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THE NEW PENETRATION OF THE AGRICULTURES
OF THE UNDERDEVELOPED COUNTRIES
BY THE INDUSTRIAL NATIONS AND THEIR
MULTINATIONAL CONCERNS.

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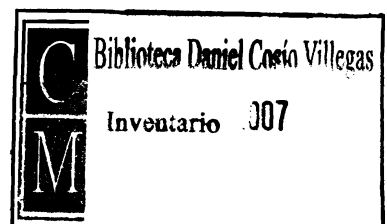
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Introduction

1. The purpose of the following paragraphs is to describe succinctly an issue which by and large has been overlooked by social scientists, politicians and others concerned with the growth and the economic and political impact of multinational corporations.

This issue is the new penetration by the industrial countries - England, France, Germany, Japan and above all the USA - into the agricultures of the underdeveloped countries. In this process, the multinational concerns play a crucial role. But they are part and parcel of a world-wide strategy of the industrial countries in which many other "agents" besides the multinational firms participate.

In trying to analyse this new process, it would seem important to explain briefly in what historical context it occurs; how it manifests itself; and what impact it promises to have on the underdeveloped countries and their rural people.

2. Why has this issue attracted so little attention so far? There seem to be three reasons: first, because it is of quite recent origin, starting approximately in the early 1960's; second, because the action of the multinational corporations has been most "visible" on the industrial and financial fronts; and thirdly, because of the wide-spread and perhaps hitherto not entirely unfounded, but surely now erroneous belief that agriculture cannot be very attractive for the multinational concerns or other investors since rates of returns on agricultural investments are not spectacular and since agricultural producers as a group are not a mass market for consumer goods and for the agricultural inputs produced and sold by the multinational concerns.¹

Why have industrial nations reoriented their agricultural strategy?

3. Two portentous types of events have contributed to reorienting the strategy of the industrial nations towards underdeveloped agricultures which have traditionally supplied them certain foods and fibers, principally plantation crops, for the production of which they have climatic and economic (cheap labour) advantages:

- (a) the continuously deteriorating performance of these agricultures in terms of output and of their ability to provide employment to their rural population; and
- (b) the success of agrarian revolutions and land reforms in several socialist countries.

4. In practically all underdeveloped non-socialist countries agriculture has been unable to respond effectively to the increased demand for food resulting from population growth. The reasons are complex, but undoubtedly the major long-run reason is the inflexibility of traditional land tenure structures, characterised by ownership concentration of farm land in the hands of a small landed elite, on one side, and a large smallholder sector and a large landless rural labour force, on the other. The agrarian structure is the major determinant of the land use pattern and hence of output performance. The most outstanding feature of this relationship is that when land ownership is concentrated in the hands of a few large landowners, there is little or no incentive to cultivate all the land or to employ all the available manpower.² To monopolize land has the purpose - and the result - of preventing the peasants from having access to land; not to cultivate it fully has the effect of keeping farm wages and incomes low and peasants and rural workers in a state of dependency. "Traditional" agricultures are unemployment agricultures.

After World War II, more and more underdeveloped countries have been obliged to import staple foods, although they have adequate resources for more than ample food production. The sector producing food for domestic consumption suffered from an almost total lack of capital investments for long-run improvements (or even maintenance) of its output potential and thereby became unable to increase output in tune with population growth while paradoxically the small export sector ("small" in terms of land area) in which local or foreign capital was concentrated continued to supply industrial nations increasingly with foods and fiber.

An equally serious consequence has been world-wide agrarian unrest, the intensity of which has tended to grow by leaps and bounds. There are today few countries in which the peasants are not actually engaged in active or passive resistance against the landed elite or the governments which defend it or in

which, as a result of prolonged and severe repressions, the peasants would not undertake such action if they were given a chance. The agrarian situation in the underdeveloped countries is highly explosive. Every underdeveloped agriculture is a potential Vietnam.

5. On the other side of the coin, we encounter the successful agricultural development in a series of socialist countries which has had an enormous "public relations" value as far as the peasants of the non-socialist underdeveloped countries are concerned. In some countries this has been so spectacular, that it has become embarrassing for the capitalist countries. Obviously, the industrial countries like to compare the growth of socialist agriculture to that of industrial nations. Such a comparison is often favorable for the industrial nations. It is however misleading. Socialist agricultures should be compared with the agricultures of the underdeveloped countries. Although one should not be blind to the difficulties encountered in the former, they have shown in many instances remarkable rates of growth. The most important examples are Bulgaria, China, Cuba, and the GDR. The success of these agricultures is a potential threat to the status of underdeveloped non-socialist agricultures with their lop-sided distribution of wealth and income, growing poverty and unemployment and increasingly poor output-performance.

6. For industrial countries, the preservation of the agricultures of the non-socialist underdeveloped countries, even with their existing unjust and outmoded agrarian structure, as a source of supply of food and raw material and as a potentially enormous market for all types of manufactured goods including agricultural inputs is paramount. Their industry, commerce or banking depend on them to a large extent for their continuous process of expansion and as a source of significant and easy profit, principally because of the availability of cheap and obedient rural or plant labour. The industrial nations have come to recognize clearly however that the poor performance of these agricultures not only threatens these sources of supplies and with it their ability to control or manipulate their distribution, but also that this performance could become a menace to their own food stocks if they had to supply through sales or donations increasing quantities of their own food output to the underdeveloped countries.

On the other hand, they have also become increasingly aware of the political threat to the entire gamut of economic and political relationships between underdeveloped countries and industrial nations which potential agrarian upheavals imply. There is the constant danger that an agrarian revolution and

reform might end up in aligning an underdeveloped country with the socialist bloc. A revolutionary agrarian reform must therefore be avoided at all costs.

The strengthening of the landed elites in underdeveloped countries

7. For this reason it would seem to be no coincidence whatever that under the leadership of the USA the industrial nations engaged in a two-pronged strategy to control the development of the agricultures of the third world, beginning in the early 1960's. One aspect of the strategy was to foster "rational", legal land reforms which were to show the underdeveloped rural population that something was being done for them, but at the same time encourage, or actually participate in, the systematic elimination and strangulation through military action of peasant organisations and movements. This successful world-wide move has resulted in strengthening significantly the already powerful landed elite, both economically and politically. The elite could now count on both national and international military, political and (as we shall relate more amply below) financial support, and as a result, ownership concentration of farm land by the landed elite has increased. The governments of the underdeveloped countries carried and still carry out small-scale land tenure reforms, including isolated settlement schemes (euphemistically called reforms) in old farming communities or in virgin areas. Their purpose was to pacify the rural population. In effect it also served to divide it politically, and peasant repressions continue. For all practical purposes, land reforms are now a dead issue.

In a sense, this was however only a negative strategy. It was necessary to introduce a more constructive programme. This was to be a broad and systematic assistance scheme intended to "modernize" agriculture i.e. the sector of the large landholdings. I am using the term modernization in the sense that the physical productive processes of the estates - management, land uses, farming practices, use of technology - were to be modernized in accordance with standards used in highly developed agricultures, but that the agrarian structure as such (the distribution of land and agricultural wealth, labor relations and other land tenure conditions) remained essentially the same.

In order to make this modernization attractive to the large landholders a whole gammut of inducements (incentives) was employed which amounted in essence to an enormous process of subsidization.

8. Of course the expression "the agrarian structure remains essentially the same" must not be taken too literally. The modernization process to which reference has been made does have an impact on the agrarian structure. But it is far from having the same impact as an agrarian reform - quite the contrary.

Agrarian reforms change the agrarian structure in favour of the rural masses - the smallholders and the landless - by redistributing land formerly monopolized by the landed elite and breaking their social and political power. The impact of the modernization process on the agrarian structure is entirely in the opposite direction: it strengthens the already powerful landed elite and thereby worsens the conditions of the rural masses. For that reason, the fundamental economic, social and political power relations remain unchanged.

But why should modernization strengthen the landed elite? The reason is relatively simple: the only producers who can take advantage of modern know-how - technical assistance, modern machinery and equipment etc. - are the large and medium-sized landowners. To understand this, one must keep in mind that almost the entire institutional structure - the credit system, the marketing structure of agricultural inputs and outputs; the export channels, to name only a few - is geared towards the landed elite sector, including the plantations, the traditional estates and now the new modernized estates. If modernization benefits some smallholders or some of the landless workers (e.g. because a few may get jobs requiring higher skills and earning slightly higher wages), this is only a marginal side-effect. If all the elements (resources) which make up the modernization process flow to the landed elite, the distribution of wealth, income and political power tends to become even more unequal, with all the consequences which this implies. This has in fact been the effect of all modernization programmes throughout the third world, as for example recently of the so-called green revolution. We must therefore comment briefly on the nature and implications of this operation.

Mexico: birthplace of modernization of landed elite agriculture

9. It would seem that the origin of the new, world-wide modernization strategy can be found in Mexico, the birth-place of the green revolution. It is not entirely clear whether the development and organisation of a highly modernized, capital - intensive, partly export-oriented agriculture which began around 1950 and was (and still is) concentrated mainly in the irrigated areas of Mexico which occupy a relatively small portion of all Mexican farm land, was part of a deliberate policy or whether it was the result of a number of accidentally converging factors. I am inclined to believe that it was the former. It consisted in redirecting systematically and on a large scale national resources away from the peasant (land reform) sector and towards new areas in which new, large, modern, highly capital-intensive, commercialised farm enterprises were organised. This was undertaken in part with foreign technical assistance and capital. To this end, the state financed enormous new irrigation facilities or re-established old ones; channeled credit to the

new crops cultivated in the irrigation areas; subsidized the importation and spread of modern, foreign technology and of other modern agriculture inputs and sponsored the establishment of a Rockefeller (Ford) Foundation project to develop high yielding varieties of maize, wheat and sorghum which could only be grown under "optimum" conditions, i.e. with the "package" of expensive modern technological inputs which can only be applied effectively if the institutional structure - land tenure, credit, markets, laws etc. - facilitate their use.³ This was (to repeat) achieved at the expense of the peasant land reform sector which was increasingly being starved of funds and whose institutions were systematically being coopted and put at the service of the small but powerful new modern sector.⁴

10. It is extremely important to understand the Mexican process of modernization in agriculture if one is to comprehend or predict the outcome of similar processes elsewhere in the world. Mexico presents today in a new form many of the problems which besiege the under-developed agricultures - in some respects even in intensified form. As was to be expected, Mexican agriculture - meaning the heavily subsidized modern sector producing staple foods and specialized crops for exports - responded quickly to the enormous injection of capital and technology. During the 1950's and part of the 1960's, Mexico showed rates of growth of agricultural output unparalleled anywhere in the under-developed non-socialist world. From a food importing country, Mexico became a food exporter, not only of the products for which climatic conditions were especially suited, such as certain tropical products, but even staple foods such as wheat and maize. In fact, food exports were fostered even though the diet of the Mexican working population remained utterly inadequate, because the distribution of the output of food was obviously regulated by the purchasing power of the domestic and international markets. The output situation is such that Mexico has become the most important source of certain fruits and vegetables for the United States, to a point where Mexico now provides two-thirds of the winter vegetables required in the USA.

While the new estate sector performed extremely well, the peasant sector disintegrated at great speed. This means that the largest portion of Mexican agriculture in terms of land area and population, suffers from an acute problem of poverty, inadequate diet, unemployment and social unrest, all of which have increased steadily to a point where social and political peace becomes harder and harder to maintain.⁵ This disintegration was not only caused by the withdrawal of adequate political and financial support from the peasant (land reform) sector, but was also the direct consequence of the modernization process - the replacement of labour by machinery and the

deterioration of the terms of employment on modern farms which require seasonal manpower.

As was also to be expected (and indeed these processes were predictable), the green revolution "miracle" of Mexico soon turned out to be a failure from the point of view of production itself, as far as staple foods were concerned. Rates of growth steadily declined since the late 1960's and Mexico now imports very large quantities of its staple foods so as to avoid famines. This is not the consequence - as some people might argue - of climatic reverses, although it is obvious that agricultural output is always affected in the shorter run by the weather. There seem to be five specific reasons for this development. The first: the lack of adequate and broad programmes and support for developing and improving and then diversifying peasant agriculture, beginning with the better production of maize, the staple food of the Mexican population. Maize yields in the peasant sector have not improved adequately, if they have improved at all. Most of the maize acreage is cultivated in rain-fed areas, with low levels of technology and inadequate effective government assistance. Diversification is still in its infant stage. The second: the amount of land devoted to the production of staple foods under irrigation has become increasingly insufficient to feed a rapidly growing population and yields there cannot grow indefinitely. This is partly due to the third reason: increasing amounts of fertile irrigated or rain-fed areas are devoted to the production of more remunerative crops which are exported and which cannot be absorbed domestically because of low purchasing power.⁶ The fourth reason is that the land-monopolizing producers in the irrigation district, in their desire to maximize their individual profits, can shift abruptly from a staple crop for domestic or foreign consumption to a more remunerative crop which may for example be suitable only for cattle feed (as occurred recently in Mexico on a large scale when they shifted from maize and wheat to sorghum), thereby leaving the domestic food situation in a chaos (and incidentally forcing the government to raise support prices for the staple foods). From a social view point this is not a desirable development. The fifth reason is the decline in capital investments on the farm level, as will be explained in paragraph 11 below.

All this has been the consequence of a policy of highly unbalanced growth which has put too much reliance on a small capitalist elite sector, instead of putting rural development on a broad peasant basis.

Perhaps the most significant factor has been the development of foreign domination over important sectors of Mexican agriculture which is associated with the expansion of the land area and of the output of staple and export crops. And to this, we must now turn our attention briefly.

Modernization of landed elite agriculture leading to domination of foreign capital and technology in agriculture and allied industries.

11. The high yielding varieties of seeds developed by the Rockefeller-Ford Foundations have often been referred to by the public relations experts of the Foundations as "miraculous" because of the impulse they gave Mexico's output in the irrigation districts dominated by large-scale producers. Much more miraculous is however the impetus they have given the import and sales and later the "local" manufacture or assembly of the sophisticated inputs (such as tractors, fertilizers, seeds, feeds, irrigation equipment etc.) which make up the "package deal" required by the new modernization programme and which can be afforded only by the larger, richer producers and those who have access to credit (which is usually the same). The expansion of intensive farming has served to expand the requirements of inputs originating in countries other than Mexico, particularly in the USA, with the exception of fertilizers most of which are produced and sold by the government. The consequence has been a veritable invasion of both products produced principally by multinational corporations and imported by Mexico and of multinational firms in a vast gammut of fields and at all levels of the economy. Without exaggeration it can be affirmed that the bulk of the modern inputs required by the modernized agricultural sector are provided by the non-Mexican firms, principally US enterprises.⁷

What is more: it is characteristic for the modernization process in agriculture aided by foreign investments and technology that the expansion of food output limited to a definite and finite sector attracts in its wake an ever-increasing amount of additional foreign capital and technology for all kinds of agriculture-related industries and services. Once the process is set in motion, it "snowballs", so that an increasing proportion also of the agricultural output (its most important items) and its distribution is controlled, at all levels, by non-local investors.⁸

The shift of capital and technology to the agriculture-related industries and services is without doubt one of the reasons why a strategy focused on the rapid development of a geographically limited sector is bound to result in a levelling-off of production. After the initial rapid growth of the "pampered" sector, upper production limits are reached and production levels off, not only because of the physical limitations, but also because no further influx of capital and technology will occur into agriculture on the previous scale. Since population continues to increase, production again will not keep up with population growth and the food situation returns to "normal".⁹

12. So it comes that an important section of Mexican agriculture and of agriculture-related industries is now directly dominated by foreign capital and technology. Few Mexicans seem to realize how far the "encirclement" of their agriculture has gone. Once the foreign suppliers of agricultural inputs were beginning to be established, they and other capitalists from the US and other industrial countries ventured directly into the production, marketing, processing and export of a great new variety of food products, ranging from the staple foods to cotton, sugar, and the most important fruits and vegetables destined for the US and other foreign markets.¹⁰ The predominant economic factor in this development is the large cost advantage, mainly due to the low wages of Mexican labour. Not only do US financial entrepreneurial interests monopolize, and therefore control, the trade channels, the financing of production, processing and marketing (incl. exports) and the technology associated with the production, handling, transportation, processing and warehousing etc., but they also are able to determine directly or indirectly the quantity of output and the acreage needed to produce, inasmuch as the US (and other foreign) demand has become an important, and in some cases the major factor in the allocation of Mexico's agricultural resources for the products involved.¹¹ In fact, the foreign interests have obtained thereby a power of direct or indirect control over the land itself and the producers because the foreign-owned plants (i.e. the plants with foreign capital) contract directly with the producers and furnish them with credit and inputs in return for their output.¹²

This new process of control over Mexican agriculture - which is typical for the trends which now are visible in many, if not most underdeveloped countries throughout the world - is therefore characterized by the fact that it not only involves the traditional plantation (enclave) sectors - sugar, bananas, coffee, tea etc. - but a host of other products, including the staple foods. As a result, foreign interests are able to determine to an even larger extent the agricultural and agrarian policies of the host country.

13. The penetration of foreign capital and technology in Mexican agriculture has created conditions of domination and economic distortions which resemble those brought about in industry. There are economists, businessmen and politicians who would claim that without foreign capital and technology, an underdeveloped agriculture cannot progress at all. While these claims have a great deal of justification, they overlook important disadvantages which arise out of the conditions under which this transfer occurs. The major disadvantages are the result of

(a) the inability - lack of bargaining power - of the underdeveloped governments or local entrepreneurs, not to speak about organised or unorganised labour, to

- effectively control this transfer and the terms under which it takes place;
- (b) the highly inequitable distribution of benefits from this transfer: the benefits flow to a tiny clique of local rural and non-rural capitalists, a small group of the available rural manpower and a small section of the consuming public, in comparison with the total population and the aggregate private and public resources used to implement this transfer;
 - (c) the highly unequal distribution of benefits at the international level: a high proportion of the agricultural returns flow back to the industrial countries and increase the debility of the foreign exchange situation;
 - (d) the interference of foreign capitalists directly or through their governments in domestic agricultural and agrarian policies and programmes;
 - (e) the increase in social and political conflicts arising in the areas of commercial food and fiber production and spreading throughout the country which accompany growing income discrepancies and worsening conditions of land tenure and of terms of employment for agricultural labour in the modernized sector.

A birdseye view of the implications of the transfer of capital and technology into underdeveloped agricultures.

Unfortunately not much is known about the precise aspects of the transfer of capital and technology in agriculture even in Mexico where new legislation has given the Mexican government for the first time the right to inspect and control some of the more formal aspects of it - for example the right to inspect and adjust contracts for the transfer of technology between foreign and Mexican firms. But the little that is now known is already highly revealing. According to one expert who, as a government official, has access to the relevant material, the following situation and practices can be found in Mexican agriculture and agriculture-related industries:-¹³

- (1) The extremely scarce information available for agriculture refers exclusively to innovations and the functioning of research and agricultural extension services;
- (2) the visits of independent foreign technical assistance experts and those sponsored by producer associations (usually meetings held locally) benefit almost exclusively the large producers and livestock growers who can afford the costs;
- (3) technical assistance furnished as a result of contracts between firms established in Mexico and foreign firms have important technological and economic consequences, as shown by a study of over 30 such contracts:
 - (a) the firms established in Mexico are almost all subsidiaries of the foreign firms and receive technology from them and manufacture agricultural inputs, process agricultural products or merchandise finished products
 - (b) besides know-how, technical assistance and industrial property rights for manufacturing, the licensed firms in Mexico receive in the great majority of cases the visits of foreign experts who supervise the technical assistance given agricultural producers
 - (c) two grave problems arise out of the transfer of technology

in agriculture: indiscriminate mechanization resulting from the initiative of the manufacturers of agricultural equipment and exclusive considerations of private profitability of large producers; and the use of machinery which is not adapted to the private and social needs of Mexico since this technology is adapted to the needs of the industrial countries and designed to save labour

- (d) technical assistance is oriented principally towards increasing the sale of the firms manufacturing agricultural inputs which provide the assistance; hence it is not always adapted to the producers' needs and is oriented towards
 - large producers in irrigated or rain-fed (riskless) areas.

(4) Technical assistance received by processing plants - principally fruit and vegetable canning or milk processing - obtain from their plants (in the industrial countries) advice on technical aspects of their purchases of agricultural products, involving

- (a) development of product varieties adapted to the processing
- (b) quality control and product standardization
- (c) planting, fertilizer usage, techniques of harvesting and preservation
- (d) pest control and diseases
- (e) feeding and breeding techniques for livestock

(5) The assistance furnished is focused on selecting varieties needed by the plants to minimize costs. This selection does not conform always to the profit needs of the producers, although the latter benefit from certain securities with regard to the sale of their production. In view of the fact that a large proportion of the plants' output is exported, technical assistance furnished promotes certain types of agricultural output which without the export would probably not exist.

(6) The firms which purchase agricultural products usually furnish assistance in the form of a package deal. This includes an agreement to purchase the harvest, to furnish credit and agricultural inputs. As a result, the "free" technical assistance is amply compensated by various mechanisms (from the plants' point of view).

(7) The most direct transfer of technology to Mexican agriculture results from contracts between foreign firms and firms established in Mexico which purchase agricultural products for marketing and processing. The licensors are foreign firms engaged in developing and marketing improved varieties of seeds, and through their contracts

- (a) sell their seeds and agree to furnish the licensees new varieties developed by them
- (b) furnish know-how and technical assistance to the "Mexican" firms and occasionally to the Mexican producers of seeds
- (c) permit the use of their registered names
- (d) occasionally purchase part of the seeds produced in Mexico.

The licensed firms in Mexico, which are usually subsidiaries of the foreign firms, make contracts with Mexican producers to purchase their harvests (cotton, e.g. for the manufacture of vegetable oils etc.) or their specific seed output.

(8) The payments which correspond to the use of registered names, know-how, and technical assistance are in the form of a percentage on sales; fixed payments per ton of seeds produced and sold or processed or in other ways. In addition, there is a charge generally for the fees, travel expenses and living costs of the foreign experts.

Prior to the Law on the Transfer of Technology, such payments represented about 6, 8 or up to 10 percent of the net seed sales, although the exact magnitude of these payments is not yet known with accuracy. In any event they represent payments which are very high in relation to the average payments in the industrial sector which generally are also excessive.

(9) Some of the more complex contracts related to the handling and processing of licensed seeds contain restrictive provisions, such as

- (a) obligation by the licensee to utilize the seed furnished by the licensor uniquely for planting and to provide annual reports regarding the unused seed
- (b) obligation by the licensee to sell the surplus seed back to the licensor at the termination of the contract
- (c) obligation to submit to the licensor annually, for his approval, a detailed report regarding the acreage to be seeded with each seed variety
- (d) prohibition to plant approved rented land with seed varieties other than those of the licensor
- (e) obligation to process for oil from the harvested seed all the seed which does not conform to the licensors' specifications
- (f) prohibition to export the seed produced in Mexico.¹⁴

This preliminary view of only a small corner of the transfer of technology in Mexican agriculture - the remainder being still unknown because of the total lack of research in the area or the impossibility of obtaining information on the transactions of multinational firms - permits a partial view of the impact and the mechanisms which operate there. Obviously many aspects both of the transfer of foreign technology and of capital are unaccounted for: the arrangements regarding the manufacture of agricultural equipment; the sale and distribution of imported inputs; the ramifications of the financing of exports with foreign capital; the ramifications of financing of the production and processing of agricultural exports; the payments of royalties, licenses etc. for the manufacture or sale of foreign, but locally produced or assembled equipment and other inputs, and many more.

14. It is my judgement, which is shared by Mexican observers, that foreign capital and technology have like a spider spun a web of mechanisms around the most important sectors of Mexican agriculture at all levels of production, processing, merchandising, financing etc. so that a large sector of Mexican agriculture - its "most modern, productive, dynamic" sector - is now but an extension of US agriculture, US financing and banking, and of US agriculture - related industries or industries producing inputs, which all operate in connivance with the Mexican government and part of the private (capitalist) sector to exploit Mexican rural labour, Mexican land and water resources and Mexican private and public capital for the principal benefit of US entrepreneurs. Given this development, it is highly doubtful that the belated efforts of the Mexican government to control the transfer of foreign capital and technology more effectively will have any but marginal results for Mexico's dependence on the industrial nations.¹⁵

Applying the Mexican strategy on a world-wide basis

15. We now return to the world scene. The initial success in Mexico

of the spread of the high yielding varieties of seed consisted in raising output of staple and feed crops under "optimum" institutional, ecological and technical conditions, and in sharply increasing the sale of sophisticated agricultural inputs (in a package deal) produced and sold by multinational corporations.

Hence nothing seemed easier and more desirable than to apply the Mexican "lesson" on a world-wide basis. The 1960's have witnessed a tremendous onslaught on the non-socialist underdeveloped countries principally by the US business community in cooperation with the large Foundations and the US government through a new world strategy of "agricultural development", which lately has become more and more complex.

The stated reasoning behind this new strategy was both simple and plausible: The "new technology" based on the use of the new seeds would increase miraculously the output of food and at the same time be good for US business, and the US is best equipped to provide technical and financial assistance to the poor countries; the underdeveloped countries should obtain the necessary know-how from the multinational corporations; and if the "farmers" (producers) of the underdeveloped countries would only act like US farmers, i.e. like capitalist entrepreneurs, they would be able to purchase billions of dollars worth of sophisticated and less sophisticated inputs manufactured and sold by the multinational corporations. The apostles of modernization made therefore no bones about the economic advantages of the modernization of underdeveloped agricultures for the United States.¹⁶

The unstated argument behind this new strategy was that the "green revolution", while spreading food, would prevent the spread of agrarian conflicts and therefore of socialism.

16. The effects of the new strategy are now too well known to need much additional comment here. All over the world the green revolution as a symbol of "modernization" turned out to be an entirely predictable economic, political and social failure, a pure and simple catastrophe for the peasant masses, although not for the multinational corporations producing agricultural inputs.¹⁷ The impetus given the estate sector through international and national financial, political and institutional support has, without any doubt, been a windfall for these corporations. On the other side, however, the modernization strategy has not kept its promise of plentiful foods and it has aggravated dramatically the agrarian conflicts wherever it has been applied. It is useful to speculate why "modernization" is bound to fail:

(1) one reason is the technocrats' approach to the problems of underdeveloped agricultures, whether they be economic, social or political. The prevailing

idea among technocrats is that it is sufficient to transfer modern know-how from industrial countries to the underdeveloped agricultures to achieve results identical to those achieved in the former. This is a fundamental error. It is necessary to comprehend the social system into which modern techniques are injected. If they are transferred to a rigid society mainly composed of a relatively small elite and bourgeoisie and a large, partly unemployed proletariat, the effects must logically be entirely different from those of an industrial country where labour is relatively scarce, social and geographical mobility high and alternative employment opportunities available;

(2) under most - and perhaps under any - conditions the spread of new technologies results in forcing society to adjust to these new technologies.

The widespread argument that there are technologies which are, or can be, adapted to a (technologically inferior or underdeveloped) rural society - so-called intermediate technologies - seems to me to be based on a fallacy. It would seem that practically any change in technology - i.e. in the techniques used in the productive processes¹⁸ - has to result in more or less significant changes regarding the social relationships and the quantity or quality of employment regardless of the degree of sophistication of the new technology introduced.¹⁹ There seem to be few, if any, exceptions to this rule, particularly if one keeps in mind that a transfer of technology seldom, if ever, involves a single technique. By the very nature of things it must involve a sequential technological package. For example, the introduction of a high yielding variety of seeds draws in its wake, as if by force, the use of new fertilizers and pesticides, harvesting methods, on - and off farm processing, storage facilities etc.²⁰ The most visible case is the introduction of sophisticated inputs, such as mechanized equipment. Tractors obviously replace manpower,²¹ and if the replaced manpower is to be employed elsewhere, employment programmes must be initiated, unless there is a scarcity of labour in other sectors. The effects are even broader, since the entire relations between employers and workers and between workers' groups can be affected, such as the terms of employment, the amount of time for which employment is available etc.

But it is even visible in the case of very simple technology. In Indonesia recently, the spread of high yielding varieties of rice was accompanied by the introduction of the sickle (nothing more complicated than that) and it raised havoc among the communities and the workers who had previously cut rice with a small knife, each rice stalk individually:

"The use of the sickle is thus a logical consequence of the new rice technology, but the reduction in labour requirements by means of this technique could not be accomplished by the farmer without the penebas' [a trader who buys a producer's rice crop and sends his own harvesters to harvest the rice with the sickle, displacing the local harvesters] ability to limit the number of harvesters." ²²

In contrast to the authors' opinion, there is nothing logical about this consequence, except under conditions in which a private profit-seeking entrepreneur, in this case the penebas, is allowed to upset the labour market without sanction by society and without a compensating mechanism to absorb the displaced manpower. This society already plagued by un- or underemployment has not even considered the desirability of employing more labour to take care of the greater harvest - which seems to be the more logical consequence from the point of view of the workers. The same author reflects the perversity of the system when he continues to state that

"The penebas system appears to be a response of the landowners to the large groups of harvesters both landless local people and itinerant labourers who descend on the villages. The penebas system emerges as a method of protecting their income[sic] and allows them to benefit more from the use of high yielding varieties."23

The philosophy behind this system and this argument is then that the richer must defend themselves against the poor, or, what comes about to the same, that the poor are an obstacle to development!

A still more incisive change in the quantity and consequently also the quality of employment stemmed from the introduction in Indonesia of mechanised rice-hullers. The economists of the Agricultural Development Council are now arguing whether the introduction of this 1500-2000 dollar piece of equipment resulted in the unemployment of 100 000 or 1 200 000 people!

Hence if society (e.g. an agricultural community, or the agricultural sector as a whole) must adjust itself to changes in technology (and not vice-versa), this adjustment will bring advantages to some and harm to others. If harm is to be avoided, this must be achieved through adequate strategies. In a society in which the "free enterprise" system operates, such strategies are not expected to be forthcoming unless great pressure is exerted by those who are harmed.

Thus the real problem with reference to changes in technology is not whether the technology is adapted to society, but whether society is structurally in a position to absorb a change in technology without any, or at least any significant, harm befalling any of its groups;

(3) the attempt to solve the agricultural and agrarian problems merely through a sectoral (agricultural) programme.

17. The US-led strategy to modernize the underdeveloped agricultures has led to a complex and far-reaching penetration of foreign, mainly US, capital and technology in many countries. This penetration is achieved in cooperation with local businessmen through the activities of the multinational corporations, the large Foundations, the large banks of the industrial countries and through

the international lending agencies, such as the World Bank. As in Mexico it appears also at the farm level. For example, new information reveals that US and other industrial nations' investors apparently now invest heavily in farm land itself - at least in some selected countries - or obtain control over vast areas of farm land and its population through other ways, including through "concessions" on land for non-agricultural purposes, such as for oil or minerals. Obtaining such concessions affects the structure and functioning of the agricultures of the concession-areas.

An example is Brazil. It has been reported on the basis of a parliamentary enquiry in Brazil that since the military coup of 1964 US investors have purchased 32-35 million hectares of farm land in some 7 or 8 agricultural states of Brazil - the average acquisition of land being about 400,000 hectares.²⁴ This implies that about 10% of the total farm land of Brazil is directly owned and controlled by foreigners and clearly this control has far-reaching economic and political implications which need not be stressed here. But what needs to be stressed is that it implies, as in the case of Mexico, an extension of US agriculture and agriculture-related industries (of the multinational type) into foreign territory, almost as if the "foreign" agriculture was being operated as "at home". Unquestionably this process tends to reinforce the status of the local landed and urban elite since the financial, social and political interests of the foreign landowners become identical or almost identical to those of the local landed elite.

I am not claiming that Brazil is a typical case, but the trend towards an increasing foreign control over farm land through the various methods which I have enumerated is easily recognizable in the various regions of the third world.

The proliferation of foreign (mainly US) capital and technology at other levels, such as processing or marketing (including exports and imports), is equally difficult to demonstrate statistically and would require country-by-country research. Nonetheless there is little doubt, from widely scattered available evidence, that very large quantities of both capital and technology are involved. Wherever agricultural production, processing and marketing is "modernized", there is a 99 percent probability that foreign capital and technology are engaged in the process, with results identical to those we have explained for the case of Mexico.²⁵ Here are some examples of the forms in which this transfer takes place: imports or assembly of foreign machinery and equipment (tractors, irrigation equipment etc.); imports or local manufacture of fertilizers and agricultural chemicals; imports or cultivation of seeds; processing plants with imported machinery and equipment; sales outlets for farm implements and machinery and other agricultural inputs; public relation firms; management consultants and law firms; export and imports firms, and short-term

business or technical experts or consultants. In the aggregate, this involves a very large investment, much of it concentrated more heavily in some countries than in others, and regiments of foreign personnel to man the jobs which the transfer of capital and technology generates. An idea of the importance of these transfers now and in the future can be obtained from the fact that the World Bank has begun to increase its agricultural lending activities to between 4 and 6 billion dollars in the 1974-79 period,²⁶ - (it might even become larger), complementing and bolstering the capital transfers stemming from other agencies or business firms. A large proportion of the Bank funds is bound to be used for inputs in agriculture or agriculture-related industries and to finance the purchases of various types of consumer goods, most of them produced or marketed by the multinational firms established in one way or another in the underdeveloped countries and "serving" their agricultures. It is thus undeniable that we are witnessing a massive process which is bound to have a profound influence on third world agriculture. Its main feature is the rapidly increasingly control over the production and distribution of agricultural commodities by industries with head-quarters in the industrial nations (or fake-headquarters in small countries offering tax and other advantages) and a growing market for consumer goods produced by multinational firms for the benefit of the higher income earning groups.

Capitalist expansion in the smallholder sector: a subphase of modernization

18. My last paragraphs deal with a phase of the modernization strategy, the origin of which is quite recent: we may call it the attempt to reinforce capitalism in the smallholder sector of the underdeveloped agricultures.

It has escaped neither the businessmen of the industrial and underdeveloped countries nor the international technical and financial assistance agencies including the large Foundations, that the green revolution (symbolizing the modernization schemes) has created more economic, social and political problems than it solved. It is true that it has raised output in the privileged sectors. But innumerable reports and studies have confirmed the existence of increased unemployment, poverty, land invasions, destruction of agricultural machinery, rural strife and killings as a direct consequence of modernization. The industrial nations, again led by the US, have therefore recently come to the conclusion that more must be done to "help the poor" in the underdeveloped agricultures. Their strategy is to inject larger amounts of money into the smallholder sectors of these agricultures in order to make available to them the inputs required to increase their outputs and presumably their incomes.

The first stage of this assistance to the rural poor involved, and

continues to involve, large private, principally foreign, business firms (e.g. big food processing firms, agricultural machinery manufacturers or dealers) "philanthropic" foundations and other aid agencies which undertook "projects" designed to help groups of smallholders adopt modern technologies by offering them lines of credit under supervision. The main objective was to make of the selected peasants "agricultural entrepreneurs" and thereby expand the markets for agricultural inputs produced principally by the multinational corporations. The sum total of these projects is now beginning to be quite significant although the individual projects are small, given the resources which these firms or agencies are willing to risk putting at the disposal of the rural poor. The second stage now involves also the World Bank and threatens to become a massive scheme to expand capitalist agriculture in the smallholder sector of all the underdeveloped countries members of the World Bank.

The World Bank scheme was outlined in the address of the president of the Bank, McNamara, to the Board of Governors in Nairobi in September 1973. It proposed to double the output of 100 million smallholders by the end of the century in order to put an end to their dismal poverty. The Bank offered to finance this enormous scheme by allocating "a component" of its agricultural loans to the rural poor, although it did not spell out how much money this "component" would actually involve and whether this "component" would match the enormity of the task.

The reason why McNamara saw himself obliged to come to the aid of the rural poor was that increasing rural poverty due in part to the efforts of the green revolution could no longer be wholly ignored even by the World Bank, and that the governments of underdeveloped countries have little incentive to modify the rural income and wealth distribution pattern (i.e. solve the problem of rural poverty) on their own accord. McNamara's proposal is precisely to fill this gap. By waving what might be hundreds of millions of dollars before the hungry eyes of governments in underdeveloped countries short of foreign exchange, he tries to supply them with the lacking incentive to help their rural poor.

From the point of view of the poor, McNamara's scheme must appear a political absurdity. To no one but the poor would McNamara dare propose a plan whereby the poor would be better off "by the end of the century", all the more as McNamara confessed himself that he was not quite sure that he knew how to solve the rural poverty problem:

"Neither we at the Bank, nor anyone else [sic] have very clear answer on how to bring the improved technology and other inputs to over 100 million small farmers - especially to those in dry-land areas - But we do understand enough to get started [sic] .. Admittedly we will have to take some risks. We will have to improve an experiment. And if some of the experiments fail, we will have to learn from them and start anew." (My emphasis)

This would no doubt be economically and politically unacceptable to them if the plan were to be offered them directly and not their governments which do not represent them. The poor would see in the World Bank scheme nothing but a programme to contain them and to preserve the power and privileges of the well-to-do. The political absurdity lies precisely in the fact that the rural poor - the small-holders, and the landless whom McNamara leaves out of the scheme in their totality - will, under the McNamara scheme, continue to face the power, prestige and overwhelming economic superiority of the landed elite whose superiority is precisely based on the exploitation of the former. The problem of the rural poor is not only lack of money, but also the insecurity of their being able to earn the little income accruing to them the next day, next month or next year - the insecurity of their jobs and livelihoods and their knowledge that jobs do not match the availability of manpower. On this score, McNamara's scheme has nothing to offer the smallholders because the transfer of money and inputs to the smallholder sector changes little, if anything, in the agrarian structure or in the economic, social and political status of the rural poor vis-à-vis the landed elite. They would no doubt gladly swap at least part of the World Bank money for the certainty which a new, more equitable social system might provide so that they and their children would know where tomorrow's bread or rice will come from, and that it will be forthcoming.

In fact, the McNamara scheme provides continued if not vastly enhanced uncertainties for the rural poor, as is easy to demonstrate.

Ostensibly McNamara justified his assistance scheme for the rural poor as being a "moral issue", as one should not continue to ignore "the world's wretched victims of absolute poverty", to use his own words. But what allegedly is a World Bank welfare scheme at first sight, turns out to be in reality a hard-boiled financial, banking operation to bring smallholders who are now unable, because of their low and uncertain incomes, to acquire output-improving inputs or to make capital investments for long-run improvements, into the capitalistic agricultural markets for inputs produced principally by multinational corporations. This becomes clear when McNamara calculates grosso modo - like other apostles of modernization, capitalist style, calculated before him - the economic implications in terms of input purchases of a credit programme for smallholders. I have estimated²⁷ that the World Bank scheme to help 100 million smallholders would imply additional sales of principally multinational corporations of perhaps 7.4 to 10.7 billion dollars over a 10 year period - not an insignificant incentive to wave before those who have to authorize and agree to the McNamara scheme: the World Bank's Board of Governors and the financial and industrial interests they represent. In fact, even if the McNamara scheme would not work out as planned as far as benefits to smallholders are concerned,

the sums disbursed by the Bank in the forms of loans would definitely find their way into the "pockets" of the producers and salesmen of agricultural inputs. So what the World Bank has actually proposed is a two-pronged strategy to "develop" the agricultures of the underdeveloped countries: the continuation of the modernization of the large landholdings through the continued transfers of mainly foreign capital and technology partly financed, as in the past, also by the World Bank in order to fortify the local landed elite economically and politically; and to begin to modernize (or to participate in the already existing strategy to bring further into the capitalistic orbit) the smallholdings, although at a significantly lower level of technological sophistication.

The great question is whether this new scheme will really help the rural poor or whether it will benefit only the multinational corporations and the financial institutions involved in the monetary aspects of the scheme.

My answer to this question is that in all likelihood, and even with a high degree of certainty, the McNamara programme will have economic social and political results which will make the adverse effects of the "green revolution" type modernization look like child's play. This means: sharply increasing proletarianization and marginalization of the peasant masses, polarization of the rural class structure and a much more highly distorted distribution pattern of wealth and income.

One of the main reasons is that an infusion of money into the sector of the rural poor will not, and cannot, go to the root of the causes leading to poverty and un- or underemployment - no more than the private charity of do-gooder ladies in 19th century industrializing England (or elsewhere) could do away with the misery of the urban proletariat. The existence side-by-side of a powerful elite and innumerable numbers of smallholders and landless is an almost iron-clad guarantee that whatever benefits accrue to the poor via the World Bank scheme will, over the shorter or longer run, be syphoned off by the landed elite. The existing land tenure structure even, or particularly, in its modernized form, where the existence, survival and growth of a fortified and modernized landed elite depends on the continued exploitation of the rural labour force or its increasing marginalization or exclusion from the rural society, will continue to be the basis for the competitive struggle for the ownership and control over land, including of course the land of the smallholders, and other agricultural resources. In this struggle the peasant masses as a group will become increasingly more impotent.

The transfer of capital and technology into the smallholder sector will perhaps delay the process of the decay and decomposition of the peasant sector in some, but it will accelerate it in other respects. The first impact will in

all likelihood be to benefit among the 100 million smallholders those that are better off to begin with, because the limitations of resources (credit) will force the lenders to concentrate their assistance projects on those peasants or groups of peasants most likely to make the projects successful in terms of loan-repayments. It is to be expected that the first beneficiaries will be those endowed with somewhat larger land resources. The consequence will be that the scheme will set in motion a small, but increasingly vehement process of capitalist expansion within the smallholder sector because the beneficiaries of the new loans and inputs will be able, in fact will be eager, and they will be forced by the existing value system and as a matter of survival, to compete agricultural resources away from the non-beneficiaries. This process of capitalist expansion must result in the accelerated displacement of peasants from the land and in a rapid growth of the landless labour force. In the shorter run therefore a new polarization is bound to set in in the smallholder sector in which a sort of kulak-subsector will play the role of a small "landed elite" vis-à-vis the remaining poor.

In the longer run, the improvement in the productivity-potential of the land of the smallholders, beneficiaries of new loans and inputs, is bound to make these peasants, now turned agricultural entrepreneurs more and more vulnerable, i.e. victims of the competitive action for agricultural resources on the part of the large landowners, not only because they would see in the emergence of a better-off kulak-sector an economic and political threat to their predominance, but also because the land of the kulaks has now acquired a commercial value which it did not have before. So every effort will be made by the landed elite to extend its control further and further over the improved smallholder sector - a process which is now for example in full swing in Mexico. The inevitable result will be the disappearance, in the long run, of the peasant-landowners or tenants, both traditional and modernized, and with it any vestige of peasant control over land, if these "market forces" are allowed to work themselves out and are not arrested by a radical agrarian reform which will do away entirely with the landed elite. From the point of view of the peasants, the World Bank scheme must therefore be viewed as a colossal waste. Not so from the point of view of the agricultural input-producing, - selling or -financing corporations, because the disbursement of credit will continue to finance the sale of their commodities and services. They run no risk whatever. As the popular saying goes: the joke will be entirely on the rural poor.²⁸

NOTES

1. Although there is as yet little statistical evidence, it appears to be evident that overseas agricultural investments have become much more profitable than in the past - both for investments at the farm level and at the processing, marketing and farm-input production level - in comparison to investments in manufacturing or mining, for example, most likely as a result of the declining rate of expansion in the latter. One visible evidence is the expansion of "agri-business".
2. This has been fully described for Asia by Gunnar Myrdal, *Asian Drama*, (1968) and for Latin America by Ernest Feder (Hrsg.), *Gewalt und Ausbeutung* (1973).
3. Normally one speaks about "optimum" conditions, under which the high yielding varieties have to be used, by referring to the sophisticated use of farm management methods and practices, technology and the ecology. This is obviously too narrow a view.
4. For an analysis see Cynthia Hewitt A., *Die Geschichte der grünen Revolution: Die Erfahrungen in Mexico*, in Feder, op.cit. Kapitel 26, and the forthcoming publication on Mexico by UNRISD (Geneva).
5. The Mexican government is now spending very substantial funds, particularly in the most conflictive areas to pacify the peasants and besides uses a sophisticated repressive apparatus to prevent large-scale peasant uprisings. But this strategy obviously cannot do away with the root-causes of the peasant problems.
6. It could be argued that there is no harm in devoting land to crops which earn foreign exchange which in turn can be used to purchase staple foods, and the country would be better off as a consequence. But this argument is false in the case of underdeveloped countries which are increasingly short of foreign exchange to provide for all their needs, including of course the need to develop other sectors of the economy (e.g. industry). As matters stand, an increasing proportion of the foreign exchange is used for buying luxury consumption goods. In case of Mexico or any country with a developing commercial agriculture dominated by foreign capital and technology, a large portion of the foreign exchange earnings flow back to the industrial countries, so that the gain from specialization in export crops is more apparent than real. See text below.

7. I am including under "non-Mexican firms" many firms of mixed capital, which is of course not an orthodox procedure. Under the law, the majority capital of mixed firms (51%) must be Mexican. This law is by-passed in many instances by the use of so-called "presta-nombres", Mexicans who allow their names to be used to "front" for US or other foreign capitalists. Besides, control of such "Mexican" firms is obtained not only through capital, but through credit for operating capital, the transfer of technology and the organisation of the administration. So-called Mexican firms are often as fully controlled by foreign interests as if they were mere subsidiaries.
8. This was predicted by the apostle of the Green Revolution, Lester Brown (Seeds of Change, 1970) when he said (p.56) that "investment [in agribusiness] must grow faster than agricultural production itself". Brown is therefore not only the apostle of the Green Revolution, which is meant to feed the hungry, but also of the multinational concerns, whose sales he is determined to see increase by leaps and bounds. What Brown does not tell us is that from a social viewpoint many of these investments are not needed, or are not needed in the quantities recommended by him. Many of them are conspicuous investments (e.g. plants with enormous excess capacity, proliferation of middlemen etc.) that the underdeveloped countries would do better without. They are oriented towards foreign markets or the particular needs of the concerns, not the satisfaction of the nutritional needs of the local population. They are instruments to channel the surplus produced in these agricultures back to the industrial nations.
9. The greater the control of foreigners over production and distribution, the more difficult it becomes for the governments to carry out broad agricultural development programmes independently, not to speak about needed structural reforms, and the greater becomes their dependency on the whims of multinational concerns. In fact, this gives rise to a potentially more unstable food situation than if food production were dependent mainly on the weather fluctuations because food can be withheld from the market in periods of rising prices in expectation of higher profits, production can be shifted to more profitable commodities which may not be food items (as we mentioned earlier in the text) or food can be diverted to other markets. The multinational food enterprises are then playing the same (or a similar) function as the local hoarders or food speculators, but on a world-wide not the local scale.
10. Some of the products, such as cotton, have been dominated by US interests for a long time, but the control has apparently been intensified over the past few years.

11. To give one small example: strawberry production, practically all of which is exported to the US, and from there to a few other markets. The export of fresh strawberries is controlled by a few brokers, mainly in Texas; the export of frozen strawberries by a few brokers, some of whom are the same who also control part of the fresh fruit exports. Most of the financing of the production of the crop is estimated to come from the US. The processing plants are to a large degree financed with US capital (some of it probably stemming from the brokers) and therefore partly owned by US capitalists. There is a high degree of monopolization of the plants (multiple ownership), and an apparent significant interlocking control system of the various levels of strawberry production, processing and marketing. The strawberry plants (seedlings) are imported from the United States (mainly California) and Mexican research on new plant varieties is discouraged.
12. For more insights into this process see S. Williams and J.A. Miller, Credit Systems for Small-Scale Farmers, Studies in Latin American Business, No. 14, Bureau of Business Research, Graduate School of Business, University of Texas, Austin, 1973.
13. See Mauricio de Maria y Campos, La politica mexicana sobre transferencia de tecnologia, una evaluación preliminar. Comercio Exterior, May 1974, pp. 546-76. This is the first article which has appeared anywhere, to my knowledge, about this subject with reference to agriculture. I am reproducing a number of paragraphs of this article in the text because of its significance.
14. The author concludes that it is ironical that high yielding varieties developed in Mexico have been distributed by the Foundations freely throughout the entire world, but that Mexico receives from the industrial countries improved seeds at such disadvantageous conditions.
15. It should be recorded that this opinion is not shared by everyone of course, and that some observers see a gradual tendency for Mexico to develop greater independence. I myself believe that the opposite tendency is more plausible. Mexico's financial situation is serious (like that of most underdeveloped countries). According to the New York Times (2/8/74) Mexico's external debt is now in excess of 10 billion dollars, and the trade deficit is growing at 40% annually and may reach a record 2.8 billion dollars by the end of 1974. Obviously therefore Mexico's bargaining power for greater independence shrinks, even considering recent oil discoveries, which may alleviate Mexico's foreign exchange situation.
16. These "advantages" have been most clearly stated in Lester Brown's Seeds of Change, op.cit., for example pp. 59, 61, 173. The publication of this technocratic volume was auspiced by US big business (see Preface and p. xv).

17. There are still a few economists who because of their technocratic views regard the green revolution as a model for underdeveloped agricultures. One such economist is Peter v. Blanckenburg. For a criticism of his childish views, see Gewalt und Ausbeutung, Lateinamerikas Landwirtschaft (Hoffmann und Campe, 1973) chapter 27, footnotes 16 and 17.
18. In Montague Yudelman et al., Technological Change in Agriculture and Employment in Developing Countries, OECD, Paris 1971, p. 38, a distinction is made between "changes in technology" and "changes in technique" on the basis that the latter does "not involve the use of a new resource". The authors give as example of a change in technique the transplanting of rice instead of the traditional broadcasting of seed by hand. The authors go on to say that this does not require new resources "unless the care of seedlings can be said to require a new skill", although they previously also mention the need to grow rice seedlings in nurseries. This distinction is in contradiction to their definition of technology, "the employed or operative knowledge of means of production, of a particular group of goods or services".
19. In Edward P. Hawthorne's interesting The Transfer of Technology, OECD, Paris 1971, pp. 21 ff. great stress is placed on that "technological development inevitably leads to changes in the structure of industry", including, it is implied, in the structure of employment. If this is true for the manufacturing sector, why should it not also be true for agriculture? Andrew Pearse, in an UNRISD report entitled The Social and Economic Implications of the Large-Scale Introduction of High Yielding Varieties of Foodgrain, (Geneva, 4 March 1974, draft for publication) notes the following. "It is the dramatic effect of the spreading knowledge that the new agriculture [i.e. the intensified crop sector, using high yielding varieties and modern technologies] offers a profitable investment which sets in motion deep currents of change in the relations between land, labour and capital, between owners, tenants and labourers, between agriculture, commerce and industry and between town and country". (p. 18).
20. Some technology is, incidentally, always better adapted to some sectors of agriculture than others. For example the big tractor may be acceptable to large landholdings, but not to smallholdings. The reason why modern technologies used in advanced agricultures are so easily transferred to the underdeveloped agricultures is precisely that some sectors are able to absorb them. This does not invalidate, of course, our argument that this will cause changes in the social relationships - quite the contrary. The important thing is that the costs of these change are not borne by those who adopt them.
In this context it is useful to refer to the discussion of Urs Müller-Plantenberg (Technologie und Abhängigkeit, in D. Senghaas, Ed., Imperialismus und strukturelle Gewalt, Suhrkamp, 1972) who shows convincingly that for purely economic reasons, manufacturers have no incentive to produce "intermediate technologies", i.e. technology which is not adapted to the conditions prevailing in developed agriculture." This is no doubt entirely correct. But we are going one step further in our discussion by examining the impact of changes in technology on the social structure.

21. See Gewalt und Ausbeutung, op.cit., chapter 11.
Andrew Pearse, op.cit., pp. 17 f. argues that in the wake of the introduction of high yielding varieties, accompanied by higher yields and multiple cropping, employment may increase, particularly seasonal employment. He concludes as follows:
"On balance, field studies show that at the moment, new technology in Asia has been accompanied by a marginal increase in the use of human labour per unit of land, and a decrease in human labour per unit of production". (Emphasis added)
But even if there was a marginal increase in employment, the quality of employment deteriorates, as more peasants are drawn into seasonal wage labour at considerably worse terms of employment.
Pearse continues:
"Moreover the profitability of the new agriculture inevitably fosters mechanization of a labour-saving character".
In other words, the outlook is for more unemployment. It is not quite clear whether Pearse relates the "marginal increase" in the use of human labour only to the new agriculture. If he does (as I think he does), then the marginal increase in employment in the modern sector might well be offset by a sharply decreasing employment in the remainder of agriculture.
22. W.L. Collier and G.W. Soentoro, Recent Changes in Rice Harvesting Methods, Agricultural Development Council, Staff Paper 73-3, July 1973, pp. 44 f. These conservative authors of an organization, which maintains close relationships with the Ford and Rockefeller Foundations, are apparently unaware of the deeper implications of their findings.
23. See previous footnote.
24. This does not include concessions.
25. In many cases, local firms are purchased by foreign investors and subsequently fitted out with transferred technology.
26. See McNamara's addresses to the Board of Governors in 1973 and 1974. The Bank is also able to draw on other international private or public lending institutions and local resources to bolster these capital transfers.
27. On the basis of McNamara's utterings.
28. For a more detailed examination of the World Bank proposal, see my forthcoming article McNamara: The Pied Piper of Washington.

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