimes nonexistent surplus produced by their collective and dis-

Table 1. Comparison of kolkhoz and sovkhoz features in USSR

a) Kolkhozes	1958	1965	1967	1970
Total number of farms	69,100	36,900	36,800	33,600
Total number of households	18,800,000	15,400,000	15,300,000	14,400,000
Average number of households per farm	275	422	418	431
Total sown area in hectares	131,400,000	110,846,000	102,980,000	99,050,000
Average sown area per farm in hectares	1,900	3,000	2,800	3,000

b) Sovkhozes	1958	1965	1967	1970
Total number of farms	6,002	11,642	12,783	14,994
Total number of workers	3,835,000	7,650,000	7,889,000	9,800,000
Average number of workers per farm	639	657	615	654
Total sown area in hectares	53,894,000	95,687,000	97,090,000	100,870,000
Average sown area per farm in hectares	9,000	7,700	7,600	6,700

tributed among them according to work days put in. A more reliable and generous wage has been paid on state farms. One strike against the state farm system of payment, according to an article in the Times of November 4, 1965, is the fact that work is often paid by piece rates, which encourages workers to cease work after completing their assignments, rather than worry about the success of the farm in total. Collective farm workers, on the other hand, theoretically benefit from the

success of their farm as a whole, and individually from the sidelines.

Data show, surprisingly, that production costs for most items are lower on kolkhozes than on sovkhozes. This may partly be due to the higher standard of living and higher wage rates provided for sovkhoz workers and partly due to the fact that kolkhozes are dominant in more favorable environmental conditions (Ukraine, Blackearth).

The trend in the late 1960's generally seemed to be toward a reduction in differences between the kolkhoz and the sovkhoz. In 1964, a kind of guaranteed basic wage was stipulated for kolkhoz workers; later, pensions for retired kolkhoz workers were introduced for the first time. Equipment and fertilizers seem to be finding their way to kolkhozes more readily than before.

The state farms are the first to test, on a wide scale and in production conditions, new machines and determine their efficiency, try out improved crop and livestock technologies and new methods and forms of labor organization. The know-how of the state farms is transferred to the collective farms for use in increasing efficiency in their operation and for strengthening their economy.

Each state farm is an independent enterprise which is given a definite assignment for the production of agricultural commodities needed by the country's economy. This is an expression of the countrywide division of labor established in the social-

ized economy in a planned way.

State farms and other state agricultural enterprises accounted in 1970 for 38% of the total marketable agricultural output, while the kolkhozes accounted for 50%. Consequently, the residual or 12% is produced on the household plots.

The State authorities determine the prices for agricultural commodities in the different parts of the Soviet Union. The producer prices reflect a compromise between two contrary goals: on the one hand, the prices must be sufficiently low to warrant a high industrial productivity; on the other hand, they must be sufficiently high to make possible increased production and investment on the farms, serving the maintenance of reasonable standards of living for the farm people. Price calculations are based on the average production cost per produce. Such a system favors farms with high costs and a poor economic position. Rational units miss certain advantages, but they are compensated for this by the privilege of receiving a higher price for produce exceeding the planned amount.

Although private ownership of the means of production is not allowed in the USSR, the household plots of the kolkhoz and sovkhoz farmers, also called subsidiary farming, constitute an exception. The land, however, is always owned by the State, even in the privately operated subsidiary or household sector. The Soviet economists themselves seem to prefer the expression subsidiary farming which in this text is similar to household plots.

Although on a small scale, the household sector is run on capitalist principles. The farmers devote much time to their cultivation, with resulting high yields.

The marketing of the produce from personal subsidiary farming deviates from the principles of a socialist economy and resembles the capitalist pattern - in times of scarcity the price is determined by supply and demand. The farmers sell their surplus products under these conditions. Families living far from cities are likely to consume most of their products themselves, but if a city is close by, they will probably bring their commodities to the market and sell them for cash. The families are not only allowed to sell their produce, they are free to determine their prices, even if they are set two to three times higher than the level in the state-owned retail stores. The government accepts this form of private initiative, and thus a system of dual prices is created. As commodities are sometimes not available in the state-owned stores, a profit of this kind is generally made and it is entirely legal. It should be pointed out, however, that the significance of this market is relatively small; the state-owned and co-operative stores control the trade. However, the free markets function as a kind of barometer, indicating consumers' wishes. Moreover, the subsidiary household plots are the safety valve of socialist agriculture, leveling the fluctuations in the socialized production.

The general repression of the private sector under Khruschev's regime, especially in the years 1958-62, is generally

known. Under Khruschev, the sovkhozes were pressed to restrict private enterprises.

Although the assurance had been made that in transforming kolkhozes into sovkhozes the size of the household plots would not be diminished, the campaign against the plots and livestock of sovkhoz workers and employees did, in fact, result in such restrictions in the new sovkhozes. Thus the already mentioned transfer into sovkhozes had a double significance and effect: not only did it shift weight from the kolkhoz to the sovkhoz sector, but also from the private to the socialized sector in general. However, since Khruschev's removal in 1964, the transformation of kolkhozes into sovkhozes has to a great extent lost the side effect regarding the household plots. This is because the norms governing the use of the soil and the keeping of livestock for private purposes, introduced in 1964-65 for sovkhoz workers and employees, no longer differ in essence from the private operations existing in the kolkhoz sector. Here one can see an important new development, the effects of which will be of great interest in the coming years.

Since the restrictions on the private sector were abolished in sovkhozes after the removal of Khruschev, a new increase in private production has occurred.

According to the German expert Wädekin, who has been cited above, the unfavorable age structure of the Soviet farm population differs in its effect in the private and in the social sectors; the private sector gains more workers as more retired

people become available and continue to work in the subsidiary sector.

The Soviet scientist Tihkonov looks upon the existence of a private production sector in a somewhat different way from that presented here. According to him, socialist labor in the USSR is practically the only form of professional labor. Even labor in the personal subsidiary farming of collective farmers and state farm workers is, in fact, a particle of labor utilized in a planned way in socialist society. The share of the gross product of personal subsidiary farming is systematically declining in view of the growth in the socialized sector. But for some types of produce, personal subsidiary farming still accounted for a considerable share in 1971: potatoes, 62%; eggs, 50%; vegetables, 41%; meat and milk, 38%.

At the same time, the socialized sector prevails in the production of wool, and in the production of grain, sunflower seeds, cotton and sugar beet it completely predominates. The share of personal subsidiary farming in the marketable output of agriculture amounts to 8% in the output of crop husbandry and 16% in the output of animal husbandry.

According to Tihkonov, personal subsidiary farming differs from small peasant farming and even private enterprise. First, it is organically connected with the common enterprise of the state and collective farms and is conducted on the farmyard plots which are the property of the state.

Second, a considerable part of the raw materials consumed

in personal subsidiary farming is produced directly in the social sector or with the help of socialized means of production.

Third, the main part of the labor in subsidiary farming is contributed by persons who, owing to their age (juveniles under 16 and retired people), are not included in the total labor force of agriculture and also non-working members of families engaged in socialized production.

Though not socialized, labor in personal subsidiary farming is a particle of the socialist social labor. Its efficiency is determined by the efficiency of labor in the social sector of agricultural production.

According to Wädekin, the sovkhozes' share of the agricultural and sown areas is higher than their share of production, i.e. their productivity per hectare is lower than that of the kolkhoz sector. This is explained by the fact that in the sovkhozes, crop production plays a comparatively larger part, yet - apart from special uses for vegetables, fruits, industrial plants, and so on - the greater part of the soils used for the cultivation of crops are comparatively low in productivity. "The majority of the grain and fodder-producing sovkhozes have poorer soils and natural conditions than the kolkhozes."

The differences between the kolkhozes and the sovkhozes cannot be simply attributed to inherent organizational differences. As already mentioned, the sovkhozes play a larger part in those areas of the Soviet Union where the natural conditions

dictate a more extensive utilization of the soil. In the fertile areas of black soil and in some of the southern parts of intensive utilization, kolkhozes are more common.

Toward the end of his administration, Khruschev made the following statement: "The sovkhozes are state enterprises. They are easier to control and to adminstrate. They give better assurance that the investments of capital will be more rationally utilized." That a similar, although not so determined, attitude is prevalent today is apparent in that in references to "specialization" and "location distribution" the sovkhozes are given obvious preference.

Wädekin states, furthermore, that as long as the balance of labor in Soviet agriculture is not even, as long as there are acute deficiency symptoms in some parts of the country and a surplus of labor in other parts, the development of production in the three sectors depends decisively on the availability of labor. It is not by chance that a transfer to sovkhozes on a large scale took place mainly in parts of the country that had a more or less critical balance of labor. For the time being, the transfer from kolkhozes to sovkhozes obviously takes place more slowly, in the opinion of the author, owing to the fact that such a change claims large amounts of capital and adjustment of organization and management.

There is a pronounced difference between East and West concerning the desirable size of farm units. In the Soviet Union the theoretical goal has been large-scale enterprises or, in

other words, Marx's concept of concentration.

In western Europe, too, the trend has been in favor of scale to some extent, and in Great Britain the development has even been dominated by this tendency. However, the Soviet Union has gone in for farm units of a magnitude that makes further comparison between East and West rather useless.

In the USSR the question as to the desirable size of enterprises has been settled on the basis of political doctrine, without having been sufficiently subjected to theoretical research. Only subsequently has the problem of the optimal size of a farm unit attracted attention, and certain investigations seem to indicate that the giant enterprises do not represent the optimal size; they have exceeded it. The question may be posed as to whether the huge sovkhozes and kolkhozes with many departments (livestock farms, agricultural brigades), running their own accounts and with separate managerial centers, should still be considered as operational units. This role seems to have been taken over by their various departments.

In accordance with Marx's doctrine, it was considered appropriate to furnish socialist agricultural enterprises with modern technological equipment. From their inception, the sovkhozes were supplied as possible with tractors and other agricultural equipment. Regarding the kolkhozes, a proper plan of organization was lacking in the 1920's. However, at the end of that decade, the tractor machine station system (MTS) was developed as a special socialist solution to the problem of mechanization.

For thirty years, from 1928 to 1958, this organization form was a conspicuous characteristic of the socialist agricultural system. The MTS organization functioned as the "industrial material-technical basis" of the kolkhoz system and played an important part in the collectivization of Soviet agriculture. That it has been abandoned today, however, is a development that does not seem surprising. Viewed against the background of the communist doctrine, the kolkhoz system as such is also a transitional form. Attempts are made to introduce fixed wages for kolkhoz workers on a par with those of sovkhoz farmers and to introduce book-keeping of the same kind as in the sovkhozes, making possible the calculation of production costs.

As already mentioned, the MTS played an important role in collectivization and was later also for a long time responsible for the political leadership in the kolkhozes. This system was very expensive, however. Throughout the MTS era brigadiers were employed, some by the MTS, some by the kolkhozes. In addition, there was friction between kolkhoz chairmen and MTS directors. These facts were recorded in the minutes in connection with the Communist Party Decree dissolving the MTS system in 1958.

In a way the MTS experiment can also be viewed as a trial of excessive specialization. It implied a separation of machine technology from the productional units proper. Technology was organized as large service enterprises. It is obvious, however, that the advantages of large-scale farming and specialization -

or of the division of the total amount of work - could not compensate for the harmful consequences of isolating organic parts from the production units. The managerial problem of the MTS organization was not solved to satisfaction either.

During the MTS era the kolkhozes were not allowed to possess machinery equipment (tractors, combines, etc.); they had to use the service of the machine tractor stations. When the kolkhozes were enlarged, this arrangement ceased to be rational. And with the passage of time the political control over the kolkhozes, exercised by the MTS political sections, had become unnecessary. The Communist Party had established sub-organizations within the kolkhozes, which made external control organs superfluous. Moreover, the MTS system had proved very expensive, because tens of thousand of brigadiers had been employed by the MTS and the kolkhozes in parallel.

The basic form of labor organization in Soviet agriculture is the brigade. This form was developed in the 1930's on the sovkhozes and kolkhozes and is generally considered to be a typical socialist model. Within the sovkhozes and kolkhozes, labor brigades usually consist of 30 to 40 workers under the leadership of a brigadier. The brigades are often divided into subgroups of 5 to 10 workers under a group leader. The development of this organizational patter has passed through many stages, and it has not been the same in sovkhozes and kolkhozes. During the MTS period the labor organization on the kolkhozes was characterized by the lack of a personal tractor and machine

equipment. The labor brigades of the kolkhozes, the field workers in particular, were not mechanized.

It is not possible to discuss in detail here the development of the brigade system. It may briefly be stated that since the abandonment of the MTS system, the labor organization of the kolkhozes has approached that of the sovkhozes. The current tendency is to institute brigades with complete machine equipment. There are today field brigades and livestock brigades. In addition, so-called universal brigades are formed to take care of "outlying farms," and mechanized labor groups are designed for certain special tasks, such as the cultivation of sugar-beets, corn and potatoes.

The organization of labor within the brigades and groups is to a great extent based on a system of technical norms. These norms are significant also for the planning of production and the system of payment according to performance. The calculation of technical norms is a method of rational labor organization. It originates in the American Taylorism movement, or "scientific management." The Soviet agricultural economists adopted this idea long ago. The goal is to introduce progressive normative means for various kinds of agricultural labor.

The basic form of remuneration in kolkhozes and sovkhozes is payment according to performance, but time wages also occur. When automation has been realized, wages per hour are considered to be a potentially even more "progressive" form of remuneration than payment according to performance. So far, however, the lat-

ter system has been predominant in the USSR. In the sovkhozes, wages in cash have been paid according to fixed schedules of working norms. The kolkhozes, on the other hand, have lacked fixed schedules for wages in cash, and it has never been possible to make out how much a kolkhoz worker should be paid for his work until the annual closing of the accounts.

However, after thirty years this system appears to have passed its zenith. The tendency is now in favor of the recording of working hours according to fixed norms like the system prevailing on the sovkhozes.

In pre-revolutionary agriculture, the peasant, as a rule, performed all the jobs in crop and animal husbandry. A collective farmer or state-farm worker specializes in performing operations in one branch. This reduces the number of functions he performs and creates favorable conditions for acquiring higher skill. The number of universal workers is reduced and the number of workers with a narrow specialization increases.

The expansion of technical facilities and the transition to industrial methods make new demands on the educational level of personnel in the mass vocations. A need arises for workers who have not only special training but also a sufficiently high level of general education. In view of this, the general educational level of workers in crop and animal husbandry is swiftly rising.

At a seminar held some years ago in Warsaw, Poland, Mme. T. J. Zaslavskaya from the Siberian Branch of the Soviet

Academy of Science presented an interesting paper dealing with the labor productivity and shortage of labor in Siberia. From her paper the following rather critical comments are quoted.

Most eastern areas of the USSR are notable for rigorous climate (hard frosts in winter and short summers), but the southern part of Siberia is agriculturally productive, suitable for livestock and grain-growing. The efficiency of agriculture in western Siberia is 15 to 20% above the average for the Soviet Union and the cost of the most important products is the same as the average for the country.

The main factor retarding the rate of agricultural development in Siberia is the shortage of labor. The numbers of workers there per 100 hectares of agricultural land is 60% that of the average for the USSR. This shortage of labor results in the growing of less labor-consuming crops and in breeding fewer livestock. But even so, the demand for labor in agriculture considerably exceeds the supply.

Evaluations made by planning bodies invariably conclude that if a fuller and more effective utilization of available production resources is the aim, the number of agricultural workers must be increased in Siberia. But this is very difficult to achieve. There is a high migration rate of Siberian rural people to Siberian cities and to other parts of the country. As a result, the number of rural workers in western Siberia is falling even more quickly than the average for the country.

The rapid outflow of young people from the Siberian countryside has serious consequences in rural social life and it impedes agricultural progress by diminishing the number of skilled workers and equipment needed to run the ever expanding fleet of tractors and other machinery.

The movement of part of the rural population away from the land to industry is characteristic of all developed countries. How does this process influence agricultural development in Siberia? In order to answer this question the data collected from 240 collective and state farms in the Novosibirsk district whose boundaries did not change between 1959 and 1964 were used.

The findings of Mme. Zaslavskaya were that a significant rise of production was achieved only in those groups of farms which succeeded in increasing their numbers of workers.

Planning calculations support the view that economic efficiency would be served by increasing the number of workers in Siberian agriculture. But this result has not been attained in practice.

Some findings supported the assumption that regional differences in labor movements were determined above all by the working and living conditions of the rural population in the different regions.

The redistribution of labor among the farms within a district is often economically infective. The farms which suffer most from labor shortage continue to lose labor while those

better supplied gain new workers because they can offer better working and living conditions.

In Siberian regions a strong tendency to move from collective farms to state farms was recently noticed. Thus, between 1959 and 1965 the total number of rural workers per 100 acres of arable land in western Siberia decreased on kolkhozes by 15%, but increased on sovkhozes by 9%.

This fact, together with direct evidence obtained in a special survey of the population of kolkhozes and sovkhozes, points to the need to achieve more rational control over the movement of labor. The living conditions of the people on kolkhozes are still far worse than those on sovkhozes. The rates of pay are lower and the provision of housing, education and medical facilities, transport services and consumer goods is worse.

At the same time, collective farms as a form of economy have good prospects and are as viable as state farms. With equal rates of pay and provision of equipment and transport facilities, states Mme. Zaslavskaya, the mobility of labor in collective farms appears more favorable than on state farms. Therefore, the task is to level up the economic and living conditions of the collective and state farm populations.

A significant portion of migrating youth rationalize their wish to leave the land by the drive for education. Thus, the way to keep youth in Siberian agriculture is, presumably, to increase the educational opportunities in the countryside.

An important factor of migration to the city is dissatisfac-

tion with the system of leadership in agriculture. The rural population suffers much from "middle-level" supervisors, such as brigadiers and others who have often had very little formal training (6-7 grades), in contrast to the young generation first coming to work in industry. The low educational level of the supervisors and their repugnance towards any innovation often cause psychological strains and conflicts in young people, who eventually leave the land. The substitution of more educated young rural people for the present middle-level leaders seems to be a prerequisite for maintaining the younger generation in the countryside.

The management of kolkhozes and sovkhozes can do much to improve the physical conditions in agriculture. The findings show that the majority of young agricultural workers are satisfied with the actual work itself. But their working conditions, such as the number of working hours, the level of work organization and sanitation rank extremely low, and there are many complaints about quotas and prices.

We now turn from Mme. Zaslavskaya's paper concerning the prevailing problems of west Siberian agriculture due to technological developments and return to a more general discussion of the USSR.

While the collective farms grew larger and larger, the units reached a stage at which the existing form of management was inadequate. This stimulated the development of co-operation among collective farms. At the beginning of 1965 there were

4,000 intercollective organizations. Associations of this type represent forms of horizontal integration. On the other hand, agricultural enterprises unite with state plants processing farm produce; processing enterprises are organized within specialized farms and a factory-farm arises on this basis. Agricultural enterprises associate with trading establishments with a view to improve the sales of produce. This form of association of a number of enterprises to rationalize the processing and sale of farm produce represents vertical integration.

In crop farming such inter-farm specialization and co-operation is attained by setting up specialized farms for the selection and growing of stock seed and planting stock, the propagation of hybrid seed and the production of marketable or ready to be processed farm produce (grain, cotton, vegetables, fruit, berries, etc.). In animal husbandry, an interconnected system of specialized state farms is established for the propagation of highly productive stock and the breeding of hybrid animals and poultry, the rearing and fattening of pigs, the production of milk, the rearing and fattening of calves and the production of eggs and poultry.

State-farm specialization opens up considerable possibilities for applying new systems of machines and technology and for introducing a wide division of labor in inter-farm co-operation for the production of finished output.

Industrial enterprises for the primary processing of agricultural produce which are set up in state and collective farms

are particularly active in the rational utilization of the manpower resources of the countryside. The processing plants utilize the relative manpower surplus which arises "in between seasons."

It can therefore be said that, for the time being, Soviet agriculture has intricate economic relations: between collective and state farms on the one hand, and enterprises and organizations which purchase and process agricultural produce on the other; between agricultural enterprises themselves and so on.

The most characteristic features of technological development are the level of mechanization and electrification, deep-going specialization, large-scale concentration, division of labor and mass training of personnel.

Electrification seems to be the basis of technological progress in all branches of agriculture and is considered to constitute a necessary means for the further improvement of the living conditions of the rural population. Electric power is becoming the foundation of comprehensive mechanization of all sectors of agricultural production where stationary processes prevail.

Two years ago the Communist Party of the Soviet Union held its 24th Congress in Moscow. On this occasion, inter alia, two very interesting reports were delivered, one of them by General Secretary Leonid Brezhnev, and the second one by Premier Alexei Kosygin. Both of them dealt with the development of Soviet

agriculture, and it would be worthwhile to give a summary of their statements so far as agriculture is concerned.

Mr. Brezhnev stated that, for a number of reasons, agriculture has been, and for the time being remains, the most difficult and complex sector of the Soviet economy. That is why it is a source of satisfaction that efforts have been crowned with major achievements.

Table 2 gives an idea of the annual average output of major farm products.

Table 2. Annual average output in million tons in the USSR.

	1961-1965	1966-1970	1966-1970 in % of 1961-1965
Grain	130.3	167.5	129
Raw Cotton	5.0	6.1	122
Sugar-beet (for factory processing)	59.2	81.0	137
Sunflower seeds	5.1	6.4	126
Flax fibre	0.41	0.46	112
Potatoes	81.6	94.8	116
Vegetables	16.9	19.3	114
Meat (slaughter weight)	9.3	11.6	124
Milk	64.7	80.5	124
Eggs (thousand millions)	28.7	35.8	124
Wool (thousand tons)	362	397	110

There were, however, delays in the industrial sector in the manufacturing of agricultural means of production. This refers to chemicals, machine-tools and some other products. The plans for supplying agriculture with electricity and machinery had not been fully met.

As to the forthcoming program of further agriculture development, Mr. Brezhnev further states that the rates of growth of the economy as a whole and the rates at which the living standard of the Soviet people rise depend in many respects upon the successful development of agriculture. That is why so much attention was devoted to it in the period under review.

The Central Committee has placed a special accent on creating stable economic conditions stimulating the growth of agricultural production. In specific terms, for collective and state farms, this means stable procurement plans for a number of years ahead, introduction of such incentive prices for products delivered in excess of the plan as would stimulate the growth of production, and other measures.

The other feature is that since isolated measures of an agro-technical and organizational nature are insufficient, we have striven to take into account the whole set of factors determining the development of agriculture, including those of supplying the countryside with the necessary machinery and fertilizers, expanding capital construction, land improvement, personnel training, and improving the organization of production. This has necessitated a concrete analysis of the needs of agri-

culture and finding the means to meet them.

The problems of agriculture are such that they cannot be completely resolved in a year or two, or even in five years; it will take a much longer time and require huge allocations and enormous effort, not only by the farm workers, but by all our industry.

Regrettably, there are still many shortcomings and deficiencies when we endeavor to increase agricultural production.

As before, increasing grain production is still one of the main tasks in agriculture. Grain needs have been growing from year to year. This applies not only to food grain, but also to feed grain, the production of which should be expanded in view of the necessity of rapidly developing animal husbandry.

As the Central Committee sees it, considerable potentialities exist for increasing the gross grain yield both in the main grain-growing areas and in other zones of the country as well. These potentialities consist in a more effective use of fertilizers and machinery and in a rigorous observance of agro-technical rules, in improving the organization of work and perseveringly combating losses of grain and, to be sure, of other farm products.

The collective and state farms and the agricultural organs must persevere in the effort to improve the pattern of the cultivated land, giving priority to those crops and varieties which yield the biggest harvest. In the southern regions, the corn area has been unjustifiably reduced. This situation should be

remedied.

We also face the acute and important agricultural problem of the further expansion of animal husbandry. A big advance must be accomplished in this field if we want to provide the population with intermittent supplies of the most valuable food products and satisfy the growing requirements of the Soviet people in the new five-year period. Here, too, the potentialities available on the collective and state farms should be more fully mobilized. To begin with, they must consolidate the feed resources, the basis for expanding animal husbandry.

At present, personal auxiliary husbandry still plays an appreciable role in the production of meat and milk. However, here and there this does not get the attention it deserves.

Our plans closely align the solution of the current questions of this five-year period with the basic long-term trends in the development of agriculture. First and foremost, the reference here is to the further technical re-equipment of agriculture, to its mechanization and use of chemicals and to large-scale land improvements.

In the years to come, specialization of farming and industrial methods of producing meat, milk and other products will be still further developed. This is natural, for those are processes that shape the future of our agriculture in the long term.

The rapid growth of agriculture leads increasingly to the spread of inter-collective-farm and state-collective-farm pro-

duction associations and the establishment of agro-industrial complexes. These are able to make more effective use of equipment, investments and manpower, and make broader use of industrial methods.

The growth of the productive forces of agriculture, the gradual conversion of agricultural labor into a variety of industrial work, and the re-making of rural life have led to changes in the peasant's social make-up and way of thinking. He now has more and more features in common with the worker. The number of collective farmers whose work is directly linked with machines and mechanisms is growing steadily, and the educational level of the collective farm members is rising. According to the figures for the close of 1970, more than half of the rural population has finished secondary school or an institution of higher learning.

The appearance of an increasing number of inter-collective and mixed state-collective-farm production associations and enterprises is giving rise to substantial social changes.

Naturally, the Party is well aware that much still remains to be done in the way of pomoting culture, improving everyday life and, this must be specially stressed, construction in the countryside. In this respect there is a lot of ground to be covered. But we have no reason for underestimating what has already been accomplished.

Premier Kosygin emphasized that increasing grain production remains the key problem in agriculture.

During the forthcoming five-year period, grain yields must be increased by at least 4 centners per hectare (370 pounds per acre). Though not an easy task, this is quite feasible.

To accelerate the growth of livestock-farming output and enhance its efficacy, provision has been made for the building of mechanized stock units at collective and state farms and the setting up, near the towns, of large state- and collective-farm and inter-collective-farm complexes putting out livestock products by industrial methods, and also of poultry factories.

There must be a radical change in attitude concerning the growing of fodder crops, more commercial fertilizers must be allocated for them, seed-farming must be conducted scientifically and the natural fodder areas must be used efficiently. An increase of the number of livestock and poultry personally owned by the rural population must be encouraged (naturally, within definite limits) and help rendered in supplying their livestock with fodder and pastures.

Mr. Kosygin's statement regarding subsidiary farming in a very interesting one because it implies that the so-called household plots are fully accepted and recognized as a kind of food supply.

The big qualitative changes taking place in the material and technical basis of agriculture are making new demands on the USSR's management system. The large-scale, highly mechanized economy of the collective and state farms is drawing ever closer to modern industrial production. Hence has arisen the

need to apply modern forms and methods of management in agriculture to make wide use of means of mechanization and automation of management processes and trained, skilled personnel.

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