RESEARCH NEEDS

FOR

DEVELOPMENT ASSISTANCE PROGRAMS

C. Arnold Anderson
Robert E. Asher
Mary Jean Bowman
Gerhard Colm
Richard S. Eckaus
Theodore Geiger
Albert O. Hirschman
Everett E. Hagen
Edward L. Keenan
Eric E. Lampard
Arthur T. Mosher
Leo F. Schnore

Howard Wriggins

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Preface

The promotion of growth and orderly change in the less developed nations of the world, unlike the weather, has become a problem about which everyone not only talks--but almost everyone is now doing something. Nevertheless, our present knowledge of the economics, politics, sociology, and psychology of development is gravely deficient.

The essays which follow suggest research that might contribute in some measure to remedying the present deficiency. The essays were prepared for the Brookings Institution early in 1961. They were not commissioned with a view to providing a comprehensive catalog of research needs, but with the more modest objective of singling out a few problems expected to be of particular concern to American policy-makers during the 1960's--problems on which additional research might be especially necessary and timely.

The papers were prepared in the first instance for a conference of some 75 specialists from universities, government agencies, foundations, and research institutions. The conference was held at the Brookings Institution May 25-27, 1961. The papers were then revised in the light of the discussions at the conference. The Institution hopes, after some further editing, to publish most of these papers, in order to make them available to a wider audience in a more permanent form.

The authors are indebted to the conference participants for many stimulating, constructive suggestions. The essays, however, reflect their personal views and should not be interpreted as necessarily reflecting the views of other conference participants or of the trustees, the officers, or other staff members of the Brookings Institution.

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Robert D. Calkins
President

August 11, 1961

A GENERAL FRAMEWORK FOR ANALYZING ECONOMIC AND POLITICAL CHANGE

Everett E. Hagen
Center for International Studies
Massachusetts Institute of Technology

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A GENERAL FRAMEWORK FOR ANALYZING ECONOMIC AND POLITICAL CHANGE

Everett E. Hagen

Introduction

The Interrelatedness of Social, Cultural, Political, and Technical-Economic Change

Social and Cultural Barriers to Economic Progress

How Traditional Societies Change

Morals for United States Economic Assistance Policy and Operations

Some Observations on Political Stability and Change

Future Research

The results of economic and technical aid to low-income countries have sometimes been gratifying, but at other times they have been disappointing. The assistance sometimes seems to make no impact, and some projects that seem technically and economically sound to Americans simply do not work well.

The reasons for these disappointing results often given by frustrated technical advisers and aid administrators are in the general vein that the recipients were venal or nepotistic or careless or thoughtless or just do not want to change or have "no head for business." But, since the people of the low-income countries obviously are intelligent and obviously do want economic progress, these reasons do not get very far into the matter. It is useful to ask: If individuals are careless or thoughtless, or do not want to change, why is this true? Why do they permit nepotism or venality to interfere with economic efficiency? The history of virtually every country indicates administrative feats (in war or empire-building or engineering, for example) far exceeding in complexity the operation of business enterprises. Why, then, are they inept at business operations at this moment in their histories?

Obviously the difficulties rest deep in the culture and social structure of a society, but this observation is of little value unless something useful can be said concerning their roots. Obviously, too, some of the attitudes mentioned

must change if economic development is to proceed, or if democratic government is to emerge. Do we have any systematic analytical knowledge concerning the causes and course of social and cultural change and its relationship to technical, economic, and political change?

The purpose of this essay is to discuss four questions:

(1) Is technical-economic change necessarily interwoven with social-political change?

(2) Do we have enough knowledge of the forces at work so that we can understand some of the interrelationships?

(3) Do we know enough to say anything to administrators of economic and technical aid that will aid them in their operations?

(4) What further research is pertinent?

The answer given to each of the first three questions is "Yes," though it is spoken in a rather low voice concerning the third.

THE INTERRELATEDNESS OF SOCIAL, CULTURAL, POLITICAL, AND TECHNICAL-ECONOMIC CHANGE

In fully traditional societies, the political structure is hierarchical and authoritarian, methods of production continue unchanged or little changed from generation to generation, and the level of income is constant. When technical and economic changes have occurred in such societies, they have been concomitant with far-reaching changes in attitudes toward life, social structure, and political organization. These changes are not merely results of economic change; often they have occurred first. The interrelatedness in time is so striking that it suggests important questions about the causal relationships, and about the nature and degree of social and cultural change that must occur if technical and economic change is to proceed.[1]

Political Structure and Economic Development

Impressive evidence of the interrelations lies in the correlation between the nature of the political structure in the countries of Asia, Africa, and Latin America and the level of economic development. In Table 1A forty countries or colonies of Asia and Africa have been arranged in three columns, according to whether their political processes were judged to be authoritarian, semi-competitive, or competitive, and have been ranked vertically according to their position on an index of economic development derived by averaging eleven separate economic indexes. In Table 1B, the same has been done for twenty countries of Latin America. All independent countries for which data were

available except the Union of South Africa and a few odd cases such as Kuwait and Qatar have been included.

A competitive social structure is one in which the interests of different groups in the society obtain a voice in political decisions, the decision being a compromise or a victory for some group or groups over others; a semi-competitive structure is one in which among a sector of the population there is competitive political activity, but another important sector has no voice; and an authoritarian structure is one in which there is a hierarchy of power, with political decisions coming from the top. It should be noted that the former two categories are not equivalent to semi-democratic and democratic, though there is a relationship. In the semi-competitive and competitive structures, the interests of each group, which compete for satisfaction, may be those of traditional or otherwise authoritative leaders, not a democratic expression of desires. The classification is admittedly rough and subjective, but political systems do differ in their degrees of competitiveness and it is justifiable to attempt to classify them according to this difference. Ideally, there should be more than three classes, but information available does not permit a finer classification. Even concerning the grouping into three categories, the reader will probably disagree in individual cases, but his disagreements will probably not greatly alter the groupings or the degree of correlation shown in Tables 1A and 1B.

The eleven indexes of economic development reflected in the vertical position of the countries are the following:

A. Welfare:
   1. GNP per person in 1957.
   2. Doctors per 1,000 persons in about 1956.
B. Communications:
   3. Vehicles per 10,000 persons in about 1958.
   4. Telephones per 10,000 persons in about 1958.
   5. Radios per 1,000 persons in about 1957.
   6. Newspaper circulation per 1,000 persons in about 1956.
C. Industrialization:
   7. Energy consumption per person in about 1958.
   8. Per cent of labor force employed outside agriculture and service sectors, latest census year.
D. Urbanization:
   9. Per cent of population in cities over 100,000 population, in about 1955.
E. Education
   10. Per cent of population literate at a date within or close to 1950-1960.
   11. Ratio of enrollment in primary schools to population of school age.

Table 1A

Classification of Asian and African Countries
by
Type of Political Structure and Index of Economic Development

Rank in Economic Development	Competitiveness of Political Structure		
	Competitive	Semi-Competitive	Authoritarian
1.	Lebanon		
2.	Malaya		
3.			U. A. R.
4.	Philippines		
5.	Turkey		
6.			Iraq
7.	Ceylon		
8.		Morocco	
9.		Jordan	
10.		Tunisia	
11.			Libya
12.		Ghana	
13.			Iran
14.		Thailand	
15.		Indonesia	
16.	India		
17.		Malagasy Republic	
18.			Saudi Arabia
19.		Burma	
20.		Cambodia	
21.		Cameroons	
22.		S. Vietnam	
23.		Nigeria	
24.			Pakistan
25.			Laos
26.			Liberia
27.			Sudan
28.		Togoland	
29.			Ethiopia
30.			Afghanistan

Source: See Text

Table 1B

Classification of Latin American Countries
by
Type of Political Structure and Index of Economic Development

Rank in Economic Development	Competitiveness of Political Structure		
	Competitive	Semi-Competitive	Authoritarian
1.	Argentina		
2.	Uruguay		
3.	Venezuela		
4.			Cuba
5.	Chile		
6.		Panama	
7.		Mexico	
8.	Costa Rica		
9.		Colombia	
10.	Brazil		
11.			Paraquay
12.		Peru	
13.		Ecuador	
14.			Dominican Republic
15.			Nicaragua
16.			El Salvador
17.			Bolivia
18.		Guatemala	
19.			Honduras
20.			Haiti

Source: See Text

An exercise very similar to this one is presented by James S. Coleman in the concluding chapter of The Politics of the Developing Areas, and acknowledgement is due to Coleman for the idea and procedure of the correlation. The analysis presented here, however, was done at the Center for International Studies, M.I.T., and subsequently adapted slightly by the present writer. It differs from Coleman's in certain respects, of which the most important are the omission of colonies, substitution of one new index of economic modernization, and giving equal weight in the combined index to each of the five groups rather than to each of the eleven indexes.[2]

Latin America versus Asia-Africa

I have separated Latin America from Asia and Africa because in the independent countries of Asia and Africa, with the exception of the Union of South Africa, the problem is one of change in an indigenous society, whereas in Latin America Europeans conquered the countries and continued to rule them after gaining independence from their motherlands, so that the problem is one of adaptation of European culture to a new situation by a conquering group. The Spanish and Portuguese came to sparsely populated Latin America in numbers and strength great enough so that they settled down, remained the national elite even after the various countries attained independence between 1810 and 1825, and, with much intermarriage with the Indian populations, remain the national elites today. Economic growth therefore did not have to be implanted into a non-European culture. Personality traits and social practices moderately favorable to it were brought over by the continuing stream of immigrants. Even though these immigrants were largely from southern Europe, where growth has been slower than in northwestern Europe, still they were European in their culture and technical background, and this fact probably explains the greater degree of economic development of Latin America.

But independence was not independence of indigenous populations from Europeans, but only of colonial Europeans from continental Europeans. The colonial Europeans continued to dominate their countries in the authoritarian manner of colonial administrations. The colonial relationship was domesticated. A voice in the government for the majorities of the populations was denied in every Latin American country until the twentieth century, and in some up to the present time.

Politically, socially, culturally, and technically, the situation in Latin America and that in Asia and Africa are so different that separate treatment seems appropriate.

As might be supposed, Latin American countries as a group are relatively advanced economically, relatively authoritarian or non-competitive politically.

Exceptions: Reactive Authoritarian Reformers

It is obvious from Tables 1A and 1B that there is a high degree of correlation between degree of political competitiveness and degree of economic

development. By and large, the array of countries sweeps downward to the right. Higher degrees of economic modernization are associated with greater competitiveness of political structure.

The correlation would be even higher except for the presence in the authoritarian category of three countries which are not traditional authoritarian cases. These three are Cuba, the United Arab Republic, and Iraq.

In all three cases, the country was ruled by force for a substantial period by repressive governments which, while permitting extensive foreign activities and while tolerating or even encouraging certain kinds of modernization, based their domestic power on landowners and other conservative groups linked to the traditional society. These governments and groups indicated not only lack of sympathy but contempt for the persons and purposes of the lower classes of the people; treated them indeed, like cattle, or as tools to satisfy their own interests. Ultimately, revolution resulted.

Over a considerable period of time the old regimes had harshly suppressed moderate reform movements, killing their leaders or driving them into hiding, exile, or passivity. Such a situation has two important results that are pertinent here.

First, it tends to breed a revolutionary movement with an authoritarian dynamic of its own. If the revolutionary movement is to succeed in such conspiratorial circumstances it must develop a highly disciplined and hierarchical style of organization which may have important implications for the structure of its rule over the country once the revolution has taken place. In addition, a repressive framework of political activity tends to draw into underground revolutionary activity individuals who themselves are authoritarian, individuals who feel anxiety when any rival power exists and feel safe only when possessing undisputed supreme power themselves, or when following the leadership of a fellow rebel who possesses such power.* The government which such individuals set up in

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*This may seem like retrospective definition; a person is said to have such a personality if he is seen to act in this way. In fact, however, the personality type involved is one that in clear cases can be identified in childhood, before any action is manifest. The psychologist Erik H. Erikson has suggested that some individuals develop these personality traits because in infancy and childhood they faced tyranny by arbitrary fathers, but whose childhood was such that they dared to dream of attacking authority rather than submitting supinely. When the emotional pattern thus learned in childhood fits the facts of later public life their childhood emotional patterns are reinforced and dominate their life histories. See Erikson, Childhood and Society, New York, W. W. Norton Co., 1950, chapter on "Hitler's Childhood," and his Young Man Luther, New York, W. W. Norton Co., 1958. Such individuals, it may be added,

the name of liberty is, by a familiar historical pattern, an authoritarian one.

Secondly, the political repression gradually convinces the mass of the people, increasingly bitter under their frustration and humiliation, that they can find no relief in moderate movements for reform, and it gradually breeds in them bitterness and rage that are satisfied only by the harsh suppression of the old tyrants, the class that supported them, and all who are thought to have been associated with them. Violence and extremism are demanded. Those demands may continue until the bitter generation dies, by which time a new authoritarian government may be firmly established in power and may for the time being satisfy the people so long as it meets their emotional needs.

For these and related reasons movements that overthrew despotisms often have themselves been authoritarian. The more despotic the old regime, the more likely this result. Thus Nasser, Kassem, and Castro, and before them Lenin and Mao, and before them the leaders of the French Revolution and many other revolutionaries, substituted one authoritarian regime for another, finding their support in the peasants, workers, and intellectuals whose interests had been under-represented in the previous authoritarian regimes. If the three conspicuous cases noted above are removed from the classifications in Tables 1A and 1B, the correlations, as has been suggested, are appreciably increased. There are other countries in all three continents where the presence of repressive regimes poses the threat of authoritarian revolt, but they need not concern us here.**

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tend to occur in considerable numbers when the customary authoritarian patterns of child care in a traditional society are carried over into transitional circumstances. In the traditional society, they bred individuals who simply submitted to authority, but in the less rigid circumstances of transitional society, they may breed individuals who dream of revolt and of supreme authority for themselves.

**As of mid-1961, Iran in Asia and the Dominican Republic in Latin America appear to be examples of nations standing in some danger of a revolutionary upheaval which might lead to such a new authoritarianism. Yet the turmoil in May 1961 which led Shah Pahlevi Reza of Iran to install a prime minister who sincerely desires reform and will act to get it may avert the revolution there if the Shah continues to support him. As this is written in June 1961, the superficial evidence of political change in the Dominican Republic is less impressive. Only the dominating physical power of the non-native elite, which for the time being is unassailable, prevents revolution in the Union of South Africa, and one may suppose that the incredibly bloody result would be either tribal chaos or government far more extreme in its authoritarianism than that in Cuba. One wonders, also, about one or two other examples in Latin America (e.g., Paraguay), in Africa (e.g., Angola) and in Asia (e.g., Thailand), which on the surface are currently more quiet.

Apart from these cases of authoritarian rebellion against despotism, there are other countries which lie at one side of a perfect line of relationship between degree of political competitiveness and of economic development. This is as one would expect, in the complex circumstances of life, and there seems no point in using space here to suggest the circumstances which may account for them. In spite of these complicating factors, Tables 1A and 1B present impressive evidence of the relationship between political and economic change.

The Evidence of Historical Records

The histories of individual countries that are no longer traditional provide further evidence.

In Britain, the Industrial Revolution which gathered force gradually in the eighteenth century followed more than two centuries of social and religious tensions. During this period there occurred the adoption of Calvinism by the Scots and the emergence of strong Protestant dissent in England. And the Dissenters and the Lowland Scots were present among the economic innovators in numbers out of all proportion to their numbers in the population at large.

In the countries of Western Europe, the industrial revolution got under way during or shortly after the series of upheavals in government and the social order which stretched from the French Revolution to the revolutions of the mid-nineteenth century. It is associated in time with the abolition of most elements of serfdom, with marked change in the accepted concepts of appropriate relationships among social classes, with extensions of representative government.

In Japan, in about 1600, after a period of disturbance and confusion, the Tokugawa and associated clans established an hegemony over the nation that was to last for more than 250 years. After their ascendancy to national power, the Tokugawa enforced regulations whose purpose was to freeze the social order and perpetuate the Tokugawa rule. Their result in fact was to create tensions that, economically, caused great pressure for expansion of income, and socially, inexorably undermined the traditional structure. During the seventeenth and eighteenth centuries, discontented and frustrated social groups, after casting about elsewhere for satisfaction, turned gradually to study of the "barbarian books" of the West, which told how Westerners had become powerful. Early in the nineteenth century, individuals of these groups began to build pilot plants using Western methods, and before the Meiji Restoration, these economic shoots that had rooted in social discontent were flourishing. The discontent led to overthrow of the Tokugawa in 1868 and establishment of a centralized national government with radically new goals. When that government took steps to remove the institutional barriers to economic innovation, the economic shoots burst into flower.

In Russia, in 1667 the patriarch of Moscow, for the sake of diplomatic advantage, revised the Orthodox church ritual and liturgical books to bring them into agreement with Greek practice. To many lower class members of the church,

the change seemed sacrilegious and a threat to their bond with God. These Old Believers were condemned as schismatics, and were persecuted with varying vigor and harshness from the latter part of the seventeenth century until the early years of the twentieth. It surely is not coincidence that the Old Believers were prominent in the economic innovation which began to change the face of Russia in the nineteenth century.

In Turkey, economic growth began within a generation after Ataturk had seized the social order by the scruff of the neck and shaken it vigorously. Throughout Latin America, political tension and the transition to economic growth are intertwined. In China, the political upheaval associated with growth was as radical as in Russia. And so on.

It is contrary to the customary view of the world of most of us to think of these social and political changes as necessarily related to economic growth. We keep social history and economic history in different compartments in our minds. But can anyone who clears his mind of our assumptions and takes a fresh look at this evidence doubt that there are causal connections between social, cultural, political, and technical-economic change which have been little explored, and which need to be understood by aid administrators?

The Significance of the Correlation

The correlation between technical-economic and social-political change of course gives no indication of the direction of causation.

It is rather obvious that economic change breeds social and political change. Increased productivity of the land gives new hope, or if the fruits are all taken from them, new frustrations, to peasants. The expansion of industrial activity, even if it is a gradual growth of small enterprises rather than a spectacular change, creates a middle class with interests opposed to those of a traditional ruling landed group. Increased industrialization, urbanization, and geographic movement widen horizons and create new ambitions. All of these changes breed political change.

But it would be reckless to neglect the possible flow of causation in the opposite direction, a recklessness in which many persons indulge. Without the breakdown of traditional social structure and, more important, traditional attitudes, economic and technical aid may produce little economic change. And perhaps the breakdown of tradition may not occur simply because traditional people see Western methods. Perhaps it has independent causes without understanding of which aid administrators are beating their heads rather naively against a stone wall. The sections to follow will suggest that this is true.

SOCIAL AND CULTURAL BARRIERS TO ECONOMIC PROGRESS

What, then, are the social and cultural barriers which prevent individuals in traditional societies from acting effectively to obtain the economic progress whose fruits they desire?

Barriers in the Social Structure

Some aspects of the social structure that may be barriers to economic change are obvious. The members of a ruling landed class may be slow to consent to measures for transportation facilities, irrigation, or other projects to open up new land which its members do not own, especially if the results will be to create alternative opportunities for the agricultural laboring class which they now employ at subsistence wages. They may be slow to approve measures for communication and urban facilities which will have the same effect. They may be actively engaged in promoting measures which will siphon government revenues or economic aid funds into their pockets.

Some degree of these attitudes are apt to exist in any traditional society. Active opposition to a development program because it would disturb vested interests is the extreme case and not common, but it must be expected that the members of traditional influential groups will at best be indifferent to development and may attempt to divert development measures for their benefit. But it would be wrong to assume that if such individuals can be pushed aside development will proceed. The more pervasive barriers are attitudes within most individuals in all groups of the society which constrain their own actions--make it impossible for them to visualize the possibility of change, make the activities necessary for economic change uninteresting or repugnant to them, or limit their creativity so that they cannot effectively carry out the necessary activities.

The Traditional View of the World as a Barrier

1. The simple folk of traditional society (the peasants, the menials, and the craftsmen) are impotent in the face of overwhelming forces around them. The peasant is a wise and skillful craftsman in the planting and cultivation of his crops, but drought or excessive rainfall may bring disaster, or the loss of an ox by disease may be a financial burden so insupportable that he is reduced from the status of cultivator to agricultural laborer. Through forces over which he has no control whatever, and which he must assume to be the will of unseen powers, for he has no other explanation, half of the children he begets may die before the age of one year, and more before ten. His helplessness gives him a sense of impotence which makes it extremely difficult for him really to believe and act upon the notion that by changing his method of doing things he can affect his destiny. It is dangerous to experiment, and that sense of danger often makes his mind reject suggestions of changes in methods that he is fully capable of understanding and applying.

Further, this sense of impotence and of danger in the environment around him makes him prefer to rely on others for decisions. It relieves his anxiety if the elders and persons in positions of authority make the decisions. But he does not merely wish to be dependent and submissive; it is always a component of such a personality that even the lowliest person expects in turn to exercise authority over his subordinates. The peasant will become an authority in the village when he becomes an elder. He will then share in the decision of village problems, but he will avoid the anxiety that being bold would create by making the decisions on the basis of tradition.

He will also be authoritarian in his parenthood. He feels that his children cannot cope with life out of their own resources, since he could not. Hence, after indulgence during their first few years of life, he expects them mainly to obey. His alarm and rebuke at independent initiative by them creates alarm and anxiety in them, and thus his sense of impotence, dependence, and anxiety at experimenting is bred into the next generation.

These attitudes are not changeable by mere verbal logic; they are bred deep into the unconscious processes of personality.

2. As an extension of this sense that he is controlled by his father's will, he assumes that the major phenomena of life are caused by the wills of forces superior to him, namely, unseen spirits. On this assumption, the way to control events is to appeal to the spirits--by magic, by religious observances, by carefully following the ways of behavior which tradition has indicated seem acceptable to the spiritual powers. Since the spirits might disapprove of unconventional activity (as his father did), there are powerful inhibitions on him not to be a deviant--an innovator--in his behavior. These inhibitions may control his judgment. Moreover, by being a deviant, and offending the powers, he may endanger his community. Hence there are also strong social sanctions against unconventional experimentation in methods of production or other aspects of behavior.

3. It is often supposed that these personality factors influence the simple folk of traditional societies, but not the upper classes, who have more knowledge and wider contacts. However, the elite individual is in fact almost as impotent in the face of physical forces as is the peasant. Though he has more medical protection than does the peasant, his children too die from diseases he is largely helpless to fend off. Far more deaths in traditional societies are from lack of community sanitation, mosquito-carried malaria, etc., than from causes associated with poverty. And even the medical care available to the rich is far from the equivalent of modern Western preventive and curative medicine. Moreover, the personalities of the upper classes are influenced by the fact that their childhood experiences are as authoritarian as are the childhood experiences of the children of the poor. The same sense of impotence and anxiety at depending on their own judgment is bred into them as is bred into the simple folk. This is why, under a verbal veneer of modern knowledge, members of the upper classes of traditional societies have the same deeply built-in sense of impotence as the poor, which inhibits their ability to truly believe

that they can influence the course of events of the physical world, and to act upon that belief.*

Traditional Values as Barriers

More important among the members of the elite may be their sense of the necessity of having an identity that distinguishes them from the simple folk. In any society, every man must have some sense of the justification of his being what he is. In a modern society, the individual can believe that he got ahead in life because of his own endeavors; this gives him a justification for having a position superior to that of someone else. In traditional society, however, with few exceptions one has one's position in life through inheritance. One inherits one's landed status, or one's position as a member of the professional classes that the landed families spawn. One gets one's governmental position, one's scholarship to study abroad, virtually all of one's advantages in life, in the same way.

For an individual so favored by virtue of simply who he is to be able to live with himself, it is necessary for him to believe that of his essence, not by virtue of what he does, he is superior to the simple folk. Now the most conspicuous characteristic of the simple folk is that they work with their hands, with tools, at jobs related to the physical world, jobs that get them dirty. Hence it is necessary for the upper class individual to believe that he is sufficiently refined so that such activity is uninteresting or repugnant to him. He learns this "with his guts," that is, in his unconscious processes, while a child, and not as a conscious mental conclusion--just as an American woman learns to fear a mouse or to be repelled by a snake. He can no more get over his attitude, and use his talents in technology or in managing a business enterprise than the American woman can overcome her aversion to mice. He will seek and accept a prestige-bearing position as head of a government enterprise, because such positions of authority are the due of his class, but his inhibitions make him incapable of performing effectively the functions needed to make the enterprise operate well.

Authority has a significance to elite individuals in a traditional society different from its significance to a person from a culture in which technical progress is going on. The typical elite official received his authority, not because of his demonstrated capability in the field, but because he has the proper family background and has been educated at the proper schools. His authority is a symbol of his eliteness, his superior identity

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*If the reader thinks that knowledge is a preventive of such an attitude, let him reflect that in the United States, in 1906, when mature, responsible, experienced newspaper and magazine reporters actually saw the Wrights fly their aeroplane at Kitty Hawk, and wired reports to their editors, the editors rejected the reports out of the desire not to be made to look foolish. Their assumption that the law of gravity prevents man from flying made them reject the evidence of unimpeachable witnesses.

as an individual. To delegate part of his authority to subordinates is to give up part of his eliteness. To ask subordinates for their judgment before making a decision is to suggest that they are as worthy of elite status as he. Even to ask them for factual information as a basis for decision may imply that he is not really worthy enough to bear the authority, since he must depend on subordinates. Doing so threatens the difference in identity between him and the subordinate. Hence he will cling to his authority, not deliberately but unconsciously. One reason or another why he should not delegate authority, or rely on the judgment of subordinates, or discuss problems with them, will suggest itself to him. He will not be able effectively to manage an enterprise except one in which he can depend on traditional rules. His decisions concerning new functions will be authoritarian and often not responsive to the purposes to be served, objectively viewed. Technical and scientific education or formal training in administration will have almost no impact on these inhibitions, just as learning in a biology class that snakes are clean creatures and perform useful functions does not make them attractive to a person who is repelled by them.

Moreover, in an uncertain and somewhat hazardous world, the security offered by one's position within one's family of clan or other primary group is of especial importance, and to protect one's family and advance its interests is a moral duty that takes primacy over any more general obligations to the society. In pursuing this moral duty, the individual will often be, in Western terms, corrupt, insensitive to the public interest, nepotistic, etc. But only to a person who has acquired modern values does this conduct seem immoral.

Such factors as these, I suggest, explain why technical advice is sometimes disregarded; why intelligent men fail grossly to run productive government enterprises effectively; why, in spite of agreeing with the principle of delegation, they turn out in fact to be incapable of delegating to inferiors the authority necessary to make modern business enterprises work, or to carry out a government economic development program effectively, and so on.

These are not the only factors that inhibit change. It seems probable that the conditions of life and of childhood environment sketched above make traditional individuals less creative than they would have become in other circumstances. This is certainly an important deterrent to economic growth, for economic growth requires a high degree of creativity.

Creativity Necessary in the Transition to Economic Growth

Advance in scientific and technical knowledge beyond present frontiers obviously requires creativity. But, it is sometimes suggested, the advances which have occurred in the West are here for all the world to learn. Since underdeveloped countries can draw on them, technical and economic advance in these countries requires not creativity, but mainly imitation.

This, however, turns out not to be true. Previous technological advance abroad of course makes technological progress in a low-income society easier than otherwise. Nevertheless, a tremendous degree of creative innovation is required for technological progress in any traditional society, even with the techniques of the West available for the asking.

This is true for several reasons. First, Western methods use elaborate facilities and much productive equipment per worker. Every worker in every industry directly and indirectly has available a tremendous amount of equipment. In the West, this mass of equipment exists because for one hundred fifty years the West has been accumulating it. Underdeveloped societies, on the other hand, have little capital per worker. The amount of equipment they can add per year in the country as a whole, even with generous aid from the West, is small by Western standards, even though it may be a two or three per cent increase in their stock of equipment. Insofar as their method of attempting to increase productivity is to import (or construct) productive apparatus of the type used in the West, the equipment obtained each year will be sufficient for only a tiny fraction of their workers--typically fewer, indeed, than the annual increase in their labor force. There will be no increase whatever in the equipment available to the labor force in general.

And while the increase in productivity per worker in the production affected will be great (if the Western methods work well, a point considered in the following paragraph), the increase in aggregate production in the economic system will not be great. The spectacular few large Western projects in a development program are often a necessary part of it, but they are not the main source of a continuing rise in per capita income. The simple importation of Western methods is never the main source of progress. The main source is more widespread improvements in methods, which use more equipment or more expensive materials (seed, fertilizer, etc.) than has been traditional, but far less than is the practice in the West. These methods are not simply the importation of selected portions of Western practice. Rather, a great deal of adaptation is an essential ingredient. Creativity is necessary to devise such adaptations.

An experienced technical assistance worker may suggest that in agricultural production there are a number of advances that do not require much added equipment. This of course is correct. The traditional attitudes mentioned above, rather than the cost, is the barrier to some of these.

Creativity is necessary, in the second place, because the simple imitation of Western methods is typically impossible. Perhaps the most obvious problem is that the available labor force differs greatly. In the West, the mass of men are literate and able to read instructions and information. Moreover, they have an understanding of the functioning of machinery, and thereby of its care and handling, which they have absorbed through their pores, so to speak, as they grew up in a mechanized civilization. Among them are many with varying degrees of training in engineering, scientific, financial, accounting, and managerial knowledge and techniques--and the elements of this knowledge, acquired unconsciously from the entire world around one, are as important as the elements learned in formal education. It is impossible to man an enterprise in an underdeveloped economy with corresponding individuals. Men anywhere can be trained rapidly in skills, for men everywhere are intelligent, but the broad background of other individual characteristics cannot be duplicated. A Western-type enterprise must be adapted to the human differences, and indeed a perceptive observer of an efficient industrial enterprise in a low-income society will note in how many ways both conspicuous and seemingly insignificant its operation differs from that of an enterprise in the West.

Equally important, every Western industry depends for its efficiency on other industries. It assumes the ready availability of materials, components, and tools. It depends also on auxiliary enterprises which can provide technical, financial, and managerial services on demand; on a complex network of communication and transportation facilities; and an intricate system of business practices. A Western economy is a technical (and cultural) complex, not a set of isolated pieces of technology. In an underdeveloped society the auxiliary industries are missing, and the framework of business practices is different. One piece cannot be detached from the complex and used efficiently elsewhere without skillful adaptation.

In another place, I have illustrated this fact by citing the difficulty even of substituting the spade for the digging hoe, in a traditional society.[3]

Moreover, the difficulty runs deeper than these technical problems. It is perhaps not an exaggeration to state that solving the technical problems is the easy aspect of technological progress for present-day low-income countries. Technological advance also requires the creation of new economic and other organizations and relationships, or the adaptation of old types and principles of organization to new functions. For example, the moral obligations of traditional society may require an enterpriser to employ his relatives or the social inferiors who depend on him, whether or not they have appropriate skills and capacities, and to employ them in excess of his needs. These ethical obligations may also require him to lend his money to them whether or not he needs it in his business, if their needs require this. Moreover, the principle that authority is the prerogative of the individual at the top of the hierarchy prevents the delegation of authority.

It is of no use to say that these are outmoded attitudes that must be discarded. These are ethical imperatives. Where social tensions and the slow course of social change have not yet eroded these attitudes, progress in techniques will be greatly impeded unless someone is creative enough to adapt organizations so that they can accommodate these ethical imperatives and still be effective in new economic tasks.

Another example: traders often have the liquid capital which might finance economic change, but the "trading mentality" prevents them from using it for this purpose. By trading mentality I refer to the attitude of trusting no one and of regarding each transaction as a separate act in which the maximum immediate gain should be made. These attitudes are not illogical. For social and historical reasons, trader-financiers are a class apart in every traditional society, distrusted by the society as a whole. (The distrust is often justified.) In self-defense, they will do well to keep their assets in hidden and liquid form, which cannot be so easily levied on, rather than to put them into large recognizable productive plants which might be confiscated or taxed heavily. The devising of social institutions to overcome this barrier is not a technique that can be borrowed from the West.

Absence of Creativity

In short, creativity as real as that in the original industrial revolution is required for technical and economic progress in traditional societies, and in the main it will have to be creativity by the members of the society, for outsiders are peculiarly ill-suited to solve some of these problems, even if they were creative enough to do so. It is pertinent, therefore, that creativity seems to be in shorter supply in traditional societies than in socially and economically changing ones. Creativity involves, in addition to intelligence and energy, such characteristics as pleasure in facing and attacking new problems, absence of any sense that one must seek someone else's judgment before judging what will work, and a knack of seeing that familiar elements mean new things, lead to new conclusions, and can be organized in new ways.*

From the discussion of elite values and attitudes above, it is fairly clear that such creative individuals as appear among the middle and upper classes of traditional societies are apt to channel their energies into some field other than technological progress--war, politics, philosophy, etc. There is an added difficulty. The dependence on tradition, custom, and a hierarchy of authority which are characteristic of traditional societies are not conducive to creativity, and the environment in which the members of traditional societies grow up tends to inculcate uncreative personalities in them. While the relevant evidence is qualitative and subject to some controversy, there is a fairly impressive body of theory and empirical evidence to suggest that the incidence of creativity in fully traditional societies is much less than where cultural conditions are different.

Now this is not an unalterable situation. Where social tensions appear in traditional societies, and make the social structure of the traditional society seem undesirable and inequitable to some groups, these tensions seem not only to create new values in individuals from generation to generation but also to raise the level of creativity.

This circumstance is not one on which the administrator of economic or technical aid can have a rapid impact; the passage of time is a necessary ingredient in such personality changes. However, economic growth can go forward at some pace within any social-political-cultural milieu, and by being aware of the causes and nature of social and personality change, the aid administrator can act more intelligently within the situation he finds, and can thus make the pace faster than it would otherwise be.

HOW TRADITIONAL SOCIETIES CHANGE

Contact With the West

It hardly needs argument that the most powerful instrument for change which has operated on traditional societies has been contact with the West

*"Scientific genius is the capacity to be surprised."--Poincare, quoted in Creativity and Its Cultivation, Harold H. Anderson, ed., New York, Harpers, 1959, p. 48; Creativity involves "openness to experience," Carl R. Rogers, loc. cit., p. 75.

and specifically the disruption of the traditional social order of almost all of these societies by Western intrusion, conquest, and administration.

Knowledge of Western techniques obviously greatly increases the possible speed of technical progress. For even though adaptation of Western methods is necessary, the fact that they exist to be adapted makes possible far faster material advance than if the traditional societies were isolated from the West and had to go independently through a process of technical invention parallel to that which the West has already gone through. This is true even though the traditional societies will also invent methods of their own, as Japan has done repeatedly.

For this reason, it seems certain that instrusion by the West has accelerated technical progress. Colonial rule disrupted the traditional social order and culture so basically that Humpty Dumpty can never be put together again. Social incoherence and chaos result in the revolt against colonial rule, from the frustrations and hatreds caused by that rule, and there are some tendencies inimical to economic growth in that social incoherence and chaos; yet in their search for power and thereby dignity the ex-colonial peoples are apt to move toward technological progress more rapidly than if their traditional societies had never come in contact with the West.

But that intrusion by the West, and an attempt to impose Western values, knowledge, and social forms on the non-Western societies by force, has brought or will bring technological progress more rapidly than mere contact with the West without intrusion is much more doubtful. In fact, the contrary seems to be the case.

The evidence that can be adduced most simply and briefly is that of the four largest Asian nations, Indonesia, India, China, and Japan. Indonesia and India, which were conquered, have had the longest and most intensive contact with the West. China, which was forced to submit to the establishment of Western beachheads along the coast and to accept trade between the interior and the West, has had the next longest and most intensive contact, while since 1600 the rulers of Japan effectively prevented almost all contact with the West. Further, most Western capital, and over the longest period, has been invested in Indonesia and India, next most, over a shorter period but still a century or more, in China, but literally none in Japan until her economic modernization was well under way. But the order of entry on economic growth has been, first Japan; next, seventy or eighty years later, China and India, with the growth of China (in spite of her current serious difficulties in agriculture) more vigorous than that in India; and, last of the four, Indonesia, which indeed shows no evidence of growth at present.

As between India and Indonesia, the difference may be due to the less advanced state of the Indonesian material culture before the European intrusion--the lesser base from which to start in Indonesia, but as between India, China, and Japan, the difference must be due either to the deterrent effects of intrusion by the West, pre-existing differences among the cultures of the three societies, or to other differences in their histories. I shall suggest both that intrusion has had deterrent effects, and that Japan's relationship to the West was singularly conducive to economic growth.

The Importance of Selected Groups Within the Society

The sketches of the transition to economic growth in several countries presented early in this essay suggest that economic growth has been led, not by individuals distributed at random throughout the society, but disproportionately by individuals from some distinctive social group or groups. Consider this fact for a moment further.

In the last half of the eighteenth century, Nonconformists formed only about seven per cent of the population of England and Wales. The Scottish dissenters from the established Presbyterian church hardly formed a higher percentage of the population of Scotland. It is a fact of significance for the study of economic growth, that, judging by a sample study of British entrepreneurs made by the writer, these groups provided one half of the innovating entrepreneurs in Britain in the eighteenth and nineteenth centuries. In proportion to their number in the population as a whole, these dissenting groups provided more than ten times as many innovators as did the rest of the society.

Consider next the case of Colombia. The Spanish conquistadores came to Colombia during the 1530's. They readily conquered the Indians and occupied the high plateau around the present Bogotá (the Sabana), the valley of the upper Cauca river (known simply as the Valle), and the valley of Antioquia. They were in search of gold and adventure. They found little gold or silver on the Sabana or in the Valle, but they did find healthful fertile lands, and set themselves up as gentry on large estates or ranches. The Indians, whom they took under their guardianship to save their souls, performed the manual labor. In Antioquia they found some gold and silver, and thereafter the continued quest for this received must greater relative economic emphasis in Antioquia than on the Sabana or in the Valle. They found it impossible to keep their small mines manned with Indians and with the Negro slaves they brought from Africa, and, presently, increasingly they became mine workers themselves.

The conquistadores in all three areas were predominantly from the lower socio-economic classes of Spain, not the higher. When the occupants of the other two areas became landed gentry or cattle ranchers, with the fervor of new insecure elite they felt and expressed contempt for their grubby neighbors in Antioquia, who labored with their own hands, a feeling manifest in the literature and historical writings of the eighteenth and nineteenth centuries. The Antioqueños, on the other hand, conscious of their equal claim to Spanish blood and culture, felt resentment at the attitudes of superiority.

During Colombia's colonial period, the central colonial city was Bogotá, and after independence Bogotá was the national capital. The Bogotanos had far greater contact with the various countries of Western Europe than did the Antioqueños. Further, access from Cali, the main city of the Valle, both to Bogotá and to the Pacific was somewhat better

than that from Antioquia and its main city, Medellín. Of the three areas, Antioquia was the most isolated. Yet as economic growth has proceeded in Colombia, it has turned out that, out of all proportion to their numbers, the Antioquenos are the innovating entrepreneurs.

Research now under way by the writer suggests that in Japan, while the innovating entrepreneurs came more widely from various groups of the population, here too they probably came disproportionately from certain groups that under the social and political rules laid down by the Tokugawa had steadily lost their previous social status from 1600 on. This statement must, however, remain tentative until the research is completed.

No study available to me indicates clearly whether the Old Believers were active in nineteenth century economic innovation in Russia in numbers greater than in proportion to their number in the population. The historical research necessary to answer this question has not been done. However, in view of the historical references to their activity, it is probable that they were.

The essential characteristic of the innovating groups is not religious dissent or adherence or non-adherence to any given religious creed. In England they were Protestant Dissenters; in Russia (if the Old Believers were indeed the most innovational groups) adherents to traditional aspects of the Orthodox creed; in Colombia, like the rest of the population, fervent Catholics; in Japan, presumably Shintoists and Buddhists. What seems of central importance is that they were a group that had had a secure place in the traditional society, and then under new circumstances found that place spurned, derogated, or taken away by other social groups. That is, what seems conducive to the changes in personality (in creativity, values, and view of the world) which stimulate innovation is that the group shall, so to speak, be ejected from its erstwhile place in the traditional society, and feels impelled therefore to find some new field in which to prove its worth (old avenues to accepted social status having been closed to it). Men seem to be as much pushed as pulled into economic advance.

I suggest therefore that one of the differences among societies that is important in explaining the appearance of non-economic growth is whether internal social tensions of this sort developed, which served to push some group to new fields of endeavor.

Japan

In the case of Japan, not only did severe internal tensions develop. In addition, all Japan felt threatened by the West, for the Japanese knew well that Western power had gobbled up South and Southeast Asia, Indonesia, and the Philippines, and had humiliated China. Japan felt its dignity threatened by the West. All of Japan, that is, felt the same relationship to the West that derogated social groups in Britain, Russia, and Colombia did to the country as a whole. This dual set of pressures in Japan may explain Japan's very rapid growth.

The Impact of Colonial Rule

While colonial rule brought contact with Western ideas, and disrupted traditional social order and culture, it had one effect inimical to economic advance. Colonial administrators and businessmen (in part inadvertently) hacked up and cast aside as though they were dung the economic, social, political, and religious institutions of the governed peoples. For example, by introducing the ownership of land in fee simple they swept away systems of land use on which the family's economic security and its right to a place in the community depended. They humiliated the leaders on whom the people depended for guidance and for contact with the spiritual powers. They committed sacrilege on sacred temple grounds. They did these things in the name of progress, which is to say, because of their contempt for the indigenous religion and the wishes and purposes in life of the indigenous peoples. More important, they typically treated the people of the conquered nation as inferiors, who by virtue of their skin color were unworthy and might appropriately be humbled. The emotional impact of all this cut deep.

These are relationships of the immediate past and the present, not of history. They were characteristic of colonial rule by the British, as well as by the French, the Dutch, the Belgians, the Spanish, and Portuguese. There were differences in the degree of harshness of administration, but little in the fundamental impressions conveyed to the conquered peoples.

Two results of this relationship are pertinent.

One is that if members of the colonial society accepted the Western ways of life and the Western view of life, in doing so they were implicitly agreeing with the Western evaluation that they themselves in their previous culture were worthless. Indeed, the matter went farther than this, for they found out that no matter how Western they became the colonial administrators and businessmen still treated them as inferiors. Thus if they accepted Western culture they were admitting that of their essence they were inferior. I suggest that this situation has created emotional blocks which have made it difficult for indigenous individuals to perform effectively functions of the sort they associate with their colonial rulers, no matter how much they want the result.

The other is that they suspect the motives of Westerners in offering them technical advice. Throughout a long colonial history, Westerners had shown contempt for the purposes and values of the indigenous people, and had used them for their own purposes. Why should it now be supposed that Westerners were doing anything different? Anthropologists cite numerous cases in which attempts by employees of the central government in low-income societies to introduce improvements in methods and practices into the villages have failed. New wells have not been used; new seeds used as feed; methods of improving sanitation disregarded; etc. Anthropological studies have shown that the reason has often been that the chief contacts of the central government with the villagers for decades or generations had been to collect taxes, to enforce landlords' demands, to collect a levy of men for the army, etc. Automatically, unconsciously, the

villagers assume that no good for them can be intended by the central government, and these gut reactions make them unable to consider with their minds the possible benefits of what the governmental agents now offer. Similarly, colonial peoples have breathed in with their mothers' milk the perception that Westerners wish merely to use them. As a result, technical advice provided by Westerners may be shed as an oilskin sheds water--and all this in spite of desire to gain the productivity and power of the West.

The Value Placed on Power

To avoid misunderstanding in this summary statement, let it be noted as it was noted concerning a previous point that these tendencies are not absolutes. In any society there are deviants--individuals who because of the idiosyncracies of their individual lives have partly rejected the traditional culture or are ready to do so. And this is no doubt true in some degree, even though a small one, of virtually every individual. The barriers created by colonialism are important ones, but there are contrary tendencies. One of the contrary factors is that in every culture of any historical importance that anthropologists have studied, high value is placed on power. Now, the characteristic which Westerners manifested in supreme degree in traditional societies was power. This attracts indigenous peoples to Western ways of life, and this attraction counteracts at least to some degree the considerations which make Western ways of life repugnant. This attraction no doubt differs among individuals, being greatest, as has been noted, among individuals and groups who for some reason are unhappy with their position in the traditional society.

Culture May Change Rapidly

Moreover, there is evidence that culture can change with great rapidity. The most spectacular evidence is provided by Margaret Mead in New Lives for Old.[4] After World War II, revisiting the Manus on a small island in the Admiralties whom she had visited two decades or so earlier, she found that their culture and social structure was undergoing drastic change year by year. The immediate cause was that in World War II they had seen the might of United States armies, and decided to westernize. This is an extreme case. The Manus had been exposed to the presence of American soldiers in numbers perhaps one hundred times as great as their total population, and using lavishly the seemingly inexhaustible and incredibly impressive equipment of modern war. Moreover, the changes which Dr. Mead observed may be more superficial, and less eradicative of the basic culture, than appears on the surface. One would like to wait another two decades, and see whether basic traditional features had reasserted themselves. But with all the qualifications one can conjure up out of caution, the speed of change is impressive. And even though this is an extreme case, it illustrates the principle that even radical social-cultural change may occur rapidly.

MORALS FOR UNITED STATES POLICY AND OPERATIONS

Nevertheless, the tenor of the discussion above may be discouraging to practitioners of the giving of aid to development. For the typical case seems to be that economic growth gained momentum only after a process of social and cultural change of many generations. If so, it may seem of little use to extend economic and technical aid if conditions in the society are not conducive to economic growth, and hardly necessary if they are.

However, the bare statement of these extremes may suggest the fallacy of the viewpoint stated. Almost all underdeveloped countries are somewhere between the extremes. Conditions are somewhat conducive to growth, and somewhat deterrent. The differences are matters of degree. The number of rather creative individuals varies, but everywhere there are some. Within a fairly wide range of the available amount of economic and technical aid, economic growth will proceed faster in almost all underdeveloped countries if more aid is given than if less is given, provided that the aid is extended in an effective manner. Awareness of the interrelations between social-cultural conditions and technical and economic progress should make the practitioner of aid less facile in his approach to the problem, less inclined to assume that a goodly amount of aid should accomplish the desired result in a few years if the recipients are sensible. It should make him more appreciative of the creativity which he and his colleagues need to manifest if their help is to be effective.

Various suggestions for United States policy and operations in economic and technical aid suggest themselves, some narrow in scope, some broad, some simple, some complex.

Effect of the United States Policy Stance

Since World War II, the United States unfortunately has strongly conveyed the impression to the low-income countries that we have no respect for their purposes in life, but rather wish to use them for our purposes. We have conveyed this impression partly because they are allergic to anything that suggests it, and a small incident makes a big impression, but perhaps mainly because, unfortunately, it has been true. We have made military alliances and encouraged rulers to muster up large armies for our purposes, not purposes which the peoples felt were theirs--purposes which might plunge them into a war which they felt was not their concern. (After their colonial experience, that they should be neutralist rather than pro-Western is not surprising.) We have associated ourselves with repressive rulers, who used our arms to maintain their power. We are commonly thought in Latin America to have intervened with force in Guatemala to obtain the overthrow of a duly elected president, Arbenz--a president, moreover, who was thought to be moving forward rapidly with plans for land reform, while under his successors Castillo Armas and Ydigoras action stopped. We have in the past refused aid to Brazil to develop a national petroleum enterprise, and Brazilians and other Latin Americans believe the reason is that it would compete with our private oil companies. And so on.

I suggest that reversing this image of ourselves is not only in our national interest on broader grounds, but would probably make our development assistance more effective. We have now voted in the United Nations in favor of an investigation of Portuguese administration in Angola, and seem to have taken a stance in favor of neutralism in Laos, abandoning our support by arms of a prince for whom there is no evidence of great popular support. A few dozen other similar reversals in policy may have as much effect in making the work of technical advisers in say India, Nigeria, or Colombia effective as the technical competence of the advisers. We cannot wipe out rapidly unconscious attitudes inculcated over a lifetime, but the image we cast currently certainly has, as an important by-product, some effect on the degree to which our technical advice takes hold.

Various Specific Suggestions Concerning Technical Assistance

1. Do not feel superior. A matter related to that discussed above is the impression cast by the individual technical assistance expert concerning his own relationship to the persons he is advising. Insofar as the indigenous individuals receive the perception that the adviser feels that in essence he is superior, the unconscious barriers rise; the gut assumption of the indigenous individual that the adviser is interested in his own purposes comes into play; and the technical advice tends not to take. In an orientation talk by a friend at the time when I was entering a low-income country, I was advised not to let the people feel that I thought I was superior. Clearly, the implication was that I was superior, but should not show it. Where that attitude prevails, indigenous individuals will not be deceived, and a block to effective technical assistance will be created. Technical assistance experts should be people who understand that they are not superior, but merely happen to have some knowledge and skills that can be of use.

This understanding can be inculcated only in small degree by orientation programs. The view of the world which includes "cultural arrogance" is deeply built into personality, just as the attitudes of individuals in traditional societies are. The American who is culturally arrogant when he accepts a position in an American foreign assistance agency will still be culturally arrogant after an orientation course. I suggest therefore that a selection procedure that employs sophisticated examination of prospective aid officials would be a highly useful addition to the personnel procedures of the agency.

2. Start from their viewpoint. It is an important principle of administration as well as of education that an individual will not learn effectively unless he is being helped to do something he wants to do.[5] The principle is of great importance in technical assistance. The technical adviser must try to understand the complicated set of goals of the recipient of technical assistance, and must help him attain what he wants, not what the American thinks he ought to want.

The importance of the ethical values of the indigenous culture, the appropriate relationships between inferior and superior, the need for appropriate relationships to one's community and to the spiritual powers, and other

cultural factors, have been suggested above. The indigenous individual probably wants increased efficiency, but not at the cost of other goals that are important to him and alien to the American. If he is to attain increased efficiency, he must do so within the framework of relationships dictated by his moral values, sense of identity, and obligations to his fellows and the spiritual powers. The American who feels that his technical method of doing a job, and of organizing the enterprise for its doing, is the most efficient way, and that his job is simply to show the indigenous individual the efficient Western way, has partly failed in his job before he starts. The adviser's job is to learn the context within which the indigenous individual operates, and to be creative in adapting advanced techniques so that they will function within that relationship. For example, the adviser who tries to organize a factory as it is organized in the United States, or who suggests that authority must be delegated in a governmental ministry as it is in the West, because that is the way it workswell in the West, or who suggests that the procedure of economic programming should embody relationships between ministries and planners parallel to those by which the United States Bureau of the Budget operates, has largely defeated himself before he starts to advise. Creativity is necessary among advisers, as well as within the indigenous culture.

If feasible, every technical aid mission should have one member who is sensitive to cultural determinants of behavior and can give advice concerning values and relationships and unconscious attitudes governing behavior which would not occur to other mission members. He will also need to advise the other mission members about their unconscious attitudes and motivations, for many of their difficulties will arise from attempting, consciously or unconsciously, to impose values which they regard as laws of the universe but which in fact are elements of Western but not of traditional culture. Ideally every mission should have an anthropologist-psychologist, and one who is acquainted with the culture, or with related cultures, when he begins his job. This of course is a counsel of the ideal. Moreover, often a professional anthropologist who is available for such a position may be an individual who has learned the verbalisms of his craft, but nevertheless does not understand either himself or the functioning of culture. Here as in some other circumstances, a little learning is a dangerous thing.

If, as I believe, there are so few persons qualified for this function by training and capability that a competent individual cannot be obtained for each mission, then a more feasible substitute is to have a small group of such individuals operating in a staff capacity out of the Washington office. They may be able to do field studies, to analyze difficulties, and to elaborate in a perceptive, practical, specific manner the observations which have been summarized imperfectly here in general terms.

These comments should not be taken to imply that Western techniques must always be carried on within a traditional frame of values. On the contrary, once Western techniques have infiltrated into the traditional framework, and the degree to which they can further some of the aims of indigenous individuals is appreciated in practice, further pursuit of them will inexorably alter traditional values. But this alteration occurs in the process of living, and from one generation to the next. It cannot be brought about by verbal exhortation by an adviser, which usually has an effect contrary to its purpose.

3. Be their creature. As one technique to lessen the barrier created by the unconscious assumption that the Westerner is serving his own interests, it seems useful to create a relationship by which as many technical advisers as possible are not members of a United States technical aid mission in the country, but rather are creatures of a governmental agency of the country. One technique is creation of a trust fund out of which the host government employs the men, so that they do not report to someone in the United States Embassy. Whatever the devices necessary, achieving this relationship is useful.

4. Find the individual. In some contexts, technical advisers have the opportunity to select individuals or groups with whom to operate. An adviser assigned to a Ministry may be free to operate with any of a number of officials within the Ministry. An adviser who is to train a group of young people may have some discretion in selecting members of the group. And so on. In the first case, it is only sensible to work with the official who is most amenable to being helped, assuming that his post is important enough to make helping him sufficiently useful. In the second case, more delicate problems arise.

The comments above about the tendency of innovators to appear in a socially rebellious group might suggest looking for such a group. This, however, is dangerous procedure. Indigenous peoples may remember a colonial policy of divide and rule; even if they do not, they are as acutely aware as a visitor could be of the tensions within their society. Any overt tendency to select for attention one group which is somewhat at odds with the rest of the society, may create antipathies which may destroy the program. Moreover, while a disproportionate number of innovators may come from some socially rebellious group, such individuals are also found scattered throughout the population. Even in the extreme case in England, in which the Dissenters provided half of the entrepreneurs, the rest of the population provided the other half. The safest advice for intruders from the outside is: if you have freedom of choice, select individuals who seem most capable and most receptive to advice, but only within the rules of behavior of the society. Here as elsewhere, creatively adapt to the situation you find; use only rules of selection which you are willing to discuss quite openly with the authorities of the country. These rules, of course, may involve rejection of nepotism and other "favoritism," but only insofar as you are able frankly though discreetly to discuss this situation.

5. First convince the "reference group." Each of us carries around in his head a sense that the good opinion of certain individuals is more important than that of others. Many of our actions are guided or greatly influenced by the awareness that individuals or groups whose approval we desire would or would not approve of what we are contemplating doing. Thus a young boy may be conscious of the attitudes of his parents, or his boy playmates, or (at a certain age) the girls he knows, or, in various compartments of his behavior, of all three. A scholar may work primarily for the approval of other scholars in his field. A professional or technical man in a ministry may value professional approval. A peasant may be guided by the values of his fellow villagers and especially of the village priest or monk.

A government official of an underdeveloped country may be conscious most of all of the attitudes of European elites (though if he is, he is somewhat isolated from his own culture and may lose his influence there). And so on.

The individual or group whose approval each of us consciously or unconsciously seeks is termed his "reference group." The work of an adviser will benefit if he is able to discover the reference group of the person he is advising. If the reference group is a local individual or group, and if that person or persons can be shown the advantages of a method or course of action, then the person being advised will sense that he will have the approval of his reference group if he adopts it, and it will have become something he wants to do. In short, approach the influential individual first, if the situation permits.

6. Do not expect to change the culture. A layman, impressed with the importance of culture, and assuming that the way to bring about changes in attitudes is by education, might think that the key to progress lies in inducing the host government to introduce a school system in which the virtues of thrift, the laws of science, the dignity of manual labor, the fascinating character of the physical world, the equality of all men, etc., would be taught.

However, the expectation that such education will change basic attitudes arises in large part from a misunderstanding of how the basic attitudes of personality are inculcated. They are inculcated only in small degree by the conscious mental learning of school. In the main, they are inculcated by conclusions about the best way to meet the problems of life which the child unconsciously draws between the ages of zero and say six or eight, and perhaps especially before the age of five. There are generalizations about the nature of the environment in which he lives and the best way of defending himself from its dangers and taking advantage of its opportunities. Few things impress modern social and clinical psychologists more than the powerful ability of even the youngest children to generalize from the clues of their immediate environment, and the strength and persistence of the behavior patterns which they thereby build into their unconscious processes.

The aspects of that environment which are most influential in forming the child's personality are the personality and behavior of his father and mother and other persons equally close to him--not what they consciously do with respect to him, but what unconsciously they do and are, and how satisfactory all this seems to the child. While every event throughout life makes its impression on the individual, these early years are extremely important. Even in later years, general interpersonal relationships and ways of behavior in the society are much more important in confirming or altering earlier attitudes than are mental acquisitions during the process of education. The influence of school, in building on basic attitudes, and in providing facts and tools, is tremendous, but it should not be assumed to be the major culture-moulding institution.

The technical adviser must realize that in the main he cannot mould the culture, but must creatively adapt himself to make new techniques work within it. If he possesses enough genius to do this, he may be amazed at his effectiveness. And each of us has a tiny bit of genius; each of us may perceive some bit of reason why our technical advice fails, and by perceiving that bit of the truth become more effective than otherwise.

7. The evaluation of projects. Finally, I would suggest that in evaluating projects for economic aid (as distinguished from technical aid) the interrelationships between social-cultural and technical-economic change must also be considered. At times, projects are proposed and intensely desired by the government of the underdeveloped country which as analyzed by technical and economic experts of the United States are poor projects--or worse. For example, economic advisers are often baffled by the attractiveness of steel mills to countries which have no economic sources of iron ore or coking coal.

These projects satisfy emotional needs. These needs cause the officials of the country to persuade themselves that the projects are good, almost regardless of the economic and technical considerations presented to them. Since rejection of requests for aid for such proposals is apt to arouse the old suspicion that the United States does not want the country to become strong, but wants to keep it in an inferior status, a problem is created.

I suggest that if in many other ways the United States and its employees in the country have created the perception that they do respect the purposes and values of the indigenous people, it will be easier to reject such proposals without damage, for the individuals of the country will be the more able to perceive that the United States has reasons which do not imply contempt for the purposes and values of the country.

On the other hand, the United States should be slow to reject projects merely because they seem to be less advantageous than some others. The fact that a project is desired (by representative officials who reflect public attitudes, and not by an eccentric individual or for personal or class gain) is in itself a consideration of some importance in favor of the project. If a project will raise material income somewhat less than would another project, but will raise psychic income more, the latter should not be ignored. Of course, the situation may be more difficult than this. Projects which are desired because they satisfy needs for dignity, prestige, etc., may not produce any economic benefit; they may be economic burdens. What is desired may be the symbol, not the function. The questions involved are complex; all that I am suggesting is that a purely economic and technical analysis is inadequate.

SOME OBSERVATIONS ON POLITICAL STABILITY AND CHANGE

The discussion so far has, in appearance at least, dealt with technical-economic rather than political change. It has done so for three reasons. One is that the writer feels more competent to discuss economic than political change. A second is that whereas the United States is as interested in political

development as in economic development in the economically underdeveloped societies which we are aiding, our aid is specifically aimed at promoting economic growth. We do not purport to intervene in the process of political change. The third is that, after all, the neglect of political change is in part a mirage. Most of the generalizations concerning economic change stated above apply also to any other type of basic change in a social system, and specifically are as pertinent to political as to economic change.

Political Stability in a Traditional Society

Specifically, then, in a fully traditional society, the sense of impotence in the face of their physical environment that is felt by individuals in the society, the relief from anxiety they feel at being able to depend on the judgment of a superior, the satisfaction they feel at being able in turn to dominate inferiors, and their lack of creativity, all cause the hierarchical and authoritarian structure of traditional society to be satisfying to them. If, in addition, each class in the society--peasants, craftsmen, lords, warriors, the learned--feels that its place in the society is understood and respected by the other classes, then there is little tendency toward either political or economic change. Strange though it may seem to us today, this was true in almost all peasant-based societies until two or three hundred years ago.

Social Tensions as a Cause of Change

To the members of such societies, the way of life of other societies did not seem attractive and did not exert any considerable stimulus toward change. Even the perception that the members of other societies enjoyed a higher level of living did not have a strong disrupting effect, since the means by which they attained it seemed demeaning and repugnant to traditional individuals. In Benjamin Franklin's phrase, the whistle was not worth the penny. (When Europeans with their un-Japanese and un-Burmese ways of behavior first appeared in Japan and Burma, the Japanese and the Burmese both referred to them as barbarians, with precisely the connotation with which we use the term barbarian.)

However, through some historical change the function in life and the desires and purposes of one or more classes in a traditional society may no longer be respected by the classes above them or by their fellows of equal social status. Instead, they may merely be used as tools to serve upper-class purposes or may be derogated by their fellows. Examples from England, Russia, Japan, and Colombia were cited earlier in this essay. If these tensions continue for some generations so that changes in personality occur, then the cement that held the society together is replaced by forces that tend to break it apart.

The old social structure is then preserved only by the power in the hands of the upper classes. The discontented groups will look where they can, including outside the society, for new ways of living in which they can

prove their worth, force others to respect them, and perhaps satisfy the rage that has built up in them. If the winds of history carry to the discontented groups of such a society the perception that they no longer have to submit to their social lot, that they can take matters into their own hands, then sooner or later there will be a social and political revolution, gradual or abrupt, peaceful or by force.

This is the change that has occurred in the world between the seventeenth and twentieth centuries. In almost all of the economically underdeveloped societies of the world, during the past several hundred years the sense that their place in society is respected was lost by most classes. It was largely destroyed in every colonial society, where as I have noted above the colonial administrators, no matter how kindly their rule, made abundantly clear that they had little but contempt for the indigenous culture and the social, political, and religious beliefs and desires of all of the groups of the indigenous society. Independence does not resolve the problem, for the traditional social system is disrupted beyond restoration, and the people, still aware of the derogation of their ex-masters, still seek for dignity, proof of their worth, and prehaps revenge. Even in low-income societies that were never fully colonial--for example Thailand and some societies of the Middle East--through circumstances of history too complex to sketch here, the upper classes no longer serve as the religious and social leaders of the simple folk and provide meaning to their lives. Rather, the upper classes, in the main, have contempt for the function in the society of the simple folk, and use them so far as they can merely as tools to serve upper class purposes. This had happened before the twentieth century. Then in the twentieth century came the perception by the common people of these societies that they can do something about the lack of respect accorded them, that they do not need to remain in roles in which they are not treated with dignity.

This situation need not result in revolutionary political change. If the political repression is not too severe, and if discontented individuals who no longer hold traditional values see ways in which they can individually prove their worth, they may pursue them and the tensions may never rise to the level necessary for political revolution. The individuals may, for example, become economic innovators, and the growing commercial and industrial middle class may accomplish basic social and political change gradually. But if the political repression is great or if the upper classes are especially self-centered even at the cost of the general welfare, then tensions will build up leading to political revolution, probably extremist. This, with qualifications which brevity prevents stating here, was the cause of Communist revolt in Russia, and a main reason why Communism was attractive in China. It explains also the Castro-led revolution in Cuba and the more moderate ones in Egypt and Iraq. It may easily happen elsewhere.

Economic Growth a Cause of Political Instability?

These considerations are pertinent to the question whether economic growth causes political instability--whether by aiding economic growth we are

causing political turmoil and perhaps leftist revolution. The idea rests on the notion that the peasant or worker is inert and content until experience of a slight improvement in his life widens his horizons. Expectations rise faster than reality, and he becomes rebellious. There is certainly a grain of truth in the idea, for it may be the beginnings of economic growth that first create the perception that one need not submit to the old indignities. In the main, however, the idea that there is such a relationship between the beginnings of economic growth and political instability is a misreading of the contemporary situation. Typically, the peasant or worker is inert, not because he is contented or simply without any emotions, but because he thinks himself powerless to change his situation. He has been contented for several generations. Growing awareness of the possibility of social change has now been brought to him by the course of history; it is surely almost entirely independent of economic growth.

Even insofar as stirrings of economic growth are the vehicle by which the message is conveyed, the remedy is not to forego the attempt at growth. For awareness that they are not powerless will surely reach the peasant and worker in the absence of economic change, even if slightly later, and their reaction will be the more extreme if nothing has previously been done to indicate that the world has regard for them. Opportunities for economic growth that reach the discontented groups are surely a counteragent to political instability, though they may be an insufficient counteragent if the accumulated bitterness has grown too great.

Economic Aid and Political Instability

The relationship of economic and technical aid to political instability thus seems to be as follows: Economic and technical aid that create new economic opportunities for the discontented groups in a society lessen the tendency to radical political and social upheaval. However, insofar as economic aid by the West reaches only the ruling elites, it conveys to the discontented groups below them the perception that the West serves the purposes of those elites and like them has contempt for the purposes of the simple folk. This perception increases the receptivity of the simple folk to extremist non-Western movements, conspicuous among them Communism. Our economic aid to Iran, in Guatemala, in Laos, and in some other countries, has perhaps had this effect. Thus the administration and the end-products of economic aid are as important as its existence. The same malign results that follow from misdirected economic aid frequently follow from military aid--much more frequently, indeed, than from economic aid--but this point has been made earlier in this essay and need not be re-stated here.

FUTURE RESEARCH

Three types of research are pertinent to the subject matter of this essay. One is research to advance our understanding of the nature of social and cultural change. For this purpose, general advance of the social sciences is needed. It would be fruitless for the United States aid agency to carry

out research for this general purpose. The agency may, however, wish to commission research projects by academic or research institutions even though the benefit if the research is successful will accrue only in the longer run.

A second is research into the reasons for alienation of public opinion from the United States in an underdeveloped country, or conversely, improvement in the regard in which the United States is held. This complex research, encompassing the various factors discussed above and others as well, is perhaps not appropriately within the jurisdiction of the aid agency, though it should certainly be an activity of the United States government.

Thirdly, there should be research into why specific projects of economic and technical assistance did or did not work well. There is room for a large amount of research into our past successes and failures. The investigatory teams should include perceptive social scientists. We should not assume that investigation which covers only the "practical" aspects of our successes and failures will be fully revealing. A dozen or two dozen case studies, in the small and in the large, in the execution of which understanding of social and cultural processes was reflected hand in hand with understanding of administration might indicate reasons for the effectiveness or ineffectiveness of our actions that would materially improve our effectiveness in the future.

FOOTNOTES

1. Among the major contributions to the literature examining the relationships among the various dimensions of change within a society are the following:

G. A. Almond, J. S. Coleman, et.al., The Politics of the Developing Areas, Princeton, 1960.

K. Davis and H. H. Golden, "Urbanization and the Development of Pre-Industrial Areas," Economic Development and Cultural Change, Vol. III, No. 1, October, 1954.

H. H. Golden, "Literacy and Social Change in Underdeveloped Countries," Rural Sociology, Vol. 20, No. 1, March 1955.

D. Lerner, "Communications Systems and Social Systems. Statistical Exploration in History and Policy," Behavioral Science, Vol. 2, No. 4, October 1957.

D. Lerner, with L. W. Pevsner, The Passing of Traditional Society, Glencoe, Illinois, 1958.

S. Lipset, "Some Social Requisites of Democracy: Economic Development and Political Legitimacy," The American Political Science Review, Vol. LIII, No. 1, March 1959.

L. W. Shannon, Underdeveloped Areas, New York, 1957.

L. W. Shannon, "Is Level of Development Related to Capacity for Self-Government?" American Journal of Economics and Sociology, Vol. 17, July 1958.

L. W. Shannon "Socio-Economic Development and Political Status," Social Problems, Vol. VII, No. 2, Fall 1959.

C. Wolf, Jr., Foreign Aid: Theory and Practice in Southern Asia, Princeton, 1960.

2. Before Coleman, S. Lipset has suggested the relationship and performed a similar exercise.

For Coleman's category Percent of population in labor unions, that of Percent of labor force outside agriculture and service sector was substituted. The data were gathered independently and no doubt differ from Coleman's in detail. Coleman ranked his countries according to each of the eleven indexes, then took a simple average of the rankings for each country and derived his composite ranking from it. Various alternative methods of averaging were used in the M. I. T. research, to determine whether the method of weighting materially affects the results. As among the different methods of weighting tested, it does not. Before weighting, the magnitudes (not indexes) in each of the eleven categories were first reduced to an index whose lowest value is zero by reducing the magnitude for each country by the amount of the minimum one (thereby reducing that one to zero), then dividing each either by (a) the maximum or

(b) the mean of the resulting magnitudes. The methods of weighting tested then were: equal weighting for each of the five groups indicated in the text, using variant (a); the same, using variant (b); and each of these two variants, using only four groups, consisting of categories and 7; 5 and 6; 9; and 10. Table 1 is the first variant stated above.

I have altered Coleman's classification of the following countries according to their political structure: Coleman classed Cambodia, Venezuela, and Guatemala as authoritarian, and Iran as semi-competitive.

Like the tables, the textual discussion reflects suggestions by Coleman, but it does not rest on his material to the degree that the basic idea of the exercise and the preparation of the rankings does.

3. "Economics and Economic Development," Economics and the Policy Maker - Brookings Lectures, 1958, 1959.

4. New York, William Morrow and Co., 1956.

5. For a discussion of this principle in industry, see Douglas McGregor, The Human Side of Enterprise, Cambridge, M. I. T., 1957, (reprint from "Adventure in Thought and Action," proceedings of the Fifth Anniversary Convocation of the School of Industrial Management).

Comments of Albert O. Hirschman, Columbia University,
on
"A General Framework for Analyzing Economic Growth" by
Everett E. Hagen

I have a great deal of sympathy with Everett Hagen's stress on the need to understand better why some things are so uncommonly difficult in the less developed countries; with his emphasis on the distance that separates us, here in the industrial countries, not only from the rural masses, but also from the ruling groups there; and I find many things he says about the "gut assumptions" of colonial or semi-colonial people quite illuminating.

I do have a quibble or two with his basic hypothesis about the relationship between the "ejected groups" and the beginning of economic growth. A few years ago I wrote a comment on a paper entitled "Non-economic Factors in Economic Development" in which Bert Hoselitz laid much stress on the importance of minorities and other deviants for the emergence of able and vigorous entrepreneurs. My criticism which, I believe, is also applicable to the interesting turn Hagen has given to this idea took the form of two questions: First, is the relationship reliable? In other words, aren't there some deviants, e.g., homosexuals or ex-convicts, who have not shown particularly strong entrepreneurial inclinations? Must we then perhaps entertain the Toynbee-type hypothesis of "optimum deviancy," with all the attendant conceptual difficulties of defining the optimal point?

My other question relates to the direction of the causal nexus. Hoselitz' deviants or Hagen's ejected groups may well make for economic development, but development in turn creates an esprit de corps among its principal agents and welds them into an identifiable group, with a personality and perhaps an ideology of its own. Ex post, it may look therefore as though the separateness of the group was a cause of development when in actual fact it was its result. Historical examples of this type of relationship can easily be given.

I am glad, in any event, that Hagen specifically warns us against taking our lantern and looking for the deviants and putting them in charge. Yet the logic of his argument certainly implies that the transfer of capital alone would not work unless the ground is prepared through the presence of some such group. In this sense, then, Hagen's analysis is an extension of Rostow's pre-conditions. He does not tell us whether he proposes to substitute his set of pre-conditions for Rostow's or whether he considers his set as pre-pre-conditions to Rostow's pre-conditions. I am anxious and, what is more, I am worried. For when we add to the number of pre-conditions we lengthen, by the same token, the list of potential obstacles to development. The discovery of such obstacles comes in waves, usually after something has gone wrong. It is not surprising that after the Congo, Cuba and Laos, all three recipients of large amounts of public or private capital in the past, we should be riding the crest of such a wave.

The most articulate reflection of a new mood of disillusion with our past reliance on capital cum technical assistance is the recent article in Foreign Affairs by Ambassador Galbraith. In it we are told that the development process can hardly be expected to be brought under way and that an

infusion of financial aid and experts will be useless unless there be present in the to-be-aided society (1) "a substantial degree of literacy" and an "educated élite of substantial size"; (2) "a substantial measure of social justice"; (3) "a reliable apparatus of government and public administration"; and (4) "a clear and purposeful view of what development involves."

This is a counsel of perfection. In no advanced industrial country were these four conditions relized prior to industrialization. Moreover, if these four conditions were found to be present in any country today, then that country could easily dispense with foreign financial and technical assistance; in fact, it should probably be an exporter of such assistance, with the United States as a recipient!

The Galbraithian conditions should supply us, therefore, with a final reductio ad absurdum of one approach to foreign aid that has dominated our thinking during the whole postwar period: the "will to believe"--rooted perhaps in the need to so persuade the Congress--that foreign aid is the "missing component," the "catalyst" whose addition will surely bring the alchemy of the development process to its climactic reaction: self support, "take-off," or bliss in general. The search for the components that have to be in place so that foreign capital and technical assistance from abroad can play this sure-fire role has focused successively on monetary stability, on a "favorable investment climate," on "integrated development programs," and lately on land and tax reforms. Our diagnosis has thus fluctuated wildly, in line with our own ideological preferences of the moment and with the lessons of the latest disaster.

If only we paid as much attention to the successes as to the failures we should have noticed that whenever development occurs, it does so invariably in the absence of one or several of these "required" components or pre-conditions. In 19th century Germany, it occurred without much primitive accumulation of capital and in Italy without the Protestant ethic, to mention some of the earlier theories on prerequisites; and during the postwar period in Brazil, it occurred in the absence of monetary stability, and in Colombia even in the absence of public order, not to speak of land reform.

These experiences cast great doubt on the whole notion of pre-conditions or prerequisites. In fact, I believe with Gerschenkron that the only generalization we can make about the development of latecomers is that they will not follow the sequence of their predecessors, but will insist on changing it around or on skipping entirely some stages as well as some "pre-conditions." Therefore, I continue to advocate that in our research we pay special attention to the emergence and possible rationality of new or inverted sequences. When we discover an "obstacle" such as poor public administration or uneconomic land use, our job does not consist in merely advising its removal; we ought to explore also how, by moving the economy forward elsewhere, additional pressure (economic and political) could be brought on the obstacle to give way. The analysis of sequences I have in mind should be as comprehensive as possible and describe the interplay of economic, political and cultural factors.

I am at present engaged, with the support of the Twentieth Century Fund, in the detailed analysis of sequences in economic policy-making around particular problems such as land reform or inflation or regional imbalance in five Latin American countries. In each case I am seeking answers to the question:

At what particular point, under what combination of pressures, after what kind of learning process, are new insights about the nature of the problem acquired? When and why does it suddenly become possible to take effective action after decades of ineffective legislation and tinkering? I would be very interested to find out if similar efforts have been or are being undertaken by other social scientists.

But let me return to my theme. We might as well reconcile ourselves to the fact that we will never be called upon to give aid to a country unless it is afflicted with many, more or less loosely interrelated, facets of backwardness or obstacles to development. In this view, aid is a way we have found of getting involved in the recipient country's battle against these obstacles. At first, the best we can do when joining the battle is often to follow Napoleon's maxim "on s'engage; puis on voit." Little by-little, after getting committed and "seeing," i.e., learning about the country's problems, some hypotheses should emerge about the sequence in which a country is likely to attack successfully the multifarious obstacles. In the search for the best hypothesis, we should use what Dr. Carl Rogers, already aptly quoted by Hagen, calls "client-centered therapy." The well-known similarity in characteristics exhibited by underdeveloped countries at any one stage of development is matched only by the far less noticed variety of sequences and processes through which they move from one stage to the next. For example, the wide range of means by which one particular obstacle can be overcome was strikingly if somewhat inadvertently illustrated by Frank Tannenbaum when he wrote recently that Mexico acquired a feeling of pride in its own identity and achievements through its protracted revolution, whereas Brazil achieved similar confidence in its own destiny through the publication of a book, namely Freyre's classic Masters and Slaves.

But there remains a serious question which is really the basic one to which Galbraith was addressing himself. What if we have acquired the conviction that no further progress is possible unless a corrupt government gets ousted or a thorough-going land reform is instituted? Far be it from me to say that such situations are inconceivable. But perhaps we are today a little too ready to jump to this kind of conclusion. In reaction to the Cuban events we wish to rid ourselves in a hurry of what Heilbroner has recently called "American ostrichism," by which he means our earlier lack of attention to the social struggles and tensions which have so important a bearing on the course of development. At last, we have become painfully aware that it may be impossible to effect significant economic progress as long as our aid actually strengthens those who are opposed to the social changes without which economic advance is impossible or meaningless.

Naturally, if the situation is the one depicted in the Communist textbook where the government is entirely the expression of one homogeneously reactionary and parasitic ruling clique while the country's popular energies and developmental resources wait to be unshackled through revolution, then little can be said in favor of making aid available until the revolution has taken over. If this is the situation, the best thing for the U S Operations Mission to do is to join the rioting students or the backbush guerillas. But ordinarily reality is not that simple: the government in question may be unwilling to decree (or its parliament may be unwilling to vote) certain

reforms that we think are highly desirable, yet at the same time it may be anxious to undertake a variety of unexceptionable tasks of economic development. Now, if the reforms are as central to further progress as we think they are, these other tasks will either be impossible to carry out in the absence of the reforms or they will make the need for the reforms even more compelling than before. Both eventualities bring the reforms closer, for they will either force the hand of the government or hasten its downfall.

In this perspective, our financial or technical help is justified, provided we ourselves realize the kind of game in which we are involved and are not caught unawares by the outbreak of crisis. By helping in peripheral tasks of economic development or by proving that they are bound to fail within the existing socioeconomic framework, we are actually waging a kind of guerilla warfare against the holdouts of reaction and backwardness at the center. From this point of view even the failure of a technical assistance mission can have its uses: nothing demonstrates as clearly the need to undertake thorough-going land reform as the failure of an attempt to establish an equitable land tax system.

Foreign aid does not necessarily always work to the benefit of the group that happens to be in power. It is desired by governments to enhance their prestige, but may turn out to undermine it. Frequently foreign aid is requested to stave off reforms, but it may be made to accelerate them. The exploration and utilization of such disruptive and subversive potentialities of aid is perhaps particularly important for us as long as we are neither much given to guerilla warfare proper, nor apparently very good at it. In order to be able to use aid in this fashion and not to be unduly surprised by the explosive consequences, we should devise ways of giving aid in a fashion that does not imply a wholesale endorsement of the programs, objectives and values of the recipient government. We should learn--we have already done so in some cases, but are rather shamefaced about it--to cooperate with other governments in a variety of tasks, fully aware that we and they are pursuing objectives that overlap initially only to a very small extent. This way of using financial and technical assistance implies techniques quite different from those toward which we are now gravitating. To underwrite a development program--which appears to be the new formula, to be applied the world over--may be the appropriate technique when there is a rather complete meeting of minds. But not to underwrite a development program may be just as important at times; and it need not mean the absence of an overall design on our part, or resignation to having just a collection of random projects. It may be a deliberate choice to remain aloof from full cooperation while giving support to certain aspirations. Perhaps research can help identify different types of aid policies appropriate to different constellations so that we will stop looking for the one best policy applicable to all possible circumstances.

COUNTRY PROGRAMMING

AS A GUIDE TO DEVELOPMENT

Gerhard Colm, Chief Economist
and
Theodore Geiger, Chief of International Studies
National Planning Association
Washington, D. C.

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COUNTRY PROGRAMMING AS A GUIDE TO DEVELOPMENT

By Gerhard Colm and Theodore Geiger

The recent reappraisal and reorganization of the U. S. foreign aid effort have given increased importance to long-range planning for development. Both the Alianza para el Progreso for Latin America and President Kennedy's 1961 messages to the Congress on foreign aid are explicitly based on the premise that U. S. assistance of all types should be provided within the context of "carefully thought through programs tailored to meet the needs and resource potential of each individual country (Special Message of March 22, 1961)." In the same document, the President stresses the principle that "long-term planning and financing is the only way to make meaningful and economical commitments." Thus, the U. S. government seems committed to a policy of using long-range development planning as a major essential component of its foreign aid strategy.

Well-conceived planning and programming can be of great usefulness in the process of economic and social development, and the current emphasis on them is a welcome change from the previous attitude of the U. S. government agencies concerned. After its successful use in the European Recovery Program (1948-52), planning fell into disfavor in the U. S. government, and during the 1950's it was not encouraged in the underdeveloped countries receiving U. S. aid. In contrast, the danger today is that the current enthusiasm for planning may inadvertently produce undesirable results at the opposite extreme. Too much reliance may be placed upon plans and programs that have been hastily prepared, on the basis of little or no data, and which the governments involved may not have either the intention or the ability to implement. Planning may be regarded as the panacea to all development problems, with inevitable disappointment when it fails--as it must--to fulfill this unrealistic expectation. Plans will be of little use if they are presented in unnecessarily technical forms; in addition to their possible lack of realism, such esoteric documents may be ignored or resented by the administrators on whose cooperation their implementation depends. Government planning will also fail if the development plan or its constituent programs are too rigidly enforced without regard to changing circumstances or are not adequately related to private, decentralized, economic decision-making and activity. If the high hopes currently placed in planning are unfulfilled, a reaction may occur which could result in the loss of much of the progress currently being made in improving development methods.

These dangers would be lessened by a better understanding of the proper role of planning and of the nature and applications of effective planning techniques, including implementation of the plan. This paper is an attempt to outline the kinds of planning that are useful in the process of economic development, and to suggest some of the main problems, related to planning and planning techniques, on which research is needed.

Definitions

In this paper, the terms "country programming" and "development planning" are used synonymously. They refer to deliberate, rational, continuous efforts

by governments to accelerate the process of development and to channel it into desired directions by means of the comprehensive and detailed choice of objectives and the determination and allocation of the resources necessary for their achievement. Such a general definition of planning would cover a wide variety of specific types. In the communist states, for example, the government's economic plan is centrally prepared and administered, covers virtually all sectors and activities, and its specific goals and resource allocations are enforced as law both by the government and by the ruling political party. In systems in which most of the economic decisions are made by private producers, consumers, and investors, it is usually only the government sectors that are planned in detail, while for key private sectors or industries general targets may be identified as guidelines for private activity. We deal specifically in this paper with planning techniques that are suitable for the economic development of countries in which public and private decision-making and activity are maintained side by side.

The term "development" is not used synonymously with "growth." In the underdeveloped countries of Asia, Africa, and Latin America, development requires social and cultural change as well as economic growth; that is, qualitative transformations must occur concurrently with quantitative increases. There is, in fact, a reciprocal relation between the two, and neither process is likely to continue for long or go very far without the other. Hence, development means change plus growth.

We use the terms "plans," "programs," and "projects" to refer to three levels, or degrees of specificity, in the planning process. A plan relates to the economy as a whole, divided into major sectors and, perhaps, regions within the country. A program is the more detailed determination of the specific objectives to be achieved within each sector and region in accordance with a specified time schedule. Projects are the individual components of programs.

Another distinction employed in this paper is that between mathematical decision planning (use of decision models) and pragmatic development planning. The first relates to plans which are logically deduced from a model by mathematical methods; the second makes allowance for qualitative judgments in real-life situations. The distinction is by no means a clear-cut one and, as will be indicated, pragmatic planning often makes use of mathematical models. The respective contributions and applicability of both aspects of planning are discussed below.[1]

Certain specific fields of development planning are not treated in this paper because they are the assigned subjects of other papers (e.g.,

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[1] It would have been desirable had it been possible to make a comprehensive and detailed analysis of the experience with mathematical decision planning and pragmatic planning, particularly of the efforts to use mathematical methods in the planning process with full allowance for policy judgments. Such an appraisal of the experiences of various countries would be one of the most useful research undertakings in this field.

agriculture, rural community planning, urban planning, manpower planning, the planning of education, and that aspect of economic planning called the choice of technologies) or are outside the scope of the series (e.g., project design and analysis). Although there is, in consequence, no discussion of project analysis per se in this paper, the authors fully recognize that it is an essential part of the total planning process.

Purposes of Development Planning

Contemporary decisions to use planning techniques reflect 20th century unwillingness to leave to uncontrolled market forces the determination of a country's rate of growth, division of income, allocation of investment resources, and other variables affecting its economic condition and prospects. In contrast, the 19th century believed that such determinations could and should be made only by the free market mechanism, which was supposed automatically to bring about the greatest good for the greatest number by means of the most economical use of resources. Today, the purpose of planning is to enable governments deliberately to influence economic processes in order to supplement, reinforce, support, and guide the market processes of private decision making and activity.

More specifically, planning seeks directly or indirectly to influence those factors believed to determine the rate and direction of development. Hence, every development plan either consciously or unconsciously implies some particular theory of development, and some notion of the specific ways in which the factors considered relevant can be stimulated to produce their effects. Development planning is, explicitly or implicitly, a strategy for development.

The development theories or strategies implied by development plans may be classified into three general types in accordance with their major--though not necessarily their exclusive--emphasis.[2] In the first category are quantitative economic theories, most of which stress the amount of saving and capital investment as the determining element in development. The second type may be called qualitative economic theories because they emphasize the generative role of specific economic activities or sectors: e.g., growth industry and leading sector theories, balanced or unbalanced growth theories, theories based on the dynamic role of particular economic groups, theories recognizing the function of "intangible" investments, etc. The third category comprises theories emphasizing noneconomic factors; e.g., the effects of changes in social values and attitudes, challenge and response, disaffected social classes, deviant individuals, etc.

However development theories may be classified, most scholars today recognize that no single factor can adequately account for a process as complex as development. Nor has empirical research as yet been thorough enough to enable us to identify all of the significant factors, and their specific modes of operation, that have been involved in the development experience of an actual country. Hence, quantitative theories--whose usefulness will be discussed in a later section--cannot normally reveal the intricacies of the

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[2] See footnotes 14, 15, and 16 for the names of scholars identified with each type of theory.

development process because many of the relevant factors cannot be quantified either by their nature or in consequence of inadequate knowledge about them.

In the broadest sense, development is a social process which produces results that can be described and measured in economic terms. In the advanced industrialized societies, it is possible to assume as given the multitude of noneconomic factors which underlie and interpenetrate economic phenomena. Growth in these economies refers to economic expansion within a given social and cultural structure. Economic analysis need explicitly concern itself only with economic manifestations, which already embody the resultants of the operation of complex social, political, psychological, and other noneconomic factors. In contrast, economic analysis in the underdeveloped countries cannot do so because the noneconomic factors do not express themselves in the kind of economic behavior which conforms to the conventional assumptions of Western economic theory. Hirschman's distinction between the economics of growth and the economics of development is a useful one.[3] Our own definition of development as change plus growth is only another way of stressing the fact that, in the underdeveloped countries, noneconomic factors affecting development cannot be assumed as given, and therefore, discounted. Rather, they must be explicitly taken into account in the economic analysis of development.

It is for this reason that we use the general term "development" and not the more restrictive term "economic development." A development plan which is not consciously related to the major noneconomic factors operating in the country concerned--even if they are not formally incorporated into the plan itself--would be only a theoretical exercise.

The Components of Development Planning

A number of components or elements can be distinguished on logical grounds in the process of development planning. These are not necessarily carried on in chronological order: indeed, as will be indicated below, better planning probably results if they are not.

Logically, the first component of a development plan is the definition of the purposes for which development is being undertaken. Three levels of specificity in national purposes may be distinguished. The first relates to the general objectives of the plan. For example, the purpose of the plan may be to raise living standards, or to improve defense capabilities, or to increase the nation's prestige and influence abroad, or some combination of these or other purposes. In turn, these objectives must be broken down into more specific goals, e.g., the increases in production, savings, investment, consumption, foreign trade, and other aggregative variables needed to accomplish the objectives of the plan. Finally, targets need to be distinguished--the specific quantitative increases which must be achieved in

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[3] Albert O. Hirschman, The Strategy of Economic Development, New Haven, Yale University Press, 1958, p. 29.

particular economic sectors, e.g., rice production, miles of railroads to be built, number of schools to be constructed, etc. All three levels must also be related to specific time periods within which they are to be accomplished.

The second logical element is determination of the resources actually and potentially available for achieving the specific goals and targets of the development plan. Resources include not only the necessary production inputs but also the capital required both to utilize existing material and human resources and to develop additional ones.

The third logical component is selection of the means whereby resources can be mobilized to achieve the specified goals and targets. A government has at its disposal various types of policies and measures for directly or indirectly bringing about the desired development. These include direct public investment; making public funds available in various ways to the private sector; aid of different kinds obtained from foreign governments and international organizations; encouragement of private foreign investment; fiscal and monetary policies to limit consumption, augment savings, and stimulate and channel indigenous private investment; and other instruments at the disposal of the national government. The particular combination of means which the government selects depends upon the particular needs, administrative capabilities and limitations, and past experiences of the country concerned. There is, of course, a reciprocal relationship between ends and means. The economic institutions and values of the society will play a major role in predetermining the specific kinds of means believed appropriate, while the means actually employed will inevitably modify to some degree the pre-existing institutions and values and hence the goals of the development effort. Moreover, means may also be ends in certain respects. Better health and education and improved working conditions are not only means to higher productivity; they are also desirable ends in themselves.

The fourth logical component of the development planning process is the formulation of specific programs within the general plan. Programs embody the decisions about targets, priorities and timing within particular agricultural and industrial sectors; specific regions within the country; functional activities (distribution, foreign trade, etc); educational, health and social service fields; etc. Each program includes not only a description of the specific targets to be achieved, but also an inventory of the material and financial resources required, and the phasing of the program over time. In addition, the program specifies the means whereby the resources are to be mobilized for achieving the program goals. Ideally, each program should be refined to the point where it lists the individual projects which must be undertaken to achieve it.

The final element of a well-conceived development plan is the provision for its implementation. This includes the organization of the planning function and its administrative relationships with the chief executive, the policy making and operating departments of the government, and the legislature; the assignment of responsibilities for carrying out its component programs; the relationship of the plan to the national budget; the roles of the fiscal and monetary authorities; the provisions for progress reporting and evaluation; and the selection and training of planning personnel. The arrangements for implementation of the plan are too often neglected entirely or are inadequate in most actual development planning today.

Planning in Mixed Economies

A plan for a country in which public and private decisions are expected to contribute to economic development will normally consist of two parts. One presents guides for government decisions. If the plan is formally adopted this part has an obligatory character. The other presents estimates of the effects of voluntary decisions of private individuals and organizations as they are likely to be made under the conditions induced by the government measures posited in the plan.

Depending on the economic structure of a country, the obligatory and voluntary parts of the plan will have different relative importance. Even in the plans of communist countries, voluntary decisions of individuals to buy consumer goods under the terms prescribed by the government are at least implied. At the other extreme, even in a completely free enterprise system, investment, production, and consumption would be influenced by the public facilities provided by the government, by its tax and credit policies, and by such regulatory measures as it might enforce. In countries in which private and public enterprises exist side by side, the government additionally influences private decisions in consequence of its role as a supplement to, or competitor of, private activities, which it may support, stimulate, or restrict.

Moreover, while the plan itself may involve forecasts of voluntary private activities, it may also, by its very existence, exert a significant influence on private decisions. Private enterprises may use the plan as a guide in determining their own voluntary actions. Business decision-makers plan their investments in plant and equipment in the light of expected future markets for their products. If they have confidence in the planners and in the government's determination to play the role specified for it in the plan, they may use the plan as a guide for estimating their own future markets and make their decisions accordingly. In mixed economies, the confidence of private decision-makers in the realism of the plan adds to the likelihood that it will be realized. This is the announcement effect of the plan, and it can be either positive or negative.

For the success of any development planning effort consistent with democratic institutions or goals, it is important that arrangements be made for the effective participation of private producers, consumers, and investors in the planning process at some stage prior to the final adoption of the plan. This participation not only is relevant to the preparation of estimates for the private sectors, as explained in a later section, but should also include opportunities for the major private organizations and groups to express their views on the plan as a whole, and on its policy implications for them, before it is finalized. For a variety of reasons, such participation is difficult to organize effectively, especially in underdeveloped countries where the necessary degree of education and experience may be lacking. This is one of the major problems on which research is needed.

In the highly industrialized Western countries, various methods have been evolved for the participation of the private sectors in national planning. Particularly in the United States, many large business firms do their own long-range investment, production, and market planning. Information about these individual company plans is available to government agencies and private research organizations. In turn, business enterprises use both official and other long-range economic projections as frameworks within which their own plans can be reviewed and appraised.

There are some countries in Asia and Latin America (e.g., India, Argentina, Brazil, Mexico) in which private enterprises are already large and experienced enough to engage in similar long-range planning of their own. This is not the case, however, in most underdeveloped countries. There, the government planning authority will usually have to take the initiative in encouraging business firms, cooperatives, and other private enterprises--or at least the larger ones--to formulate individual plans for additional investment and production for the specified planning period.[4] As the number, size and self-confidence of private enterprises increase, they are likely of their own accord to adopt more effective methods of private planning.

We do not mean to imply that the private sector in underdeveloped countries will or should necessarily consist predominantly of large corporate enterprises like those that characterize the advanced Western economies. In addition to the corporate type, there are other possible forms of private or quasi-private, decentralized decision-making and activity which may be equally--or even more--congenial and appropriate to the limitations and potentialities of underdeveloped countries, e.g., individual and family enterprises, agricultural and industrial producers' and distributors' cooperatives of various kinds, rural community project organizations, etc. These should participate in the planning process along with indigenous private business corporations. Foreign-owned firms operating in the country, especially when their activities have a significant influence on the rate and direction of development, should also be consulted at appropriate stages in the planning process.

The Theoretical Basis of Pragmatic Planning

It would be desirable if pragmatic planning consisted only of applying a theoretical decision model, which in turn was based on a generally accepted theory of development. This ideal situation has not been attained and, as already indicated, we doubt whether it is possible of achievement. Nonetheless, we do not question the value of theoretical work for development planning; nor that the collection of empirical data for the past and their analysis and explanation in the light of theory are prerequisites for planning of every type.

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[4] Such information from individual private firms and enterprises should be held in strict confidence by the data collecting agency.

Here, we are concerned only with some of the claims made regarding the direct application to development planning of mathematical formulations of growth models. Outstanding examples of such models are the Cobb-Douglas production function and the Harrod-Domar theory of growth. These and similar theories have the value of compelling analysts to identify the different variables which contribute to--or, more precisely, condition--economic growth. Later in this paper, the use of mathematical models to test the internal consistency of plans derived in a pragmatic manner will also be emphasized. However, their direct use as practical decision models is, in our opinion, very limited, particularly in the conditions of the underdeveloped countries.

The production function type of analysis (e.g. in the Cobb-Douglas form) can help in understanding the relationship between increases in production and increases in labor, capital, and other factors. While we have fairly good data on the input of labor, we have difficulty obtaining and interpreting empirical data for capital input. But, the greatest difficulty is with the "other factors," which include improvements in education and health, technological and managerial advances, effect of size of markets, direct and indirect impact of government actions, and other, less tangible changes in the social environment and culture. These other factors are difficult enough to appraise with the data available in highly developed economies; they usually defy measurement in the underdeveloped countries. We have already emphasized that these other factors are essential elements in development. Decision models and mathematical planning embodying in their equations only the quantifiable elements can be very misleading.

Or, take as another example the very elegant Harrod-Domar equation: rate of growth equals rate of saving over capital-output ratio. The capital-output ratio is estimated for various countries--usually with some apology for using the average instead of the marginal ratio--and treated as a constant. Then, a computation is made of the rate of savings (personal, corporate, and government savings) needed to accomplish a desired rate of growth. In consequence of the practical limits in low income countries on increasing the rate of savings by such measures as tax and credit policies, a savings gap results; and the rate of growth then becomes to a considerable extent a function of the new capital import.

It is obvious that a decision model based on this theory would give little guidance as to the <u>domestic</u> policies needed to support economic growth in underdeveloped countries. The possible contribution of many of these policies would be hidden in the "constant" capital-output ratio.

Not all who advocate the direct use of mathematical decision planning overlook this difficulty. Thus, the ECAFE group of experts[5] made a special effort to introduce education as one type of investment. However, their proposal to use aggregate marks in examinations as a means of quantifying the social benefits of education demonstrates, on the contrary, the impossibility of building such factors into a quantitative model.

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[5] <u>Programming Techniques for Economic Development</u>, U. N. Economic Commission for Asia and the Far East, Bangkok, 1960.

In a valuable U. N. survey, "Use of Models in Programming,"[6] it is claimed that the use of decision models has great advantages over more intuitive or qualitative methods. Though quantitative studies of the contributions of various factors to economic growth are an indispensable basis for rational decision-making, it is also clear that the importance of some--possibly the most significant--factors in the process of economic development can be appraised only with a considerable element of intuition or qualitative judgment. Even for the United States, the National Planning Association has characterized the estimates used in its long-term projections and targets as a "judgment model." By advocating the use of judgment models, which admittedly do not have the rigor of mathematical deductions, we do not deny at all the usefulness of the latter. Pragmatic planning, as we use the term, is not anti-mathematical. It recognizes both the limits of mathematical methods and the role that qualitative judgment--and also trial and error--must play in planning. Particularly in conditions of "growth plus change" and under the limitation of available data, it is not possible to derive appropriate policy conclusions by methods of mathematical rigor which exclude the "subjectivity" of intuition and judgment.

The Process of Pragmatic Planning and Programming

All planning--both by use of mathematical deductions and by pragmatic methods--depends on reliable data or estimates for a base period of the recent past (and, where obtainable, on historical series going further back into the past) from which trends can be extrapolated.[7] These past data should, of course, not be used for a mere mechanical projection because one of the major purposes of planning is to help formulate policies which would bring about desirable changes in trends.

Long-range perspective planning (ten years or longer) must be distinguished from intermediate and short-range operational planning (usually two to five years). Perspective planning sets goals in terms of total production, employment, income, consumption, foreign trade, and possibly prices, with a breakdown only by major component sectors. It is used as a perspective in preparing the more detailed operational plan.

Operation planning consists essentially of two processes:

From-the-Top-Down

The from-the-top-down process starts by setting tentative quantitative goals for the planning period. These are derived from the long-term perspective plan in order to make sure that a long step in the desired direction is taken. Whether directly or via the long-term perspective plan, the goals are ultimately based upon as detailed an analysis as possible

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[6] Industrialization and Productivity, Bulletin #4, U. N. Department of Economic and Social Affairs, New York, 1961, p. 8.

[7] The types of data needed are discussed in the next section.

of the country's developed and undeveloped material and human resources. Such resource surveys indicate each country's specific potentials for development.

The formulation of goals also depends on the existing character and structure of the country's economy. Goals will differ for countries where the factors limiting growth are in the labor supply (in size or skills), or in capital supply, or in export opportunities, or in management talent, or in cultural conditions, or in a combination of these and many other factors.

Goals should be established not only for countries as a whole but also for various regions within the country. In this connection, it is especially important for the planners not to concentrate only on the metropolitan areas, for which the best data are usually available and where government influence may be strongest. The planners must be aware of the "centralizing pull" (to use a phrase of John P. Lewis) which is implied in the planning process. It may be harder but it is equally important to work on the development of the hinterland and to stimulate industries in suitable locations outside the metropolitan areas.

The second step consists of estimating the expansion in various sectors of final demand which would be in accordance with the goals. Estimates are needed of investment in agriculture and in public and private nonagricultural enterprises; of possible increases of output in agriculture and other sectors due to productivity gains or labor force increases; and of corresponding increases in goods and services available for public administration and public services (including education); of consumer supplies of housing, durables, and other goods and services; etc. How far aggregates are broken down into component parts depends, of course, on the data available for the base period.

Next, an estimate is needed of the imports required for the projected increase in production, divided into raw materials, capital equipment, and consumer goods. Also, exports have to be estimated, as one of the demand factors, in the light of the probable development of world markets and of possible changes in international competitive conditions.

Once estimates for the major categories of final demand and their component parts have been obtained, it is possible to estimate production by finer subclassifications. If it can possibly be prepared, an input-output table would be of great assistance in this part of the work.

In addition to the plan expressed in physical units of production or in values of constant general purchasing power (although with modified price relations), a financial plan should also be prepared. It would spell out the tax revenues, borrowing, and other financial resources required by the government, and also the financial resources required by privately and publicly financed enterprises. At the same time, estimates would be prepared of the generation of financial resources by individuals, enterprises, government, and--when appropriate--by the central bank. Any gap between the financial requirements and the estimated indigenous financial resources would be one of the factors indicating the need to obtain loans or grants from abroad.[8]

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[8] The domestic financial gap is usually not the same as the foreign exchange gap, nor does external assistance for the latter automatically take care of the former.

There should also be a specific projection of the international balance of payments, incorporating the import and export projections already described. The balance-of-payments estimate should be consistent with the projected increase in domestic production and income and with the needs for capital equipment and raw materials. Anticipated payments of interest and principal would reflect the existing foreign debt and the expected increase in external indebtedness. The balance-of-payments projections would have to take account of proposed changes in policies, e.g., intended diversification of exports, stimulation of domestic production of goods wholly imported in the past, and encouragement of private foreign investment. If the balance of payments still shows a residual future gap, alternative policies to close the gap would have to be considered, and their effects estimated. Should the gap between the need for and the availability of capital, or that between payments to and receipts from abroad, be larger than could be closed with feasible policies, then the goals of the development plan obviously have to be reconsidered.

From-the-Bottom-Up

While the planning authorities are engaged in the from-the-top-down process, they should also initiate a from-the-bottom-up procedure. This consists of asking the individual units of government (central government departments or ministries, and public corporations, as well as regional and local bodies) for information about the changes in plans and policies they contemplate or recommend for the ensuing planning period. Similar information should also be obtained from private enterprises of all types, and they should be encouraged to prepare their own individual plans for additional investments and production for the specified period.

Agencies concerned with special projects of substantial size (such as hydroelectric power or transportation facilities) would be asked to submit their plans in detail, including expected benefits, costs, required imports, and possible alternatives. The planning agency would evaluate all of these projects in terms of the general objectives and goals of the plan.[9]

The government ministries concerned with the labor market and the educational system would contribute their estimates of the probable changes in the labor supply due to demographic causes, the expected migration among the various regions, the availability of trained labor, and so forth. The

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[9]As already noted, this paper does not discuss the various methods proposed, and in part used, for the evaluation of individual projects. For a survey of methods see H. B. Chenery, "Comparative Advantage and Development Policy" in the American Economic Review, March 1961, pp. 18-51. It is interesting to note that, according to Eckstein, some "social judgment" is also needed for integrating the appraisal of investment projects into the planning process.

appropriate private and public agencies would also submit estimates about the foreign capital resources likely to become available.

Testing and Adoption of a Final Plan

The next step in the planning process consists of matching the from-the-top-down and the from-the-bottom-up estimates. The information about the investment and production plans of public agencies and private enterprises obtained under the latter procedure can be used to help appraise the feasibility of the general estimates which were calculated as needed for reaching the goals tentatively derived in the from-the-top-down procedure. This comparison, as well as the other checks used at this stage of the planning process, will inevitably reveal discrepancies, but will also yield tentative indications of how they might be resolved. Decisions now have to be made concerning the adjustments in the goals required to make them feasible; the shifts in programs needed to provide the necessary social overhead capital (in the broadest sense); and the policy changes requisite to stimulating public and private enterprises to undertake actions consistent with fulfillment of the plan.

It is at this stage of the planning process that the internal consistency of the plan should be tested before final decisions are made and the plan is officially approved. For example, projected advances in manufacturing industry must be in accordance with the projected supply of raw materials either from domestic production or imports; requisite capital formation should be checked against the expected savings of individuals, enterprises, or the government, with any excess of planned capital outlays limited by realistic expectations of private capital imports and foreign financial assistance; and other variables matched with one another.

Mathematical techniques can be useful in checking the internal consistency of the plan, for this testing process is essentially a quantitative operation. However, it must be stressed that, particularly in the underdeveloped countries, mathematical methods need to be used with realism and restraint. The availability and quality of statistical information will largely determine the choice of techniques to be used. Data may not be available for quantifying enough of the component terms of mathematical models to produce useful, or even meaningful, results. Hence, simple algebraic procedures are more likely to be appropriate for the rather rough and sketchy data with which many underdeveloped countries must work. As their statistical information becomes comprehensive and detailed, more sophisticated mathematical techniques and high-speed computers will become useful.

The discrepancies affecting the activities of public and private enterprises should not be arbitrarily eliminated by the planning authority. Their nature and implications should be explained to the public and private organizations and groups concerned (or their representatives), and efforts should be made to reach agreements with them as to the changes in individual private plans--or perhaps in the conflicting government programs--which might be needed to resolve, or at least minimize, serious discrepancies. However, care should

be taken that such agreements are not used by the public and private enterprises involved to protect their market positions rather than to help them undertake expansion and modernization consistent with the goals of the plan.

When a final plan has been developed by reconciliation of the two types of estimates, a list can be compiled of those policy changes and government measures which are required for reaching the revised goals. These programs should then be formally submitted for approval to the executive and legislative authorities. To the extent applicable, the development plan should be incorporated into the budget plans of the central and local governments. It is essential that the development planning process not be carried on independently of, or isolated from, the ordinary budgetary planning operations of the government. To be successfully implemented, development planning must be fully integrated into the government machinery as a whole.

On the basis of the final plan, the production and investment targets for specific industries should also be revised (again, if possible, by use of input-output techniques). There is, however, a question as to the amount of detail that should be incorporated into the government plan when it is published as an official document. It may be preferable to include in the official publication only aggregates by major economic sectors and regions, while issuing the corresponding projections (targets) for specific industries as unofficial studies. Alternatively, they could be published by a separate national research institute, or by an appropriate private research organization. The argument against including the specific projections in the official plan is that private enterprises, which take these targets into account but get into trouble, may claim that they should in consequence be bailed out by the government. Hence, it may be desirable to publish these estimates in a form which offers them as guidance for private enterprises without relieving the latter of the responsibility for making decisions regarding their own future investment and production.

In short, planning proposals should be worked out by individuals who use past experience, statistical and mathematical computations, and their own best judgment. The result should be subjected to the democratic process of debate and final political action before it is made official. In addition, the plan should be reviewed each year. Progress or lack of progress should be reported and revisions proposed and adopted on the basis of experience. In this regard, the practice of some U. S. communities, business firms, and private research organizations may be relevant: they use in their long-term planning (e.g. five-year plans) a "rolling method" by which every year they review, and if necessary revise, the program for the next four years, and then add the estimates for a new fifth year at the end.

This method of successive approximation and balancing of goals with programs for public and private activities is less elegant than a strictly mathematical method of decision-making appears to be--at least on paper. But, it seems to us much more realistic, and it has shown results in a number of countries--both industrialized and developing--in which this, or a similarly pragmatic, method has been used.[10]

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[10] For a survey of planning methods used in various countries see Analyses and Projections of Economic Development, I. An Introduction to the Technique of Programming, U.N. Economic Commission for Latin America, 1955; Industrialization and Productivity, Bulletin #4, U.N. Department of Economic and Social Affairs, 1961; and World Economic Situation, Evaluation of Long-Term Economic Projections, U.N. Economic and Social Council, 1960. See also Planning for Economic and Social Development for Latin America; Report of a Group of Experts; Pan American Union, Washington, D. C., August 1961. An international survey of government organization for economic development is being undertaken by the International Institute of Administrative Sciences. Mathematical decision models have actually been used in the Netherlands, and experiments have been made and are being made with them in the United States and, apparently, also in Soviet Russia. Most actual planning in the underdeveloped countries has used pragmatic methods, sometimes supplemented by the input-output technique for working out details. However, in some countries (e.g. India) mathematical methods have been effectively used for testing the internal consistency of the plans.

As already noted, econometric methods can be, and have been, applied within such a pragmatic approach. For example, the relationship between final demand by consumers, business, and government, on the one hand, and the production of specific commodities and services, on the other, can best be tested through the use of input-output coefficients. The internal consistency of the plan with respect to its component parts and to such limiting factors as the labor force, capital, and foreign trade, can also be tested by mathematical methods.[11] In these ways, mathematical methods can play an important role in the planning process even in underdeveloped countries without, however, justifying the claim of some of their most ardent proponents that optimum policy choices can best be made by electronic computers. While the incorporation into the planning process of a highly technical complex of equations and calculations may delight econometricians, it may very well alienate the officials responsible for the approval and implementation of the plan. The intelligibility of the plan, especially in the underdeveloped countries, is more important for its political and popular acceptance than is its mathematical sophistication.

Pragmatic planning leaves scope for effective consideration of factors which defy quantification. It also is so flexible that a country can adapt it to the statistical information which is available, and can improve it as more empirical data is developed. It is conceded that the results are not those of "pure science," but involve human judgment with the possibility of error. In addition, recognition that planning contains a large element of judgment, and that mathematics can play only an auxiliary--though nonetheless important--role, prevents the planners from becoming a kind of technocratic elite speaking a mathematical language not understandable either to political leaders or even to well-educated citizens in the countries concerned.

Data Needed for Pragmatic Planning

As already mentioned, all planning rests on empirical data. Comprehensive planning (from-the-top-down, as described above) rests on aggregate estimates of the economy and of its major sectors for the past. The determination of feasible goals for the future rests upon data about the country's existing and potential resources--material, human, and financial.

However, there is a view which maintains that estimates of national economic accounts are valid only if they are the final product of a detailed and comprehensive statistical system resting on complete demographic, social and economic data, which are in effect summarized in the aggregate series. This opinion is in part reflected in the report of the U. N. Statistical Commission responsible in 1958 for preparing a list of the statistical series which "would be of assistance to less

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[11] Reference to internal consistency does not exclude the possibility that development in one sector may sometimes be ahead of developments in other sectors. Temporary imbalances may be regarded as part of development strategy, cf. Hirschman, op. cit., pp. 62-76.

developed countries in developing an integrated set of basic statistics for use in programmes of economic and social development."[12]

We are in full accord that every effort should be made to develop the statistical series described in the U. N. list. These include series on population; labor; production; agriculture; forestry; fishing; mining; manufacturing; construction; production of gas and electricity; wholesale, retail and related service trades; transportation; education, health, and other welfare services; external trade; money and banking, finance, and general prices; government; and personal incomes and conditions of living.

However, the U. N. list does not include national economic accounts nor data on capital formation and savings (except for reference in an annex to sample household inquiries on income, consumption, and saving). The omission is justified in the U. N. report on the grounds that, valuable as national economic accounts are in development planning, the information necessary to prepare them will only be forthcoming when there has been a "considerable advancement in the collection of basic data."

This view implies a counsel of perfection in the statistical field that is quite unrealistic not only for underdeveloped countries but for the developed countries as well. It may be conceded that in some countries national economic accounts may have been "constructed" virtually without any reliable statistical basis. Such wholly synthetic (a polite expression for saying that they are taken "out of the air") national economic accounts for the past and the related national economic budgets for the future do little good and much harm. However, our view is that a middle course has to be steered between a frustrating statistical perfectionism, on the one hand, and imaginary statistics produced by wishful thinking, on the other hand.

Fortunately, it has been possible for many underdeveloped countries with inadequate statistics to develop reasonable aggregate estimates of income, production, consumption, investment, savings, and international trade. As soon as reliable employment data are available for a country, it is possible to estimate production by using output-per-man-year ratios from countries with similar economic structures and more advanced statistical information. A comparison of data, such as production per man, average income, savings ratios, etc., for various countries in similar stages of development could be used effectively for checking the plausibility of available estimates and preparing estimates for countries with particularly deficient statistics.

In this connection, a "clearing house for economic programming information" could be of great usefulness.[13] Such a clearing house or other appropriate organization might also prepare estimates of the probable future development of world markets for the most important commodities in the actual and prospective exports of underdeveloped countries. These are estimates which can presumably be made with more expertness and less expense by a joint effort than by each country preparing its own. Such centrally-prepared estimates would be made available to the planning

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[12] Statistical Series for the Use of Less Developed Countries in Programmes of Economic and Social Development, UN Statistical Papers (M31) New York, 1959, p.1.

[13] See the proposal made by the UN Advisory Committee on the Work Programme on Industrialization quoted in Programming Techniques for Economic Development, l.c., p. 43.

agencies in the underdeveloped countries for their own use in revised or unrevised form. The individual countries could then apply their own best judgments in evaluating their own relations and prospects vis-a-vis the world market.

In addition to these statistical series and ratios, surveys of the country's natural resources and their potential development are also required to provide necessary data. Ideally, these should be as comprehensive and detailed as possible. But, again, it would be unrealistic perfectionism to scorn the kinds of incomplete data which are the best that most underdeveloped countries have been able to obtain. Help in making resource surveys and analyses is one of the major planning needs of the underdeveloped countries.

Some Research Needs

Most research today in the field of development and development planning is of a theoretical rather than an empirical nature. A great deal of work has been and is being done on theories of economic growth and development,[14] on mathematical planning techinques,[15] and on theories of investment decisions, choice of technologies, etc.[16] However, this large and often fruitful theoretical activity seems, paradoxically, to be reaching the point where substantial further progress at the theoretical level may require a massive injection of new empirical data. Greatly increased empirical research appears to be desirable to provide theorists with the data for testing and choosing among conflicting hypotheses; for making possible the unification of hitherto unrelated or apparently inconsistent theoretical insights; and for opening up new areas and perspectives for theoretical analysis. To a considerable extent, the empirical data required for these theoretical purposes will result from the research which should be undertaken for applied purposes, as described below. However, such applied research will by no means yield all of the data required for theoretical work. Hence, the theoreticians should be willing to undertake themselves or to stimulate others to undertake a good deal of empirical research specifically designed for the purpose of testing

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14 For a very useful comprehensive survey of the literature, past and contemporary, see Bert F. Hoselitz and others, Theories of Economic Growth, The Free Press, Glencoe, Ill., 1960.

15 e.g., Chenery and colleagues in the Stanford Project, Domar, Leontief, Tinbergen, ECLA, ECAFE.

16 e.g., Aubrey, Chenery, Eckaus, Eckstein, Galenson and Leibenstein, Hirschman, A. E. Kahn, Millikan, Rosenstein-Rodan, Skitovsky.

and choosing among hypotheses.[17]

Some of the main types of research needed for applied purposes in the field of development planning are briefly described in the following sections:

Substantive Problems

Most of the substantive problems in development strategy on which research is needed are more appropriately discussed in the context of their specific subject fields, e.g. agriculture, industry, rural and urban community development, health, education, etc. Hence, they are covered in the other papers in this series. Here, we would like only to call attention to certain substantive problems, closely related to development planning, which may not be emphasized elsewhere.

A major need is for what might be termed "development policy" studies. As we have stressed, development consists of social and political as well as economic change. At the same time, development requires a high rate of investment of public and private capital, which means that immediate increases in consumption must usually be limited. This raises a number of important policy questions: for example, what socially and administratively feasible taxation policies would permit a relatively high rate of capital formation and would be conducive to economic growth in different countries? Another major policy problem is agrarian reform, which is of crucial importance to the economic development of some countries. Among other factors, it affects agricultural productivity, the labor supply available for industrialization, and the availability of capital, since compensation payments may be channeled into

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[17] The problem seems to be that many of the numerous divergences among economic theorists are not likely to be settled by the continuing elaboration and refinement of purely logical and mathematical analysis. This is because much of the empirical basis of current theorizing appears to consist of a priori "common sense" assumptions or of very fragmentary or obsolete data. If theoreticians avoid the discipline of empirical verification for too long, they run the risk that their work will attenuate into a kind of sterile scholasticism. Elegance is not a substitute for evidence; Occam's Razor is a principle of methodology, not a test of truth. In the natural sciences, experimentation is the necessary complement of theoretical analysis, and theoretical scientists strive to achieve formulations which are directly or indirectly capable of verification through observation, experimentation, or both. Admittedly, economics will never be as exact a science as physics or chemistry, because the quantifiable data are always insufficient, and so many of the relevant factors are not quantifiable. Nor can controlled experimental situations be discovered or devised, except very rarely. Nonetheless, it is never enough to judge theories, decision models, etc. only by their logical validity; they must always also be submitted to such empirical verification as may be possible. The fact that in economics empirical verification will yield only orders of probability considerably smaller than those possible in the exact natural sciences is no reason for despair or apology.

productive or nonproductive purposes or may be invested abroad. Social welfare policy is still another problem, as are credit and monetary policies. These and other major development policy questions have to be worked out for each country, and the solutions have direct implications for the content of development planning. Such development policy studies can often be most effectively undertaken by nongovernmental research institutions which are relatively free from the pressures and limitations of government agencies and international organizations.

A few studies have already been made of actual development experience and prospects in particular countries (e.g. the World Bank series, and studies of India, Pakistan, and other countries) but many more are needed. Such substantive studies should analyze, to the extent possible, the specific roles of economic and noneconomic factors in the country's development. Similarly, some work has been done in evaluating U. S., UN and other aid activities in underdeveloped countries, but only a little has been or will soon be published (John P. Lewis, Charles Wolf, NPA's case studies of technical assistance programs in Latin America, among others) and, again, many more such studies are needed.

Planning Methods and Techniques

Some specific research suggestions for developing and improving planning techniques and the data required have been made or implied in earlier sections of this paper. They are recapitulated here for emphasis, and some additional suggestions are added.

A major need is for a comprehensive and detailed appraisal of existing experience with, and literature on, planning methods and techniques both in industrialized and underdeveloped countries. Some general surveys and a few detailed studies of the use of particular techniques in specific countries have been undertaken, and several have been cited earlier in this paper. But, there has been no thorough analytical study of the present "state of the art" which can serve as the basis for selecting and adapting methods and techniques for use in the specific conditions of various types of underdeveloped countries. Efforts by international organizations and private research institutes to obtain financial support for such a study have hitherto been unsuccessful. It is to be hoped that, in view of the present emphasis on planning by underdeveloped countries, the necessary funds will be forthcoming.

There is a deplorable gap between the mathematically-minded theoreticians of economic programming, on the one hand, and the practitioners of development planning, on the other hand. We have indicated in this paper in broad outline the manner in which the two could be most usefully related to each other. However, much research work needs to be done in order to develop the methods of such a reconciliation in detail.

A similar gap exists between those who believe in the necessity of preparing plans and programs, as defined in this paper, and those who would limit the planning activity solely to the appraisal of individual projects. Generally speaking, this is the difference between a macro and a micro approach to development planning. In our view, this is not an "either-or" choice. Both approaches are needed, and can be reconciled in what we have called the top-down and bottom-up procedures. Nonetheless, this is another area in which

much more research and analytical work is needed. It would be desirable, for example, to develop types of criteria for project appraisal which would make it possible to check their consistency with the requirements of the broader programs into which they must fit. Such techniques for relating project analysis to programming would vary quite widely for different countries depending on the relative sizes of their public and private sectors and on many other factors.

More effective methods for making longer-range economic projections also need to be developed. These have to be adapted to varying degrees of availability and reliability of data, and to the differing development needs and possibilities of underdeveloped countries.

Case studies are needed of actual inter-industry and inter-sectoral relations in different types, and at different stages, of development. Particular attention should be paid to research which would accumulate and analyze data on the more dynamic aspects of such relationships, e.g., detailed examples of Hirshman's "backward and forward linkages," and analyses of external economies.

Improved methods for taking into account both the development of the highly monetized sectors of the economy (usually along the seacoast) and the largely subsistence sectors (generally in the hinterland) are required. Such studies should make it possible to reach decisions about the location of future industries in the broad perspective of accessibility to raw materials, distribution of present and potential markets, existing and possible methods of transportation, available and potential sources of energy, and the social and cultural factors determining the labor supply. Considerable work on motivations and attitudes would be involved in research into these economic variables.

In view of the schemes for regional economic integration in various parts of the world, it would be desirable to study the respects in which the national development plans of the member countries need to be harmonized and the methods by which it might be accomplished.

It would be useful to ascertain the specific sectors, particularly in the private economy, in which planning is useful and desirable and those in which it is not. In which industries is it worthwhile and appropriate for enterprises to prepare individual long-range plans or for the planning authority to formulate industry targets? In which would projections, prepared either by the government or by a private research organization, be sufficient for planning needs? The results should vary from country to country.

A series of case studies could usefully be undertaken of how actual planning decisions have been made in particular countries. Some might focus on the use of specific planning techniques; others on the administrative aspects of the process.

Another problem on which research is needed is the development of better progress reporting and progress evaluation techniques. Requirements in this respect will also vary from country to country.

Administrative Aspects of Development Planning

In most countries, planning is undertaken by government agencies often working in an administrative vacuum. Full integration of the planning process into the normal operations of the government is essential for successful planning. Such integration will differ from country to country, depending on political and administrative institutions. Studies of existing arrangements and of ways to achieve better integration would be valuable.

There is a great need for stimulating much wider public interest in the underdeveloped countries in development planning. Methods need to be improved for involving private enterprises more effectively in the planning process. Also it would be desirable to explore appropriate arrangements by which educational institutions and private citizen groups could learn about and participate in the planning effort. Some suggestions have been made in this paper. These need to be explored more thoroughly; the experience of countries that have experimented with such arrangements should be appraised; and recommendations developed for improved methods of private participation in development planning.

While planning and programming must be carried out with the full self-responsibility of the country concerned, considerable help can be given by regional and international organizations, and also by nongovernmental research institutions in both the developed and the underdeveloped countries. This is particularly true in the development of planning and programming techniques suitable for different types of countries. In addition, possible regional and international arrangements for a clearing house for factual information, and for preparing projections of future international markets for key commodities should be explored.

Research Needed to Improve Developmental Assistance with respect to Rural Problems

by

A. T. Mosher

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RESEARCH NEEDED TO IMPROVE DEVELOPMENTAL ASSISTANCE WITH RESPECT TO RURAL PROBLEMS

by

A. T. Mosher

Preface

The writer is very conscious of the dilemma faced by those designing this study: whether to commission different persons to prepare background papers on technical agriculture, rural social development, rural political development, and the welfare of rural families, or whether to assign this interrelated complex of topics to one person. To follow the first course would be the only way to insure reasonably adequate consideration of each of the aspects of the problem. To follow the second is probably the only way to insure adequate attention to the interrelationships among them.

The second course having been chosen, I have made certain decisions in order to bring this paper within manageable limits:

1. I have concentrated, for the most part but not entirely, on research needed at the "field" end of the spectrum of "high-level think-pieces, research on administrative and operational issues in foreign aid programs, and research on the formulation and implementation of specific, substantive programs." 1/

2. I have applied my own criteria of relative importance and urgency in deciding what to include and what to leave out, rather than try to compile a comprehensive list of the projects of research which could, some to a greater and some to a lesser degree, improve developmental assistance with respect to rural problems.

3. It is a corollary of the above that the selection of topics for consideration here is substantially influenced by my own judgments of what is primary and what is subsidiary in dealing with rural problems through

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1/ Résumé of discussion at meeting of Advisory Committee, January 25, 1961.

developmental assistance. I have tried to make these judgments explicit. If there is substantial disagreement about these, then these judgments are themselves topics deserving of special investigation and study, insofar as that may be possible.

With respect to two issues, however, I have chosen not to narrow the field:

1. I have interpreted the meaning of "research" very broadly. Some of the problems mentioned in this paper as needing attention are amenable to controlled experimentation. Others are susceptible to investigation by less rigorous surveys. Some are suggestions for new approaches to rural problems that need to be tried on an "exploratory project" basis. Some are proposals for compilations of existing knowledge for ready reference by field technicians.

2. I have not made a rigid distinction between those processes which may be conducted by wholly domestic programs for rural development in each country, and those processes distinctive to developmental assistance involving an "outside" agency. Our topic might have made it legitimate to restrict consideration to the latter, but many of the most urgent needs of developmental assistance lie in the field of more accurate understanding of rural development itself, rather than in the distinctive functions of developmental assistance agencies working on rural problems.

After the first outline of the paper was prepared, letters were written to 35 persons with first-hand experience with the problems involved in Asia, Latin America and Africa, soliciting their suggestions. Replies were received from 30, listing recent research they had found helpful and suggesting over 150 topics which they feel are urgently in need of study. Some of those topics have been consolidated, and many have been omitted. The writer is indebted to these correspondents but has not, in most cases, indicated which correspondent suggested which topics for two reasons: several topics were listed by from two to seven correspondents; and there are confidential reasons for not revealing the source of certain proposals.

The "Preliminary Draft," dated April 15, 1961, was circulated to these same correspondents with the request that they criticize the draft and indicate their judgment as to the relative importance of each of the research needs discussed in the paper. These judgments as to relative importance have been incorporated into the Summary.

I. Introduction

A. The Setting of Rural Development

Whenever one thinks about rural development it is important to keep in mind the multiform variety of physical, economic, and cultural circumstances within which the rural people of the world live.

Many, but by no means all, of the low-income rural regions of the world are characterized by dense population, complex social structure, and small, largely subsistence farms, each made up of scattered plots of land. Nevertheless, while it is normal to think of dense population as being the rule in such regions, there are vast areas of Africa, parts of the Philippines and Indonesia, and of central South America where population is sparse and considerable quantities of potentially tillable land still go unused. Moreover, there are appreciable settled regions in South America, Africa, and even in Asia were production is largely for subsistence but where farms are not small and they are not fragmented.

In many, but not all, of these low-income regions one finds highly commercial one-crop plantations of rubber, sugar, tea, coffee, coconuts, and tobacco interspersed among and between the thousands of small subsistence farms. In other places, as in east central Africa and in thehighlands of South America, there are large estates involving varied cropping or combining livestock and crop production. Some of these are operated primarily for profit, but in other places so much social prestige attaches to ownership of large acreages that the profitability of the agricultural operation is of quite secondary concern, and technology consequently is at a low level. And even in the relatively high-income rural regions of the world there are numerous pockets where agricultural production at a relatively low level of technology has persisted for centuries.

These enormous variations in the circumstances of rural living in dominantly low-income regions are of great significance to the purposes of our present study of what research is needed to improve developmental assistance.

B. Variations in Rate of Agricultural Development

But another type of variation may be of even greater significance to our study. This is the variation in the rate at which agricultural development has been taking place within the past two decades in different parts of the world.

In Latin America, while Argentina, Uruguay and Chile, endowed with considerable natural resources for agricultural production, have failed to make substantial progress, Mexico, with much more limited natural advantages, has moved ahead, particularly in the North, at an astounding rate. In Western

Europe, there is a dramatic contrast between pre-war and post-war agricultural productivity. Japan and Taiwan have enjoyed spectacular agricultural progress in the past fifteen years. India has made gains which are modest when measured against needs but impressive when the dimensions of the problem are considered.

Israel is estimated to have increased agricultural production ten per cent in each of the past six years, and in the United States of America labor productivity has been rising two and one-half times as rapidly in agriculture as in industry for the past twenty years.

What these differences in rates of agricultural development and these different circumstances under which progress and relative stagnation are now taking place add up to is five facts of great significance to our investigations:

> First, there is enormous potential for agricultural development in the world;
> Second, the critical problems are numerous; they vary greatly from region to region; some problems are physical while others are cultural and political; there are no easy answers or panaceas;
> Third, agriculture is not inherently a primitive industry, since some of the most rapid agricultural development is now taking place in the most industrialized parts of the world and many forms of agriculture are highly "capital-intensive".
> Fourth, in our research to improve developmental assistance with respect to rural problems we need to give our attention not to low-income regions alone; we may learn equally valuable lessons by examining regions of rapid development and the pockets of persisting low productivity within highly developed and rapidly developing regions.
> Fifth, agricultural development is not independent of development in other sectors of the economy; instead, the most rapid agricultural development can only occur where substantial industrial development is taking place, and where social and political developments make their own essential contributions.

C. Two Roles of Research in Developmental Assistance

There has been a strong tendency in the past to downgrade research projects as part of rural developmental assistance. Sometimes this has been "justified" by the argument that "we already know enough; let's get on with the job." Other times the argument has been that "research is too slow; we must concentrate on projects that get quick results". Those with experience in the field know, however, that the first argument is not sound: we do not know enough. And while some research is time consuming, it should be ovious that many of the research needs outlined in this paper require neither complicated research techniques nor very much time.

Both of the above arguments against research, moreover, ignore the value of the process of research as a teaching tool in developmental assistance. Rather than being slow, research may be the most rapid operational tool we possess for a number of the specific tasks within developmental assistance.

Hence, there are two roles of research in developmental assistance, certainly insofar as the rural problems discussed in this paper are concerned. The first is to discover what we need to know in order to carry on developmental assistance more effectively. (Here, it is the results of research which give it importance.) The second is as an operational tool, understandable across cultural differences and neutral with respect to previous beliefs and experience. (Here, it is the method of research that is important.)

D. What Are the "Special Rural Problems"?

In a broad sense, the rural problems in low-income countries are to increase agricultural and other rural production, and to maintain or increase the satisfactions of rural life. Stated in more specific categories these problems embrace production, health, education, rural public works, social organization, and local administration. The "problems" grow largely out of certain characteristics of most low-income regions. No general description is applicable to all such regions, but most low-income regions have not advanced very far from the following descriptions that set lower limits from which "developing" countries progress:

1. A largely subsistence agriculture, with the choice of crops chiefly on the basis of utility in family consumption rather than market value, with the meager development of market structure, and with the limited horizon of personal experience and of commercial attitudes that go with these.

2. A largely traditional agriculture, at a low level of technology, that does not stimulate interest in innovation, that does not see practical economic value in knowledge, and in which decision-making is limited to a relatively few choices in production and in consumption.

3. A general lack of modern medical facilities and of effective measures of environmental sanitation.

4. A rural population living largely in a pre-literate, tradition-dominated folk culture.

5. A social structure dominated by the extended family, or caste, or tribe, with traditional social responsibilities that diffuse among many the benefits of above-average performance by any individual, while at the same time providing a kind of social security which individuals are reluctant to abandon.

6. A feudal or post-colonial pattern of government dominated by

the wealthy, the "educated" and the administrators, with a consequent feeling of passive acquiescence and a "waiting for the government" on the part of most rural people even in matters of local concern actually within the potential power of local people to handle.

7. Little knowledge by rural people of alternatives within agricultural production and home practices actually open to them, and very little provision for increasing the range of such alternatives through research.

E. What Gives Importance to these "Special Rural Problems"?

In the context of the total development of an economy, the importance of rural development rests on two basic facts:

1. The majority of the people in underdeveloped countries now depend on agriculture for their livelihood. Moreover, given the capital costs of industrialization and current rates of population growth, the absolute number of people dependent on agriculute for a living in most of these countries cannot be reduced in the foreseeable future. Most countries will be fortunate if the new employment made possible by industrialization proves adequate to match increases in the size of the labor force.

2. Many of the resources for agricultural production are not transferable to use in other types of production. This being true, and since every country wanting to progress must save and invest, making substantial purchases of capital goods from abroad in the process, no country can afford not to utilize fully every productive resource it now has. The importance of agricultural development, therefore, lies not so much in the fact that it increases the food supply as in the fact that a major part of the productive capacity in these countries is today in agriculture, and many of these productive agricultural resources are not convertible to other uses.

From the standpoint of the criteria of social and political stability, there are some countries with respect to which it could be argued that, for the immediate future, increasing opportunities for the more politically active urban-industrial populations is more important than what does or does not happen in the countryside. However, if the necessary steps are taken to increase agricultural production, more fully utilizing non-convertible agricultural resources, one result is bound to be greater political awareness and activity among rural folk, and an additional argument for rural development that is not solely economic thus comes into play: namely, to foster a pattern of rural life that can initiate, facilitate, and absorb change within an orderly process of social and political adjustment. Indeed, an enlarging political role for rural people is among the components contributing to agricultural development in any non-totalitarian society.

F. Aspects of Rural Development

The various requirements for rural development-subsuming the Special Rural Problems it is our task to consider-may conveniently be summarized under two headings: (1) requirements for agricultural development, and (2) interrelationships between agricultural development and rural welfare.

1. Agricultural Development

Basically, the requirements for agricultural development are an educated, alert, skillful, venturesome farm population, living within a political, economic, and legal framework offering incentives to effort and conducive to orderly change, and supported by an appropriate set of services, facilities and public programs.

There is no which-comes-first in this complex, although the activities of developmental assistance lie predominantly in the field of services, facilities and public programs. This is where it is acceptable to most countries for developmental assistance to take hold. Fortunately, certain of the public programs where assistance is welcome are, when appropriately conducted, among the best opportunities for moving rural people toward greater alertness, new skills and understanding, and greater venturesomeness. And while the political and legal frameworks, particularly, are widely considered to be too sensitive for outside participation, there is an increasing number of opportunities and invitations for developmental assistance personnel to advise with respect to them.

Services, Facilities, and Public Programs. Beginning where developmental assistance normally begins, agricultural development can be facilitated by an appropriate set of private or public services, facilities and programs. These include:

1. Programs of general education
2. Public invesment in roads and communications
3. Private commercial networks or public programs to insure adequate availability of agricultural requisites: seeds, fertilizers, implements, etc.
4. Adequate market outlets for farm produce
5. Programs of research
6. Agricultural higher education
7. Programs of rural extension education
8. Public investment in irrigation
9. Private or public facilities to provide production credit
10. Programs of rural public health
11. Programs fostering rural organization for voluntary group action

All of these facilitate agricultural development, but they are of markedly differing importance. At early stages of agricultural development these varying priorities should be carefully

weighed. The most efficient bundle of public programs is probably not the best balanced as between the services, facilities, and programs mentioned in this list, and the most efficient combination varies from country to country with local conditions.

Political, Economic, and Legal Framework. These "rules of the game" within which the agriculture of any region must operate are important because of their influence on the incentives for farmers to increase production, because they facilitate or inhibit orderly changes in the framework itself (which become necessary as agricultural development proceeds), and because the political process must provide (or fail to provide) the public programs, facilities and services which agricultural development requires. Laws regarding land tenure and tenancy, taxation, inheritance, civil service, political suffrage, and patterns of national, regional, and local government are among those having the greatest impact on agricultural development. Economic policies with respect to prices and with respect to allocation of public investment are also of great importance.

Attitudes and Values. No matter how many times it may be argued that what we are concerned with is "technical assistance, the culture and values of the people must not be disturbed"; the fact remains that unless attitudes and values do change substantially, development will not come about. From acceptance of Nature as beyond influence (except through ritual) those who would contribute to development must shift to viewing Nature as manipulable. From dependence on outsiders people must move to innovation and initiative. From deification of the status quo they must change to a confident search for the new. Social customs designed to provide insurance against disaster at the margin of subsistence must give way to new customs providing elbow room for risky experimentation and capital formation.

For agricultural development to take place there must be many such shifts in attitudes and values among farmers and throughout rural communities. But the roles of scientists, merchants, bankers, engineers, and administrators in providing the facilities agricultural development needs, and the roles of legislators and citizens in determining legislation and of editors and broadcasters in molding public opinion mean that agricultural development is not a matter for farmers and agricultural technicians alone, but is a product of the whole way of living, the whole culture, of a nation or of a region. The skills necessary to achieve agricultural development are chiefly those of farmers and agricultural technicians, but the understanding of agricultural development and the attitudes and values which determine its pace are as much those of administrators, politicians, editors and even the whole politically-conscious population through the effect these have on laws and on public programs and policies, as they are those of rural people. Consequently, the solution of some of the most critical rural problems must be achieved in the cities.

2. Interrelationships of Agricultural Development and Rural Welfare

Agricultural development has to do with production. But farmers are people, members of families and of communities: communities within which they must largely find whatever quality of life and whatever satisfactions of living they are to know. ("Rural welfare" is used here in this sense of level of satisfactions, of well-being, rather than in any sense of the charitable provision of amenities by outsiders.)

The importance of agricultural development to rural welfare, in the absence of charity, is obvious and universally recognized; it must pay the bill.

The importance of rural welfare to agricultural development is less widely understood. Every pertinent survey has indicated that, throughout most of the range of farm incomes, the higher the achieved average level of living of the farm families of a society, the more responsive farm families in general are to suggested improvements in farm production. 1/ The chief aspirations of farm families, verified by every test, are for better education for their children, or for better health, or for some other dimension of rural welfare. Greater cash income is a weak incentive when most of it will be drained off to landlords, or dissipated in celebrations or in doles to indigent members of extended families. It is only when elements of a better level of living are available nearby, and purchasable, that greater cash income is an adequate incentive to induce most farmers in low-income countries to increase production.

Consequently, the cause-and-effect relationship runs both ways between levels of rural welfare and agricultural development. Programs dealing with rural welfare, therefore, particularly in forms which are not charity but are education and encouragement to rural people to bestir themselves to create better facilities for family and community life, are not postponable luxuries but an integral phase of agricultural development as well.

It is against this background of what the special rural problems of low-income countries are, and of the requirements for agricultural development and rural welfare in which these problems can be resolved, that we consider the research necessary to improve developmental assistance. 2/

1/ Within a given society it is frequently the middle income families that are most responsive to innovations.

2/ For a more extended discussion of these aspects of rural development, see Mosher, A.T., Technical Cooperation in Latin American Agriculture, University of Chicago Press, 1957, Chapter XII. Also Mosher, A.T., "Varieties of Extension Education and Community Development," Comparative Extension Education Publication No. 2, New York State College of Agriculture, 1958.

II. Research Needs

A. Agricultural Technology

The first group of topics urgently in need of research are those within the field of agricultural technology.

1. The management of the soils of the humid tropics belongs near the top of this list. The need for this has been well stated by Bradfield in a recent Presidential Address. 1/ Pointing out that the outstanding resources of the humid tropics for plant growth (abundant sunshine and a twelve-month growing period) have tended to deplete the supply of plant nutrients and have "left a surface soil which is acid and has a great capacity for fixing phosphate fertilizer when it is introduced in commercial form", he proceeds to cite evidence of the rapid regeneration of temperate-zone soils, badly depleted by prolonged poor management, to support the hypothesis that adequate research on the soils of the humid tropics should bear rich rewards.

2. A second type of soils research is also needed: careful field trials of known soil treatments, in farmers' fields, in all of the thousands of sets of local conditions in which agricultural development is being attempted. Here the process may be as rewarding as the results. It is characteristic of primitive agriculture that the soil is generally considered to be the only source of plant nutrients. As agriculture advances, however, the soil becomes primarily the medium to which fertilizers, and frequently water, as well, are applied to support plant growth. The sooner this change in how farmers view the soil comes about, the better, and thousands of field plot experiments, conducted largely by local technicians and viewed by as many farmers as possible, are probably the most effective means to this end.

3. Studies of on-the-farm soil moisture management are badly needed. Experiments conducted by Long 2/ and by Indian associates in South India indicate that greater total production might be secured in the vicinity of Bangalore by abandoning one-crop rice culture in favor of two crops annually each of which requires less moisture. There seems little doubt that in many cases, where rainfall is limited and canal irrigation is available, farmers apply too much water at one time. Frequently this can be traced to patterns of distribution from canals, established without careful research on periodicity and amount of individual waterings for optimum plant growth. In other cases, traditional addiction to a particular food grain has led, in projects of land

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1/ Richard Bradfield, "Opportunities for Soil Scientists in Freeing the World from Hunger", International Congress of Soil Science, 1960, published as a Reprint by the New York State College of Agriculture.

2/ Professor Erven Long, while a member and Chief of the University of Tennessee ICA Contract team. 1954-58.

settlement, to patterns of production not well suited to local rainfall conditions or irrigation possibilities.

4. Economic land classification as a basis for opening new lands to cultivation is another high priority need. The history of efforts at agricultural development is strewn with wasted resources and with disappointments based on ill-founded hopes and untested possibilities. Entirely too frequently, a low population density per square mile in humid forests or on semi-arid plains has led to the assumption that farmers in high-population agricultural regions would be better off if they moved. Careful economic land classification as a preliminary to land settlement schemes, and in preperation for land tenure reorganizations, is badly needed.

5. Surveys of variations, within small regions, of farm production and income are needed. It is amazing how widespread is the impression that all farmers in any region are doing the best that they could with present resources, and that increased production must depend entirely on new techniques and new resources from the outside. Yet whenever studies have been made of variations from farm to farm in low-income regions it has been discovered that farmers vary greatly in their production and income from essentially the same resources. Popularizing the most productive practices already in use by the best farmers in each small region may frequently be the easiest, as well as the least costly, first step in further development.

6. Yield trials of strains of crops in use locally are needed. Such trials should always be, but seldom are, the first step in research programs of systematic plant breeding. Quite apart from this, they can open the way for fairly rapid increase in production through popularizing the best locally-tested strains, without the elaborate arrangements necessary to multiply and distribute the seeds resulting from experimentation at central research stations.

7. Surveys of the range of freedom of choice in farm operation should be encouraged. How free are farmers of a particular locality to choose where they will farm, how much land they will till, what crops they will grow, when they will sow, cultivate, and reap, what draft power they will use, what seeds they will sow, what fertilizers they will apply, to whom they will sell their products and when, how far they will process their products, etc.? Any extension service, to be effective, has to begin by stressing improved practices within the power of local farmers to adopt. And a factor in this freedom is the particular bundle of social attitudes, customs, and laws within which each farmer lives. Being human, most farmers tend to list, as their dominant needs, the provision of resources or services which are beyond their present freedom of personal choice. At the same time, technical advisors from another culture tend to ascribe to farmers in the lands to which they go the same range of freedom of choice as is open to farmers in their homelands. Surveys of the present range of freedom of choice in farm operations can give important leads in choosing extension targets, in establishing research

priorities, and in deciding what other phases of agricultural development should be tackled, and in what order.

8. Surveys of hand tools, animal-drawn implements, and farm vehicles, and patterns in the use of these, in widely separated but similar agricultural regions, could expedite improved tillage in many parts of the world. Frequently, the tools in traditional use in one region would constitute a substantial technological improvement in another. So far, there are only fragmentary reports of tools and implements in common use in different parts of the monsoon region of South and Southeast Asia. At the same time, there have been many examples of failures in trying to introduce new tools and implements from the outside. The only technical advisors who now have knowledge of these variations, and of successes and failures in adapting tools and implements to local use, are the very few who have travelled and worked widely.

9. Studies of the economics of mechanization under varying conditions are needed. So far, we have been much more active in decrying glaring mistakes of massive premature attempts to introduce heavy tractors than we have been in trying to learn the facts about the problem of farm power under various conditions. Meanwhile, there is considerable data bearing on this problem available in the records of ICA operations in Peru, Bolivia, and elsewhere in Latin America. In addition, rapid mechanization is under way on the small farms of Japan, using many types of small tractors and electric motors, and Kyushu University and Japanese agricultural experiment stations are engaged in a series of studies of the economics of this. Coordinated studies of all types of mechanization in low-income countriescould lead to more rapid evolution in the efficient application of power, human and non-human, to operations related to agricultural production and marketing.

10. Socio-economic and technical studies of "slash-and-burn" cultivation in various parts of the world. Slash-and-burn cultivation has been viewed generally as (a) a very primitive type of cultivation, (b) a waste of forest resources, (c) a serious cause of land erosion, and (d) a form of economic activity that should be eliminated. Yet it persists over very wide areas in many parts of the world.

So far, most studies of this type of human activity have been from the vantage point of a single interest. The greatest attention has been paid to it by anthropologists; the next greatest attention, and the most adverse criticism, has been given it by foresters. The writer knows of only one study, now under way, from the viewpoint of farm management.

In view of the widespread importance of this problem and of the diverse policies with respect to it now being followed or proposed, much more comprehensive study of it is needed.

B. The Role of Capital in Agricultural Development

There are several questions with respect to the role of capital in agricultural development that need study.

1. What is the nature of the need for capital at early stages of agricultural development? Mellor, 1/ in a paper not yet published, argues, on the basis of experience largely in India, supplemented by brief inquiry in Southeast Asia: (1) that at 1961 stages of agricultural development in those countries capital is needed chiefly for providing developmental services such as research, extension, and input supply lines rather than for financing farm level purchase of agricultural requisites; (2) that there are relatively simple changes in farm practices requiring little or no capital that can raise production substantially; and (3) that it may very well be possible to finance most or all of the requisites of production needed at later stages of development out of this increased production.

This hypothesis should be thoroughly tested, for it goes counter to much current thinking. If it is sustained by further study it will change many of our priorities, particularly those with respect to the timing of emphasis on arrangements for production credit.

2. What is the present effective demand for production credit in agriculture in specific low-income rural regions? Mellor's hypothesis is general, requiring broad study. This question is specific for each of a large number of regions: how much effective demand for production credit is there currently? Answering this question would help to determine priorities in local programs, determining whether attention to credit should receive greater or lesser priority. There would appear to be three possible explanations where the demand for production credit is low, and it is important to determine how far each may be valid:

(a) Farmers have enough savings to finance production adequately;

(b) Farmers are not convinced that the production expenditures thought by technicians to be profitable are really worth the money;

(c) Farmers have deep-seated aversion to borrowing, for one reason or another.

3. What are local social values and motivations with respect to borrowing, and with respect to repaying loans? These become important as new credit facilities are proposed and developed. Are there differences in people's feelings of obligation with respect to repaying loans from family members, local merchants, moneylenders, and governmental agencies?

1/ John W. Mellor, Associate Professor of Agricultural Economics, Cornell University.

4. What types of credit institutions have been most successful in meeting needs for agricultural production-credit in low-income regions? We now have many examples of such institutions for study: various types of "development banks" in Latin American countries; credit for the purchase of seeds and implements to be repaid in kind after harvest; "supervised credit" in Brazil, India, Burma and elsewhere; the Agricultural Cooperatives and Credit Financing Administration in the Philippines; Farmers Associations in Japan and Taiwan; and many others. These need to be compared and analyzed, each against its own background and history.

5. When a given input of proved value is available in insufficient quantity to meet the demand, where should it be applied? A good example of this is fertilizer. If only a limited amount is available should it be made available in token quantities over a wide geographic area and without respect to the crop? Or should it be made available:

a) only near urban development centers?
b) only in areas emphasizing particular export crops?
c) only for crops having high income elasticity of demand?
d) only for commercial crops already entering substantially into the cash economy?
e) only in areas with an abundance of complementary resources such as irrigation, fertile soil, well developed transport?

Similar questions arise with respect to the location of irrigation projects, roads, etc.

6. How do rates of return on investments in improved agricultural production compare with rates of return on investments in industry? It is a common assumption that investments in industry yield a higher return, but there is substantial evidence that in labor-rich, capital-poor, low-income agriculture the rate of return on investments in agricultural production is unexpectedly high, frequently much higher than on investments in urban industry. Obviously, these comparative rates of return are of primary importance in all programs of planned investment if capital is to be applied where it will command the greatest return. While this principle cannot, and should not, always be followed, it is important that investments in agriculture not be limited because of false assumptions about comparative returns, particularly when, on the grounds of other considerations, agricultural development is so important to most underdeveloped countries.

C. Education and Rural Development

Most people agree that formal schooling is a significant element in rural development. Some go so far as to hold that universal elementary education is so important that it should command all the development resources it can profitably use no matter what other elements may have to be neglected for the time

being. Certainly this hypothesis merits objective investigation insofar as this may be possible.

Some of the questions about the relationship of formal schooling to rural development that need study are the following:

1. What is the contribution of the "practical" agricultural high school 1/ to rural development? In the past, such schools have been relied upon in many countries to provide subordinate officials for departments and ministries of agriculture and teachers of agriculture. From now on, however, it is obvious that more thorough training, available only through university study, is necessary for candidates for these posts. Today, "practical" agricultural high schools are being supported in many countries because they "can prepare trained farm operators and skilled agricultural labor for mechanized farms". Is it not probable that on-the-job training and agricultural extension services are more efficient means of agricultural education beyond elementary school for those not going on to the university? What then, if any, is the valid function of "practical" agricultural high schools (as distinct from vocational agricultural courses in regular high schools) in low-income countries?

2. How pertinent is the land-grant college pattern for colleges of agriculture in low-income countries? Here the issue is more one of the question of integrated administrative responsibility for teaching, research, and extension than it is of content of the teaching itself. There is some question as to how far it is legitimate to infer from the obvious value of the land-grant college pattern in the United States that this is the best pattern in other, quite different, circumstances, even if it were politically feasible to reproduce it.

3. What is the best location and affiliation for colleges of agriculture in low-income countries? Most of these colleges of agriculture are small, yet very few of them are adjacent to other colleges or major universities. Would it be better for them to be on the same campuses with colleges of arts and sciences, where they could share common facilities? Many of them, particularly in former British territories, are parts of Ministries of Agriculture, members of the teaching staff being civil servants of the Ministry rather than having tenure in the colleges. This has disadvantages from the standpoint of building strong faculties. While there is little opportunity for developmental assistance to re-organize or re-locate existing colleges, there have been several examples just recently of ICA playing a large role in creating new agricultural colleges and rural universities. Certainly, in such cases, study of this question, and the preceding and following ones, would be worthwhile.

1/ Reference here is to dominantly vocational and "practical" high school curricula, terminal in nature and not qualifying students to proceed to the university. Vocational agricultural elective courses in "academic" high schools are another matter.

4. What is the best type of education, at all levels, when rapid economic, social and political development is the top item on the agenda for the rising generation of a country? One correspondent writes: "Most educational systems in the less-developed countries are patterned after European and American systems. They contain, in many instances, impractical curricula having incomplete applicability to the current and future needs of the students. (Research) studies could aim at discovering educational methods and content most valuable for economic and social development purposes at the elementary, secondary, vocational, adult and special technical levels. They should aim at discovering the types of knowledge, skills, and attitudes related to development needs in different situations and the most effective ways (formal and informal) of delivering them over the long term." The Basic Education idea espoused by Mahatma Gandhi was designed to build a whole system on the actual everyday needs of students, but it tended to take the stable, independent village as its objective rather than continuously evolving development to new levels. The Folk High Schools of Denmark similarly broke fresh ground with a type of education specifically designed to meet current needs, giving no hostages to existing educational orthodoxy.

Probably any form of education that results in verbal and mathematical literacy and that expands the horizons of students is an asset to rural development. But obviously some types of education and some methods of teaching are better for the purpose than others.

5. What are the productive and unproductive uses of ICA "participant" programs under which students from abroad come to study in the United States? This participant program is very large. For the most part it places foreign students in courses of study designed to meet the contemporary needs, under American conditions, of American students. In what subjects, and for what purposes, is this "participant program" an effective technique?

D. Institutional Measures for Agricultural Development

From the discussion of aspects of rural development in the Introduction, it will be recalled that a considerable number of the elements of agricultural development consist of the legal, commercial, and social institutions within the framework of which agriculture must operate. Developmental assistance becomes involved in practically all of these, at one time or another. All of them involve substantial problems, some of which stand out as urgently needing research:

1. Studies of the economic, social, and political factors and effects of various measures of "land reform". Many underdeveloped agricultural economies can be described as having, or as having had in the recent past, a feudal or quasi-feudal pattern of land tenure and tenancy. "Land reform" is a battle-cry in every awakened country where such a pattern persists and it is bound to become an issue in those not yet awakened. It is an issue charged with emotion; for that very reason it needs objective study. It iswidely viewed as a panacea; for this reason, also, it

needs analysis leading to rational assessment of what it can and cannot accomplish. It involves intimately inter-related economic, social and political motives and effects; consequently it needs simultaneous and coordinated study from all three points of view. Fortunately, it is a problem on which a large body of experience has accumulated in the course of a long history of various kinds of land reform in many countries, but no objective evaluation of this widespread experience has been made.

2. Comparative studies of various types of land settlement projects. Frequently, for the valid purpose of bringing potentially valuable land resources into more productive use, and too frequently, in the vain hope of relieving population pressures on land already under cultivation, governments embark on various types of programs of land settlement. One research need here is to compare the costs and effects of different types of governmental participation in land settlement: (1) settlements financed and administered by government, including land clearing and preparation for cultivation, and provision of credit for preliminary production needs, and sometimes for family subsistence needs as well; (2) government sponsorship of "cooperative" land clearing and settlement; (3) government provision of access roads only; (4) government provision of access roads, schools, hospitals, and agricultural extension services. It would be helpful to have, for comparison with such governmental efforts, analysis of land settlement schemes financed by private capital, in Latin America and in earlier years in Southeast Asia.

Another need is to devise a valid framework for cost-benefit analysis of investment in land settlement schemes to facilitate comparing such programs with others competing for scarce governmental revenues. Techniques now being used for this are superficial and inadequate; they leave out many factors involved in the relationships between land settlement and the strength of the national economy.

3. Studies of institutional arrangements for adaptive agricultural research. How should regional research stations for varietal and fertilizer trials and other aspects of adaptive research be organized and administered? What type of training is needed for technicians competent to manage routine trials? How much supervision of these technicians is essential? How should experimental field trials and extension demonstration plots be related? Is it feasible for the same personnel to serve both as researchers in branch stations and as extension agents? How, and to what extent, can the administration of such adaptive research best be combined with training new technicians in investigational techniques?

4. Studies of experience with cooperative societies as agencies for marketing and credit. "Cooperation" has stood very close to "land reform" as a slogan and as a panacea for rural ills. Enthusiasm for cooperatives has persisted in many parts of the world despite repeated failures of cooperative enterprises. The magic of the slogan is so strong that the name cooperative is applied to types of organization making no recognizable application of the classical principals of the Rochdale society of weavers

from which the modern cooperative movement sprang. Meanwhile, the problems which cooperative societies are expected to solve are real, and they are of major importance to agricultural development. It is obvious that some type or types of effective organization through which the marketable produce of millions of small farms can move to market, and through which production credit and requisites can be made available to these many small farmers, is essential. And there are examples of successful cooperative societies on a wide scale, notably in Japan and Taiwan, keeping the hope alive that such societies may serve these functions elsewhere.

What is needed is careful multi-country studies of various types or organizations called "cooperatives", of the conditions under which they have arisen, of the problems they have encountered, of the modifications which have been introduced in efforts to solve these problems, of their actual administrative costs (sometimes hidden in general governmental administrative and auditing budgets as well as in public subsidies), and of the ethical and other cultural elements necessary to their success or responsible for their difficulties.

5. Study of the institutional changes and problems resulting from the introduction of irrigation. A prominent phase of many programs of agricultural development is provision of new facilities for irrigation. If the full value of such facilities is to be realized, there must be far-reaching changes in cropping systems, in fertilizing practices, in work patterns, in social relationships, and in legal arrangements for water distribution, payment for irrigation water, and adjudication of disputes. In most cases the planning of irrigation projects is largely in the hands of engineers and therefore the need for extensive preparation of the people involved and for the provision of new services is usually not recognized until acute problems arise. Despite the seriousness of these problems there appears never to have been a careful and exhaustive study of them in the special circumstances of low-income countries, to guide preparation for irrigation projects in the future.

E. Public Investment for Agricultural Development

1. General. There are undoubtedly a number of important topics for research with respect to public and private investments of various types undertaken in whole or in part in the interest of agricultural development. These include investments in irrigation facilities, fertilizer and implement factories, mass communications, market and storage facilities, etc. While agricultural development requires these, they are beyond the writer's competence to evaluate and discuss.

2. One problem, however, must be mentioned, both because of its great importance and because it bears on an investment in which programs of community development take a major interest. This is the role and economic value of rural roads. A number of knowledgeable and astute observers, the late Professor A. W. Ashby of Oxford among them, have argued that an adequate network of

roads and transport deserves first priority in any program of planned development. Two types of studies are needed. One type is small, specific studies of the cost, and economic and social effects, of access roads just after they have been built, and three to five years later. 1/ The other is more general studies of the role of roads and transport in rural development.

F. Methods of Extension Education and Community Development

The great value of programs of extension education and community development lies in the fact that they can be, literally, education for freedom. By confronting rural people with alternatives between which they may choose (where formerly they have lived largely by tradition) and by giving them emotional support while they organize for group action and while they accept responsibility for the results of their own risk-taking decisions, these programs help people learn how to be free men. This transition to freedom is difficult. Nicolas Berdyaev observed, in Slavery and Freedom, that "it is easy for a slave to become a master; it is easy for a master to become a slave; it is almost impossible for either to become a free man."

Despite their great and unique potential value, programs of extension education and community development in low-income countries have been much less effective than they might be, largely due to false assumptions and inadequate background knowledge. Herein lies the need for considerable research in this field.

1. The foremost research need here is for more projects involving controlled experimentation with respect to selected variables in extension education or community development methodology. It is amazing in view of the strong emphasis on extension and community development in developmental assistance that no more such controlled experimentation has been undertaken. Instead, debates around conference tables result in one decision or another about how to begin, and emphases and methods are continued or dropped as programs proceed on the basis of administrative judgments untested by any actual experimental comparison of the results of alternatives. The writer knows of only one example of controlled experimentation of this type, carried to completion after three years' trial. 2/ It not only let to definitive conclusions about the two variables it was set up to test, 3/ but its records

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1/ Like the study recently published by the Community Development Research Council of the University of the Philippines, "The Value of Rural Roads".

2/ The Experimental Extension Project of the Allahabad Agricultural Institute, in India.

3/ Correlation between type and amount of previous education of the extension worker and his success as an extension agent; and correlation between nature of initial program emphasis and over-all "practice changes" after a three-year period.

provided the raw materials for several subsequent studies of factors related to performance of extension workers. At a minimum, every country should have several extension or community development projects with built-in provision for keeping the type of records of activities that can be subjected to analysis. But more than this is needed: controlled experimentation, not necessarily with whole projects but with respect to each of a number of specific techniques, is required. Some of the aspects of extension or community development methodology amenable to such experimentation are the following:

a. What background of training is essential for field agents?
b. What are the relative merits of initial concentration on agriculture? felt-needs? literacy? village amenities? credit? provision of requisites?
c. What forms of posters, of leaflets, of dramatic presentation, are most effective in a particular culture?
d. What concentration of effort, what frequency of contact with individual villages and with individual families is essential for an acceptable rate of change?
e. What frequency and duration of in-service training periods is optimum?

2. How, within multi-subject-matter extension education or community development, can adequate attention to increasing agricultural production be assured? Three forces impel extension education organizations in low-income countries toward handling several subject matters rather than agriculture alone, and toward taking on one or another of the forms of community development. One is the shortage of public funds and of appropriate personnel. The second is the lack of any distinction between production, consumption, and social amenities in the minds of rural people in low-income countries: life to them is an undivided whole. The third is the proved psychological advantage of responding to "felt needs" over the practice of building a program to pursue objectives pre-determined by administrators. In the early stages of rural development what is needed primarily is response, change, decision-making--almost regardless of the subject-matter involved.

In practice, the adoption of multi-subject matter extension and community development programs tends to dilute specific attention to agricultural production. This is partly because the felt needs of rural people are quite diverse. It is partly because the special techniques of most types of community development are more appropriate in securing construction of roads, schools, wells and drains than they are to achieving changed practices in agricultural production. It is partly because public works and physical facilities are more visible and make a greater impression on visiting officials than do changes in methods of production.

Increases in agricultural production, and in agricultural production per man, are basic. How can extension education and community development be so structured and administered that agriculture receives the primary attention it must have if rural and national development are to be achieved?

3. What criteria can be established to help determine when agricultural extension education is more effective if separately organized, and when it is more effective if integrated into a multi-subject matter community development program? In the past, U.S. technical assistance has helped establish or improve agricultural extension services in some countries, and multi-subject matter community development programs in others. There are undoubtedly circumstances under which each is more effective than the other. But the decision as to which should be encouraged has seldom been determined by these differences in circumstances; instead, it has been determined by differences of opinion, even of dogma, and frequently by bitter internal struggle both between and within agencies of the U.S. government. The writer is certain that objective study of the performance of the two approaches in the past, in different countries, would yield valuable criteria to help guide future decisions.

4. What are the separate and joint effects of (a) subsidies to local governments, (b) subsidies to local non-governmental groups, and (c) technical advice and direction, on local self-help projects? The local self-help group project is the central activity of one form of community development. Normally, these projects are aided both by subsidies in cash or materials and by technical advice and supervision. Are both necessary? What is the relative value of each? Does giving subsidies for initial projects make it unduly difficult to persuade local groups to act without them later on? Can subsidies to local governments be supplanted, at a later date, by the exercise of newly-granted local taxing authority? Should subsidies be matched by taxes raised locally?

5. To what extent, and in what ways, can agricultural extension education and the supply of agricultural requisites be combined? With certain exceptions, extension education in the United States has been able to take it for granted that farmers could purchase, through commercial channels, any new seeds, fertilizers, implements, insecticides or any other requisites of production they might want to try. This is not the case in much of the world. Consequently, there is a strong tendency to combine the two functions of extension education and the supplying of requisites. There are two basic objections to this combination: first, that it confuses the role of the extension agent for him to try to be both advisor-teacher and merchant; second, that the supplying of requisites becomes so time-consuming that it greatly decreases the time available for extension education. Yet the problem persists.

Possible new approaches to this problem are suggested in Section H. Meanwhile, there is need for more study of the problem to ascertain whether there are ways of combining these two activities without adversely affecting either. 1/

1/ One possibility, under Latin American conditions, is to have the office secretary of each extension agent handle the supply of requisites. See Technical Cooperation in Latin American Agriculture, op. cit., pp. 53, 354. But in most of Asia extension agents have neither secretaries nor offices.

6. How can interpersonal communication be achieved between extension or community development workers and illiterate or isolated rural people? Carl Taylor writes: "The vast majority of people who work with village people do not really communicate with them at all, and I think it is more than a hypothesis to say that the reason they do not is because they do not understand the images and precepts of villagers. . . . I am so convinced that practically no communication takes place that I am sure there is no other topic that is more important to study than this."

7. What are the communications patterns and channels for the diffusion of news and ideas in various folk cultures? There are numerous recent studies of such channels and patterns among rural Americans; what are the analogous patterns in the largely illiterate societies where much of developmental assistance is carried on?

8. To what extent are the various visual aids, and other specific techniques of extension education, actually used, and what is their effect? It is a common assumption that techniques of extension education effective in the United States are effective everywhere. It is a further general assumption that visual aids are of particular value among illiterate peoples. Considerable emphasis is placed in many programs of developmental assistance on training extension and community development workers in their use. But to what extent do workers actually use them? And what are the effects when they do? Do these aids really teach? Do they entertain without teaching? Must they be used in conjunction with other teaching techniques? If so, with which ones, for different purposes, in various cultural settings?

9. How can adequate technical backstopping be given to programs of extension education and community development? In the United States, agricultural extension agents are graduates of agricultural colleges to begin with, and they are reinforced by a corps of subject-matter specialists whose specific task it is to keep abreast of new technical developments. They not only relay these to extension agents but also present them directly to meetings of farm operators. In underdeveloped countries, few agricultural extension agents are college graduates. Technically-trained personnel are in short supply. Subject-matter extension specialists, apart from the too few research workers, often do not exist. In community development programs, field workers must deal with projects in more than one technical field. And in both extension and community development, in addition to supplying technical information, field agents have the very large and often predominant task of encouraging rural people to begin to overcome the inertia of habitually following traditional patterns. Under such circumstances, how can adequate technical backstopping be achieved? Various methods have been and are being tried. Reports of these have yet to be brought together, with each assessed not only with respect to degree of success in its local setting, but also in the light of its probable transferability to other cultural settings.

10. How can the principles of good extension education be reconciled with crash programs to achieve specific targets of increased production? Agricultural extension as practiced in the United States has seldom, except temporarily in wartime, given any attention to national production needs or goals. Instead, it has concentrated solely on helping individual farmers achieve higher net incomes and a better life. However, in many countries where developmental assistance is active, national governments, faced by inadequate food supplies and limited foreign exchange, are formulating development plans calling for increases, by stated percentages or amounts, in the production of selected crops. A frequent practice is to charge extension and community development services with the responsibility of achieving these production targets. Extension and community development workers claim that such "crash programs" subvert good educational methods and, in the long run, retard the achievement of production increases. Is this true? Need it be true? Are there methods already being used, or new ways of achieving an emphasis on national production targets that are compatible with effective extension teaching? If so, what are they? 1/

11. What amenities of rural living, in each region, do people value most highly? And from which ones do they feel satisfaction over time? A major emphasis of certain types of community development is on improving the amenities of rural life. Which among these are most important to the people? Primarily physical facilities for education, sanitation and health? How about organized recreational opportunities? Organized dramatic and musical events within the established culture? Others? Which binds people with more loyalty to their locality: the achieved level of social

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1/ The writer believes there are two methods of achieving this synthesis which should be given greater trial. One method, already tried on a limited scale, is to allocate, arbitrarily, a certain percentage of each field worker's effort to pushing improved practices specific to the increased production of designated crops. In this, reliance is placed wholly on educational methods normal to extension, but response to "felt needs" is restricted to the remaining arbitrary percentage of each field worker's effort. The other method, not yet tried to the best of the writer's knowledge, is analogous to the "Outlook Conferences" common in American extension. In this method, suitable materials would be presented to meetings of farmers in each locality, acquainting them with the nation's production needs. These groups of farmers would then be led in considering these, setting targets for themselves as local contributions to the national effort, and extension agents would then put special efforts into helping to meet these locally-determined targets. In the glow of new nationalisms, it might be found that the feeling of having a share in a national effort is as strong an incentive as the prospect of higher personal income--which might, as a consequence, occur in any case.

amenities which they may enjoy, or the degree of their personal creative involvement in widening the scope of these activities?

12. What methods have been found effective, or ineffective, for coordinating the technical services of different departments or ministries of the government in tackling specific local problems? Extension education in the United States deals primarily with two broad subjects--agriculture and home economics--and the technical resources to back its efforts are found in a single agency: the land-grant colleges. By contrast, most extension and community development services in underdeveloped countries deal with a variety of subjects. In theory, technical backstopping is to be supplied by departments or ministries of agriculture, education, health, and public works. In practice, the results are not encouraging. Various methods of coordination have been tried in different countries. What has been learned from these efforts, and how far are the lessons applicable in other settings?

G. The National Culture and Rural Development

To revert to a statement in the Introduction, agricultural development does not depend on farms and agricultural technicians along; it is a function of the whole culture, the whole way of life of a people. Five aspects of the impact of national culture on rural development need attention: value systems, local government, taxation, class structure, and foci of decision-making. In addition, the Taylor Hypothesis discussed below needs examination, as well as the relationship between aspects of American culture and the history of rural development here.

1. Value systems. The group of topics for research mentioned most frequently by correspondents consulted in preparation of this paper consists of questions about the value systems, aspirations, dominant motives of rural people, and of the urban elite of each low-income country.

Questions with respect to the attitudes and values of rural people include the following:

a. Attitudes toward nature in general, and with respect to man's place in the world.
b. What are the dominant aspirations of farmers? Of rural people generally?
c. Attitutdes with respect to social interaction. Are they individualist? Cooperative? Do they feel that cooperative aid should be limited to kinfolk? Extended to close neighbors? To all members of the village?
d. Attitudes with respect to family obligation. Do farmers feel free to keep the fruits of increased production for expenditure or for investment, or must they share these with relatives or others in the community?
e. Attitudes with respect to the proper functions and responsibilities of government.
f. Attitudes with respect to land and livestock.

g. How strong is the attachment of rural peoples to particular staple foods in their diet? Does this have ritualistic significance? 1/

The attitudes of the urban elite of different countries with respect to rural development need to be studied. In fact, one increasingly hears the opinion expressed that the attitudes of the urban elite with respect to rural people and rural development are far greater obstacles to agricultural and rural development than the attitudes and values of rural people themselves.

a. Do members of the urban elite believe that rural development is possible? That it is desirable? That it should take second place to industrialization?

b. Do they believe rural people have competence and judgment within themselves, or that they must be given ready-made answers and be told what to do?

c. Are they willing to approve a wide delegation of powers to local government, or do they favor a strongly unitary national form of government?

d. Are they conscious of the strong tendency to spend a disproportionate share of public revenues on public works and services in the capital, and, secondarily, in other urban centers. If conscious of this, what is their attitude with respect to it?

2. Local government. The topics listed with second greatest frequency by correspondents as needing research attention are those relating to local self-government.

Both in Latin America and throughout much of South and Southeast Asia, agricultural technical advisors are impressed by the feeling of helplessness of rural people with respect to their own governments. It all seems so far away, so difficult to approach, so enshrouded in red tape. Their only participation--and this, for most rural people, only in certain countries--is voting in infrequent national elections. There is next to no opportunity, within the framework of government, for local people to come together and agree to tackle specific local needs, tax

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1/ Barnett reports that in Venezuela farmers would produce new food crops for sale but would not incorporate them into family diets. Mellor remarks that my statement of the issue is too "black-and-white." He rightly points out that in the study of this and similar value questions the economists' concepts of utility surfaces, and of marginal rates of substitution would constitute a more fruitful approach

themselves to meet the cost, and appoint local officials to carry out the task. 1/

Technical advisors quite generally feel that rural people are ready to move on local issues far more rapidly than current governmental patterns allow. Many of them place local government above land reform in order of priority. Obviously this is a sensitive area for developmental assistance, yet it is vital to rural development in any free society and there are, in fact, several instances of technical advisors being asked to advise on, draft legislation for, and help to establish local self-government. Some of the questions needing study are the following:

a. What have been the successes and failures in attempts to establish or strengthen local self-government?

b. Can evolution toward local government proceed by stages, with power to tax being the last authority granted, or should taxing authority be part of the first stage?

c. Where there has been a measure of local government, largely judicial, in a relatively static culture in the past, what are the problems in converting this to largely executive local government, competent to plan and carry out new projects as part of orderly and dynamic development?

d. Is the educational phase of establishing local government an appropriate activity for a community development program, or should it be separately administered? 2/

3. Impact of taxation. There are at least four aspects of the impact of taxation on rural development that merit study: (a) the deterrent effect of low land taxes on agricultural development in cases where land is held in large estates primarily for purposes of social prestige or, in any size of holdings, for speculation; (b) the possible use of tax exemption incentives for certain types of improved land use; (c) the possibilities, limits, and effects of using the taxing power to accumulate savings for investment; (d) the possibilities of the labor tax as a phase of building and maintaining local public services; and (e) the economic, social, and political effects of granting taxing power to rural local governmental entities.

4. Impact of class structure. One of the knotty problems development arises from the fact that practically all of the personnel of development agencies are drawn from the urban elite, and educated in schools and colleges patterned on foreign models, with

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1/ Two exceptions to this are Indonesia and Taiwan, where local government is real, active, and effective

2/ In the Philippines and in certain states in India, increasing local government is a major objective and activity of community development programs.

the result that they have difficulty in achieving really effective rapport with village people. Trained in a rationalistic approach, they do not communicate easily with rural people whose ways of thought are more holistic and whose logic is tempered by local experience. Analysis of the performance of extension workers at the Allahabad Agricultural Institute in India revealed very decided differential impact depending on the caste of individual farmers and the caste or other religious affiliation of extension workers. In the Andean countries of South America, rapport and response are quite different between extension workers, on the one hand, and "Indian" and "non-Indian" farmers, on the other. Each of these problems hints at the substantial impact of class structure on measures for rural development, indicating that better understanding of this problem would be helpful.

5. Foci of decision-making. Who makes what decisions in a particular culture? To what extent are decisions about agricultural production--what to grow, what requisites to purchase, when to cultivate, whether or not to borrow for productive investment--made by the male "farm operator"; to what extent are these family decisions? To what extent are they determined by the social pressure of neighbors, by tradition, or by a communal organization of production? If land reform is to be achieved, who must make the critical decisions? Who are involved in decision-making with respect to village sanitation, new feeder roads, new schools? Who must make what decisionsif commercial fertilizers are to be used in quantity?

These questions are important partly because of the relation they may have to rate of development in any culture. They are important also, where developmental assistance is involved, because a technical advisor tends to assume that the pattern is similar to that of his homeland, or that of another foreign country in which he has worked.

6. What, in each region, are the effective incentives to increase agricultural production? Some rural programs are postulated on the assumption that nothing is needed except proof that certain practices will increase production. Others, that the possibility of improved amenities of village life--better sanitation, roads, water supply, etc.--will call forth increased production. The new "Package Plan" in India introduces assured forward prices as an incentive. Some observers believe a ready supply of desirable consumer goods in local shops will do the trick. Some argue that raising the aspirations of village women through home demonstration agents can be a major factor. Some programs appeal to farmers to increase production "because the nation needs it." Obviously these incentives are not equally potent in any one place, and their relative strength varies from place to place and from time to time. This is a topic on which economists, social psychologists and anthropologists might well join forces.

7. What have been the factors which, in different regions and countries, have been primarily instumental in getting the agricultural economy moving again after a period of stagnation? This question is frequently raised, illustrated by one or two examples, and with the implication that a broader study would

yield important clues toward establishing priorities in agricultural development. To the writer, the significance of studying this question lies in the contribution such study can make to identifying the variety of requirements for agricultural development rather than in indicating priorities. One consultant emphasizes the role of the migration of groups of persons with more highly developed skills. Another underscores the transforming influence of new roads and improved communications. Another points to the influence of general elementary education. The writer knows of instances where the trigger influence seems to have been eradication of malaria (in Minas Gerais, Brazil and in the Terai region of India), the introduction of irrigation, the evaporation of a fatalistic attitude in the heat of political demand for independence. It is a question worthy of study, provided it is not understood to reveal a panacea or a universally-valid "trigger role" for a particular influence.

The Taylor Hypothesis

Along with other research on the relationship between the national culture and rural development, there is need for careful testing of the hypothesis advanced by Dr. Carl C. Taylor:

> "that so-called tradition-ridden peasants will not be inhibited by their sanctions and taboos (value systems) if they are approached with alternative ways of doing things which they are already doing, and the doing of which yields them immediate, obvious results."

It is easy to become immobilized by considering all possible difficulties. It is easy to confuse research interests which are imperative to operational effectiveness with those which actually are of largely academic interest only. Taylor suggests, and the writer agrees, that we can get on with the job without waiting for exhaustive studies of certain cultural differences. This does not mean that more exhaustive studies may not allow us at a later stage to increase operational efficiency substantially. It does warn us against losing operational momentum, and against being frightened by apparent complexities.

Rural Development and American Culture

The Taylor Hypothesis, in addition to being intrinsically important, provides an easy transition to what may be the most important topic for research considered in this section, if not in all of rural development assistance, namely, <u>what is the relevance to rural development of specific attitudes and values prominent in American culture?</u>

It may be that, in becoming aware of cultural differences among peoples, and of the multiform influences of aspects of these cultures on rural development, we are in danger of concluding that to get along in their cultures we must master their ways almost to the point of adopting them ourselves.

If attitudes and values are such important determinants of rates of development, why, positively, did rapid rural development begin so much earlier and accelerate so much more rapidly in the United States than in many other places? Americans now going abroad in developmental assistance are the inheritors of those attitudes and values which accelerated this development, and, to greater or lesser degree, they embody them. What is it that they have to contribute that is of greatest value? Is it their tractors, their centrifuges, their scientific concepts, the dollars in their pockets? Or is it their attitude toward nature? Their willingness to risk ridicule in order to try a new method? Their ways of dealing with peers, "superiors," and "subordinates" within an organization? Their sense of time as a valuable asset? Their propensity to want to measure with precision? Their literal use of language? Their readiness to classify and generalize? The value they place on formal schooling? Their preference for local over national government? Their willingness to delegate responsibility coupled with distrust of concentrations of power? Their preference for pragmatism instead of for dogma? Their acceptance of some right to equal consideration of all persons? Their concern for the underdog? Their preference of the new to the old? 1/

Obviously, in any such studies, due consideration must be given to other factors. Certainly America was blessed with abundant natural resources. It could create a new civilization in a new, largely empty land. It did not have to transform an established feudal culture in a crowded land into something different. It was effectively separated from foreign tyrannies. Nevertheless, why was it that thousands left an uncrowded (by any other than American standards) East to line up to dash in to settle Oklahoma, without roads, schools, hospitals, seeds, or credit supplied by "the government," whereas elaborate subsidies seem necessary to get settlers into Mindanao, South Sumatra, eastern Bolivia, southern Venezuela? What was it about the "climate of investment" that brought European capital in large amounts into nineteenth century America without the guarantees implicit in colonialism? What is it about American culture that impels voluntary private philanthroupy into "distressed areas" long before governmental action is even considered?

Perhaps there are two sides to this question of "attitudes and values" in developmental assistance. We have been forced by our experience in low-income countries to recognize that non-economic aspects of culture are powerful forces affecting the rate of development there. Is it not time we really studied the extent to which the non-economic aspects of our own culture have affected our own development? We are in a position now as we have never been before to make such studies, by bringing to them an increasing knowledge of contrasting cultural components in many different settings of resource endowment, population density, and institutional history, around the world. Only when such studies have been made will we be able to answer with assurance the question: What really does America have to contribute via developmental assistance?

1/ This listing is illustrative only; it is in no sense a list of considered hypotheses. These are items that come easily to the writer's mind to try to make a point: the point that we need to search our own cultural background to try to determine what is pertinent to rate of "development," and what is not.

H. New Approaches Worthy of Pilot Project Experimentation

There are several specific types of rural development projects that merit thorough testing in the form of pilot projects.

1. Adaptive agronomic and farm economic research, coupled with extension, as a major operational activity. The widespread needs (a) for many, many field trials of crop varieties and of fertilizer response together with studies of the economics of these, (b) for studies of variations within small regions in farm production and income, (c) for studies of the range of freedom of choice in farm operation, (d) for adequate technical backstopping of agricultural extension, and (e) for effective techniques of training in research procedures, have all been noted.

Taking these all together, it would seem worthwhile to experiment with a new type of field project, combining an experiment station with its program confined to adaptive and farm economic research, and an agricultural extension service throughout the surrounding countryside within a radius of ten to fifteen miles. The adaptive research would be valuable both for its results and for the training involved in carrying it out. The cooperation between technical advisors and local technicians, being centered in learning together, would help bridge problems of understanding due to cultural differences, and help minimize mistakes of technical advisorsdue to lack of experience in the region. Having such a program of adaptive research at the center of an extension project might, in addition to being highly effective locally, prove to be a more efficient and a faster way of multiplying extension projects throughout a large region or country than methods now in use. By double-staffing the first few such projects, the most competent local technicians could be transferred, year by year, to start similar new projects, and the combination of adaptive research and extension, probably not by the same staff but in close collaboration, might provide far more effective in-service training for extension workers than the prolonged training in special Centers which is the normal practice now. Such a plan would also avoid the widespread tendency to postpone adaptive research much too long, through concentrating on getting a strong central experiment station well-established first.

2. An extension education program to village merchants and bankers and moneylenders, backed by appropriate research. We have noted the close dependence of response to effective extension education for farmers on ready availability of the requisites of agricultural production: seeds, fertilizers, implements, insecticides, etc. We have noted the problem introduced when the extension agent is asked also to handle sales and distribution of these requisites. Has anyone experimentedwith a program of extension education to village merchants to see whether this could induce them to stock new articles, thus meeting the needs of farmersfor requisitesthrough normal commercial channels? A merchant accustomed to dealing only in staple consumption items faces real problems in shifting to dealing in these production requisites: there isnot a pre-existing predictable demand; the need for most such articles is highly seasonal(in many cases a week's difference in time of availability is crucial); periodicity in size of inventory is much greater.

What would happen if a specially designed extension education program were set up to work with rural bankers and money-lenders? One experience in the Philippines has demonstrated that a local bank can meet the credit needs for a rapidly expanding poultry and swine industry and do it profitably. 1/ This example resulted from the unaided imagination and creativity of a local banker, but is it not possible that an appropriate extension education program could multiply such instances?

In many cultures, the merchant and the moneylender are cast in the role of exploitative villains to be eliminated. But their functions are essential, and there is considerable evidence that their profits, in most cases, are not exorbitant since their costs, particularly in credit, are high. Perhaps it would be better to help them adapt their present skills to the new needs of a dynamic agriculture than it is to try to replace them. Research on the costs and returns of these small agriculture-related businesses and on factors affecting their efficiency would be needed in connection with such programs; it is needed anyway.

3. A program of publicly-supported advertising through press and radio of production requisites. In North America and Western Europe a considerable amount of the propaganda for changed practices in agriculture is provided not by public programs of extension education but by private advertising. In low-income countries, however, both cultural history and the small and highly local nature of merchandizing firms makes integrated advertising campaigns not feasible if left to private support. Also, much advertising that does appear is of doubtful reliability.

But what would happen if, in addition to extension education programs for merchants, publicly supported advertising campaigns for selected and tested production requisites were provided? Such a program would be much simpler to administer than a wholly-governmental agency to merchandize such requisites direct. It would utilize the present skills of village merchants and add what might be a very effective stimulus to increased use of these requisites, reinforcing the impact of extension education for farmers. It would be possible, of course, to phrase this proposal in a way to make it just "another extension approach," but the nature of this approach is probably best indicated by calling it advertising, and it would be more effective if it named the merchants from whom the requisites could be obtained, and published the prices of each article. 2/

This could easily be combined with another public service of substantial benefit to agricultural development--regular dissemination of market information for farm products.

1/ The Tanauan Branch of the Philippine Banking Corporation.

2/ Such public-supported advertising would have to be accompanied by enforced regulations to maintain product quality and to suppress adulteration.

4. Greatly extended and more effective use of radio in programs for agricultural development. It seems almost inconceivable that more effective use has not been made of radio. The economic and technical difficulties of such programs have been drastically reduced in recent years by the availability of inexpensive and dependable transistor radios operating on flashlight batteries. There have been a number of experiments, mostly small, involving use of radio in extension education, and one immediate need is to consolidate the knowledge gained through them. So far, most such experiments have lacked one or another of the elements for success on a large scale. One indication of these elements is embodied in the following hypotheses needing further testing:

(1) To be most effective in extension education, radio broadcasts must be in the local dialect of rural people.
(The validity of thishas been indicated by experiments at Silliman University in the Philippines. In many cases, however, the insistence of governmental broadcasting monopolies on using the 'pure' form of a new 'national language' has prevented adherence to this principle.)

(2) To be most effective, much of the broadcasting should be done by persons who are known to the listeners as local extension workers.
(One of the characteristics of cultures in low-income regions is that to be trusted and believed the speaker must be a personal friend. Radio broadcasting lacks this feature if done largely by persons with whom listeners are not personally acquained.)

(3) Radio broadcasting is more effective when listeners are familiar with the mechanics of broadcasting and where broadcasts include transmission of programs originating in villages.
(Silliman University has made effective use of programs recorded in villages, with the village people both participating and observing. They have broadcast discussions recorded in the villages on topics of agricultural development and village improvement, and village performances of music and drama.)

Certainly the potential value of radio for mass programs of agricultural development is great enough to warrant further experimentation and the elimination of the obstacles to its most effective use.

5. Exploratory projects of "enclosure" in farm economies having small fields, fragmented holdings, common grazing lands, and uncontrolled livestock. These is considerable evidence that fragmentation of holdings (in the form of one "farm" composed of a number of non-contiguous fields), is not, in itself, as inefficient as it is widely believed to be. But uncontrolled livestock, or herded livestock in unregulated numbers, grazing on common lands, is another matter. One would think that the importance attached to Enclosure in the economic history of Great Britain, and to the Barbed-Wire War in the history of the American Western Plains, would have led to attempts at some exploratory

projects of enclosure in countries like India. So far, however, they have not.

6. The "outlook conference" approach to extension emphasis on national production targets for specific agricultural commodities. This proposal, mentioned earlier in a footnote, would substitute targets set locally by farmers themselves for local targets set nationally and laid on extension workers as an obligation. The extension or community development staff would acquaint farmers with national needs and work with them in setting local production targets for themselves. What are needed, in the way of some pilot projects, are arrangements for comparing both the production response and the psychological effects of the two methods.

7. Mass media and other concentrated education of urban elites regarding the elements and processes of agricultural development. Would it not be worthwhile to experiment with a few projects aimed at apprising a whole urban elite of the reasons for the importance of, and the steps needed to achieve, agricultural and rural development? For the most part, the efforts of assistance are aimed at 1) rural people and 2) agricultural technicians and administrators. Yet many of the programs, investments, and legal and political changes necessary to agricultural development depend more on the attitudes and decisions of the urban elite of low-income countries than on those of rural people. Feature articles in newspapers and magazines, radio broadcasts (primarily news of local rural events but with interpretive comments regarding their significance), movie shorts, public meetings, speakers' services for private organizations, special seminars and week-end informal conferences for invited guests, are all among the possibilities. Some of these are now being used to a limited extent. What is here proposed is exploratory experimentation with integrated and more extensive use of these methods aimed specifically at achieving rapid education of urban public opinion on specific topics crucially related to agricultural and rural development. For the future, revision of the curricula of schools and colleges to place greater emphasis on those elements of understanding and knowledge essential to both rural and national development should be encouraged, but that will not do the present urgent job of changing urban attitudes with respect to rural development.

8. Experimentation with the "Village-Cluster" proposal. Nothing has been said so far in this discussion about the important topic of rural industries, nor about the urgent need for increasing non-agricultural employment opportunities. We have mentioned the need, if possible, to slow down migration to large cities in excess of employment opportunities there. We have mentioned the problem of identifying and developing those amenities of rural life which will make it more satisfying. We have stressed the need to strengthen commercial availability of agricultural requisites and to improve marketing channels for farm products.

Albert Mayer, initiator of and consultant to the pioneer Etawah Project in India, has given focus to a proposal for a concerted attack on these problems. His proposal is, in essence, that certain plans should be developed and executed for "clusters" of villages: plans including the development of small industries

within easy distance of people's present homes, commercial services, secondary schools, and other activities and amenities of rural living. Certainly, in the context of developmental assistance on special rural problems, and particularly with the extension of developmental assistance in recent years to include town and regional planning, this is a proposal that merits several exploratory projects.

I. Special Regional Problems

Two special problems of a regional nature have been brought out: one is the need for at least one really first-class agricultural experiment station in each major region of the world; the other is the group of urgent special problems of rural development in Africa.

1. The need for a first-class agricultural research institution in each major region of the world. Without contradicting what has been said above about the advantage of concentrating first on adaptive and farm economic research in each country, there is urgent need for at least one first-class central research station, for basic as well as applied agricultural research, in each major region of the world. So far, American aid to such projects has been left to private technical assistance agencies, primarily the Rockefeller Foundation. Other governments have aided such projects in at least two instances. This may be an appropriate activity for cooperative action together with the governments of other nations now providing developmental assistance.

2. Special problems of rural development in Africa. Two consultants, particularly, have urged the need for special research on the problems of rural development in Africa. The topics they suggest as needing study are the following:

a. A summary of what is known, technologically and sociologically, about the transformation of African agriculture.
b. The social, economic, and political factors affecting the determination of a recommended pattern for peasant agriculture in the rain forest zone, the savannah zone, and the arid zone of Africa.
c. Devising an inexpensive agricultural extension service for the countryside of Africa, armed with effective techniques of imparting scientific knowledge and technical information to African farmers.
d. Toward what kind or kinds of organization can the African tribal system most fruitfully move?

III Research Needs - Developmental Assistance

Most of the research mentioned in the foregoing section is related to improving programs of rural development whether developmental assistance is involved or not. In this section, we turn to research needs in connection with developmental assistance itself, as these needs show themselves in agricultural and related programs overseas.

A. Administration of Developmental Assistance

1. What are the comparative merits of the servicio, of joint commissions, and of advisory missions, as agencies of agricultural technical cooperation? Two informal comparisons of two of these administrative devices, with respect to conditions in Latin America only, were made five years ago, incidental to a broader study. 1/ A similar study is now needed covering experience in other parts of the world as well.

2. Where should technical advisors be "headquartered": in capital cities? in ministries of agriculture? in USOM office buildings? All sorts of answers have been given to this question. It has never, to the writer's knowledge, been objectively studied.

3. What is the suitability of the college contract as a device for developing agricultural colleges? An analysis is past due of the college contract as a device of developmental assistance, comparing it with the potentialities of similar aid provided direct by ICA. The college contract has substantial advantages, both to the U.S. college and to operations in the field. At the same time, it has been used, in many cases, in inappropriate ways. It has been covertly and not-so-covertly opposed by some field administrators of ICA. It should be re-examined.

4. What is the optimum degree of discretionary latitude for field administrators of developmental assistance? Obviously, this question will never be finally settled, but it merits a sound independent study at this time. Conditions from country to country vary so much that considerable discretionary latitude seems advisable. How much actually exists? Is there a consensus among field administrators as to how much latitude they have? Is the staff, as distinct from the line, organization of ICA such that field administrators have appropriate staff support in considering alternative program possibilities within their present authority?

5. What is the validity of the "counterpart" concept in developmental assistance? In theory, a technical advisor works closely with one counterpart so that the counterpart may carry on after the technical advisor departs. In practice, there are serious problems. The counterpart may have had so much less training and experience than the advisor that he cannot be

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1/ Glick, Philip M., The Administration of Technical Assistance: Growth in the Americas, The University of Chicago Press, 1957, Ch. 2. Technical Cooperation in Latin American Agriculture, op. cit., pp. 323-338.

brought to competence within the two-year term. He may have had as much or more training and experience, in which case there is a serious psychological obstacle to considering himself a "learner." Differences in individual temperament between the advisor and a single counterpart may inhibit rapport whereas if an advisor works with several persons not formally designated as counterparts there is more probability that productive rapport will be established with at least some of them. The counterpart may be transferred to quite different responsibilities while the advisor is still present or soon after he leaves, thus defeating the specific purpose of the relationship.

What is the counterpart's perception of his role? What are the "bands of misunderstanding" 1/ between advisors and counterparts, unsuspected in some cases and exaggerated in others, that cause friction and prevent full cooperation? What is the advisor's perception of his own role and his perception of his counterpart's role? If study of these questions could result in a brief handbook on the advisor-counterpart relationship, its purposes and possible problems, this might help. But there still remains the question as to whether the advisor-single counterpart arrangement is sufficiently promising to continue its use as a general practice at all.

6. What is the influence of political considerations on selection and location of developmental projects? It is astounding, when one first encounters it, how frequently it is discovered that a project is undertaken, or is located in a certain place, because "Congressman So-and-so" or "the Minister" or "the President" wants it thus. Part of the problem may arise from lack of objective criteria, understandably phrased, that might be applied to decisions on project selection and location. Frequently, also, developmental assistance personnel are unaware of the positive role political influence can play in furthering developmental plans.

7. What background of professional training and experience is most effective for the diagnostic role with respect to what is needed for developmental assistance in a particular country at a particular time? As must be obvious from the number and dissimilarity of the many elements of, and influences on, rural development, the diagnostic task of determining what to help with, how, and when, is a very difficult one. The predominant economic criteria in fashion a few years ago have been widely challenged by new knowledge and experience in the recent past. The ICA Career Development Institute at Johns Hopkins is getting at this problem pragmatically. Meanwhile, additional study of it seems warranted. Some observers feel that American deans of colleges of agriculture and directors of experiment stations are more likely than others, in the absence of additional training, to have the qualifications for such a role.

8. What criteria can be set up for evaluating programs

1/ Howard Beers' phrase.

of rural development? It is inevitable as well as imperative that judgments be made continuously about what to continue and what to drop and about how to modify on-going programs. Within this process, some quantitative measures are valid and useful, and field personnel in developmental assistance need to know what they are. At the same time, if developmental assistance is to be of optimum productivity its activities must not be limited to those whose effects can be quantitatively measured.

B. The Technical Advisor

1. Role and function. We need a major study analyzing the roles actually performed by technical advisors in agricultural extension, research, community development, health, etc. An adequate theoretical framework and appropriate methodology for such a study is at hand. 1/ This analysis should be made of all relevant roles within several USOM's, in FAO, and in private agencies, with similar analyses of the roles of those in the relevant counter positions in the host government. Such a study would be helpful at two points: (1) it would facilitate modifications in administrative procedures and in the nature of assignments so as to increase the positive contributions of individual advisors and reduce conflicts and working at cross-purposes between different advisors and different technical divisions of the same agency; (2) it would be helpful in reformulating policies relative to the recruitment and training of advisors.

2. Recruitment. Here the need is not for a single research project but rather for careful investigation of a cluster of related questions. What are the personality characteristics and technical training and experience related to successful field performance in each of the roles played by developmental assistance field personnel? What incentives are effective in recruiting the particular types of personnel needed in development assistance? What recruiting methods are needed in order to find and secure such personnel? What are (a) the most frequent, and (b) the most serious, obstacles to recruiting the most appropriate personnel? What is needed to provide means of gaining professional recognition by personnel in developmental assistance? To what degree is a common program of orientation appropriate for the wide variety of roles for which personnel must be recruited, and what should the content of this orientation be?

3. Transfers. What can be learned from the policy of the past few years of keeping an advisor in a particular country not longer than four years, and frequently transferring him after such a period to an entirely different part of the world? Has this proved beneficial? There are many arguments with respect to this, mostly criticizing both aspects of the policy. What seem to be the facts?

1/ See Gross et al, Explorations in Role Analysis: Studies of the School Superintendency Role, New York, John Wiley and Sons, 1958.

C. Toward Better Utilization of Present Knowledge

If the knowledge gained through research and experience is to be effective in improving developmental assistance, it is important that it be consolidated into useful form and be readily available in every low-income country, as well as in every training center in the United States. To this end, the following concluding suggestions are made:

1. A circulating library of agricultural development and developmental assistance should be established in each country, with a Reference Librarian on each USOM staff. Arrangements should be made to have what we now know, in its present forms, available to every technical advisor in the field and to all of those with whom he is working. To make this information readily available to busy field workers, and to keep the library well organized and up to date, there should be a trained Reference Librarian on each USOM staff.

2. A set of handbooks should be prepared, summarizing our present knowledge on topics of general importance to rural developmental assistance. Technical advisors need library facilities, but our present knowledge is recorded in many types of documents and in various scientific jargons. There is widespread and valid demand for a series of handbooks which summarize those selected portions of present knowledge most frequently useful to technical advisors, presented in a form for ready comprehension and easy use. Such handbooks should draw for their materials both on pertinent general knowledge from past research and on the experience of recent programs of developmental assistance. Such handbooks are needed on the following subjects:

Tropical crops and soils, and pest and disease control in the tropics.
Methods and special problems of conducting adaptive research, simple farm economic surveys, and village social studies.
Hand tools and animal-drawn implements.
Village and farm methods of water supply and environmental sanitation.
Extention and community development methods specifically for low-income countries.
Choice of projects and operational devices for agricultural and rural development.
The role of the technical advisor and of counterparts in developmental assistance.
Principles and methods of local government in rural areas.

3. Collations of materials particularly pertinent to each country. In addition to the above general handbooks, each technician needs to have at his finger-tips the results of research conducted locally and related to his task. Two forms of such collations would be particularly useful. One is a summary of the results of local research with respect to agriculture and rural life. The other is a cumulative history of developmental

assistance in each country: what has been tried, what were the results, what special problems have arisen?

4. A consolidated review of theories and speculations regarding agricultural development. We do not have an agreed theory of agricultural development; perhaps we never shall. Several are implicit in this paper. The research projects listed in Section II would provide considerable additional data. Meanwhile, there is no one book in which one can find a summary of the various theories propounded or implicit in various policies adopted and procedures employed. A comprehensive review of the literature in this field, with references to sources, noting areas of agreement and conflict, and stating which theories appear to be supported by what empirical data, would be most helpful.

5. A history of programs and projects of planned or guided change.1/ Perhaps the lessons of these programs could be summarized in a single book. Perhaps it would be better to have a "guide" to existing records, together with a well-annotated bibliography. Perhaps a combination of the two is needed. The difficulty with the "guide and annotated bibliography" for this purpose is that many important records are out-of-print, many have never been published, and those which are still available are in several languages. Despite the problems, an enormous amount of experience has accumulated in many sorts of programs of planned or guided change and the lessons of this experience should be widely available.

6. Regional subject-matter specialists within ICA, regularly visiting technical advisors to consult on program, rather than on administration. Technical advisors need the counsel and comradeship of regional subject-matter specialists who have no administrative responsibility, and who can perform a liaison role within a group of countries in one part of the world. Such specialists could, at the same time, take an active part in research projects related to agricultural development, and they would be useful policy advisors to headquarters administrators.

IV. Summary and Priorities

Research is much more than a staff activity preparatory to agricultural development or preliminary to developmental assistance. Since an important phase of agricultural development is to move from a fatalistic acceptance of the ways of Nature to a systematic manipulation of natural law to achieve agreed results, the experience of engaging directly in research may be one of the most fruitful ways of achieving this revolution of outlook. Inasmuch as technical advisors and local counterparts come from different

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1/ The differences between what is proposed here and the Handbook on Extension and Community Development Methods proposed above are two: (a) the experiences of whole programs would be considered in this history, and (b) a wider range of types of programs would be covered.

cultures, speaking languages in which it is frequently difficult even to find acceptable verbal translations to represent key concepts, the field experience of engaging together in systematic examination of local conditions and in joint searches for locally valid improved practices may be one of the easiest ways of establishing meaningful communication. Since, in many cases, local attitudes, customs, taboos seem to stand in the way of development, perhaps joint, objective examination of the impact of these on specific steps toward agricultural development would be a more effective way to modify them than verbal discussion of the respective merits of the attitudinal fruits of different "cultures" and of different historical developments. 1/

Consequently, in reviewing the needs for research to improve developmental assistance we are doing more than listing our needs for "prior homework". We are, in fact, listing the subject-matter opportunities for what could well become a most important operational component of developmental assistance in the field.

Research needs have been discussed in foregoing pages under subject-matter headings. It may be useful to summarize them here more by types of research and by geographic scope, since, when it comes to implementation, each research need must be tackled by an <u>appropriate</u> agency or unit.

These research needs fall into two broad types:

1) those requiring comprehensive multi-country studies, comparing similar and contrasting experience and drawing reasonable conclusions.

2) those involving careful examination of local conditions, local cultural traits, local practices and locally available "improvements" for each particular region. 2/

Two refinements of this re-classification would be useful. One would be a ratingof these needs from the standpoint of "researchability". Obviously many of the topics listed here are ones on which we need more wisdom but they are not easily amenable to "research". No attempt is made here to indicate the degree of researchability, since this can best be judged by experts in the many fields and disciplines in which these topics lie.

The other refinement would be to give some indication of the relative importance of the different topics, thus indicating priorities in research. The writer has already done this to

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1/ Arthur E. Morgan, among others, advanced this view in 1948 in the "Report of the Universities' Commission" in India.

2/ A number of multi-country studies would be more fruitful if they could utilize the results of many local studies of this second type.

some extent, primarily by omitting discussion of two-thirds of the topics suggested for consideration by correspondents. Thus all of the topics discussed are deemed important by the writer. Among topics discussed, however, an indication of priorities is given in Tables 1, 2, and 3 at the end of the paper, in the notation opposite each topic in the right-hand margin. In this notation, 3 indicates high priority, 2 indicates the second order of priority, and 1 indicates the third order of priority, but still important. Two ratings are given. The one to the left is the rating of the writer. That to the right is the average rating of those correspondents whose ratings had been received by the date of this final draft. Thus, the notation 2 - 2.5 would indicate that, to the writer, the topic is of the second order of priority while to the correspondents it stands half way between the first and second orders of priority.

1. Research Needs Requiring Multi-Country Studies

Thirty-one of the topics discussed in this paper and listed in Table 1 call for research drawing its data from a number of different countries. This does not mean that research on any one of a number of these topics in a single country would not be valuable. It does mean, however, that these are topics on which results from a study in a single country should not be considered to be generally applicable in others. It also means that comparisons between countries, while not absolutely necessary in all cases, are likely to be particularly helpful in uncovering pertinent factors which a single-country study is likely to overlook.

Consequently, these are topics best explored by independent or centralized agencies in a position to administer multi-country studies. In cases where one of these topics is studied in a single country it would be helpful if the methodology of the study could be reviewed by a central agency before the study is carried out in an attempt to promote comparability among individual studies in different countries.

It ispartly because of the importance and the special requirements of multi-country studies such as these that the writer has, in another context, proposed the foundation of an independent Institute of Agricultural Development, primarily to promote, finance, and conduct research in this general field.

2. Research on Local Problems, Country-by-Country

Twenty-two of the topics needing research, and listed in Table 2, call for investigation of local conditions, local practices, and local possibilities in each of the regions where developmental assistance operates.

The priorities assigned to these topics in Table 2 should be treated gingerly, for in practice quite a different criterion of selection should come into play. These are the research topics particularly amenable to study as an operational part of developmental assistance. Consequently, an important criterion in

selection is this: what topics are such that the process of tackling them can make an appreciable contribution, at a given time, to the growth in competence and understanding of local technicians and farmers?

The writer would lay it down as a general proposition that every field research project in developmental assistance should include a substantial training component. That is, every field research project should be so conducted that it trains men in research methods. If this is to take place, projects must be of the degree of simplicity or of complexity that potential trainees are ready for.

We need the results of all of the research suggested herein. In choosing from among these many topics, let us select those in which the process, the training, is as fruitful as possible at each given point in time.

3. New Approaches Worthy of Pilot Project Experimentation

Section III of this paper advances eight proposals for new approaches in rural developmental assistance thought by the writer to be worthy of pilot project experimentation. Two of the proposals are rated fairly high by the correspondents: 1) adaptive agronomic and farm economic research, coupled with extension, as a major operational activity; and 2) an extension education program to village merchants, bankers, and money-lenders, backed by appropriate research. The others were given medium to low ratings by the correspondents.

These priorities are summarized in Table 3.

Concurrent Research and Action.

There is no other way to proceed with a task where the almost infinite complexities and potentialities of human behavior are involved, except "prematurely" and in partial knowledge. This is true not only in the beginning, but throughout the process.

The situation leading to developmental assistance was, and is, urgent and desperate. We were right to plunge in, and we must not now let any impulse to research slow our action programs. But, fortunately, no such conflict arises.

Our needs for research at this point are as much opportunities for more effective modes of continuing action in the field as they are preparation for the future. In our defensible haste in getting into developmental assistance, we assumed we had more answers than was, in fact, the case. However, in view of the problems of human pride, on both sides, inevitably involved in every form of cross-cultural cooperation, we may be in a stronger position now for not knowing the answers. In tackling some of the problems outlined in this paper as learners together with our friends in other countries, we may have opportunities for more effective forms of developmental assistance in the years ahead.

Table 1

Research Needs Requiring Multi-Country Studies

Section	Topic	Priority Mosher	Priority Correspondents
III A3	Suitability of college contracts	3	2.8
II F5	Communication with illiterate and isolated peoples	3	2.7
II C4	Distinctive curricular needs for rapid economic and social development	3	2.7
III B1	Role and function of the technical advisor	3	2.7
II D2	Consequences of different patterns of land settlement	3	2.7
III B2	Factors affecting recruitment of technical advisors	3	2.6
II C5	Effective uses of ICA Participant Program	3	2.6
III A1	Relative meritsof servicios, joint commissions and advisory missions	2	2.6
III A5	Validity of the "counterpart" concept	3	2.5
II D1	Economic, social and political factors in land reform	3	2.4
II F9	Technical back-stopping for extension and community development	3	2.4
II G1) II G7)	Cultural traits conducive to rapid development	3	2.3
II B4	Types of production credit institutions	3	2.3
II F7	Communications patterns and channels in folk cultures	3	2.3
III A7	Preparation for the diagnostic role in developmental assistance	3	2.3
III A2	Where should technical advisors be headquartered	3	2.3
II D5	Changes and problems introduced by irrigation	3	2.1
II B6	Relative rates of return to capital in agriculture and industry	3	2.1
II F2	How secure adequate emphasis by community development programs on agricultural production	3	2
II D4	Experience with cooperative societies	3	2
II F3	Agricultural Extension or Community Development	2.5	*
II A8	Surveys of hand tools, implements, farm vehicles	2.5	2.5

Footnote:

The * indicates that the topic was added or differently stated in the final draft, so consultants had no opportunity to give it a priority rating.

Table 1 - page 2

Section	Topic	Priority Mosher	Priority Correspondents
III A4	Optimum discretionary latitude for field administrators	2.5	2.3
III A8	Evaluating programs of rural development	2	2.2
II D3	Arrangements for adaptive agricultural research	2	2.1
II F4	Role of subsidies and technical aid in self-help projects	2	2
II F5	Can agricultural extension and supply of requisites be combined?	2	1.9
II C2	Pertinence of land-grant college pattern	2	1.8
II F12	Coordinating technical services of different ministries	2	1.6
II A10	Studies of "slash-and-burn" cultivation	2	*
III B3	Effect of transfers of technical advisors	2	*
III A6	Influence of political considerations on project selection and location	2	1.6
II C3	Effective location and affiliation of colleges of agriculture	1	2.3
II C1	Contribution of practical agricultural high schools	1	2.3
II G7	Factors which have ended periods of stagnation	1	*

Table 2

Research on Local Problems, Country-by-Country

Section	Topic	Priority Mosher	Priority Correspondents
II B5	Place to apply limited capital inputs	3	*
II G7	Relative strength of different incentives	3	*
II A7	Range of freedom of choice in farm operation	3	2.9
II E2	The role and economic value of rural roads	3	2.7
II G2	Studies related to local government	3	2.7
II A5	Farm-to-farm variations in production and income	3	2.6
II A6	Yield trials of strains of crops in use locally	3	2.6
II F1	Controlled experimentation on selected techniques of extension, education and community development	3	2.6
II A1	Management of soils of the humid tropics	3	2.6
II G1	Studies of local value systems	3	2.6
II G5	Studies of the foci of decision-making	3	2.5
II A2	Field trials of soil treatments	3	2.4
II G6	The Taylor Hypothesis	3	2.1
II F11	Relative value assigned to different amenities of rural life	3	*
II B3	Values and motivations regarding borrowing and repaying loans	2.5	2.6
II B1	Nature of the need for capital in agricultural production	2.5	2.5
II A3	Studies of on-the-farm moisture management	2.5	2.4
II A4	Economic land classification	2.5	2.3
II B2	Present effective demand for production credit	2.5	2.3
II F8	Effectiveness and extent of use of visual aids	2.5	2
II G3	Studies of the impact of taxation on rural development	2	2.2
II G4	Impact of class structure on rural development	2	2.1
II A9	Studies of the economics of farm mechanization	2	2
II F10	Effect on extension education of "crash" production programs	1	1.6

Footnote:

The * indicates that the topic was added or differently stated in the final draft, so consultants had no opportunity to give it a priority rating.

Table 3

New Approaches Worthy of Pilot Project Experimentation

Section	Topic	Priority Mosher	Priority Correspondents
II H1	Adaptive research coupled with extension as a major operational activity	3	2.9
II H2	An extension education program to village merchants, bankers, and money-lenders	3	2.4
II H4	Extended and more effective use of radio	3	2.2
II H7	Education of the urban elite in the requirements for agricultural development	3	2.0
II H6	The "outlook conference" approach to extension emphasis on national production targets	3	1.3
II H8	Experimentation with the Village Cluster proposal	2.5	2.2
II H5	Exploratory projects of "enclosure"	2.5	1.9
II H3	Publicly supported advertising of agricultural production requisites	2	1.7

URBANIZATION PROBLEMS

Eric E. Lampard and Leo F. Schnore

University of Wisconsin

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URBANIZATION PROBLEMS

Eric E. Lampard and Leo F. Schnore */

A SUMMARY AND OVERVIEW

This paper opens with a discussion of the nature and scope of urban problems. It is suggested that urban problems are becoming practically coterminous with "social problems" as the latter are ordinarily conceived. Moreover, the mere fact of population concentration in urban centers intensifies certain problems (e.g., sanitation) and creates others (e.g., traffic congestion). In any event, problems are most highly visible in a city milieu. Unlike many other aspects of the development process, however, urbanization problems are neither well-defined nor narrowly technical.

The paper next takes up some basic concepts of, and approaches to, urbanization. Three distinctive views are identified--the behavioral, the structural, and the demographic. The first has reference to the conduct of individuals, the second pertains to the organization of industries and occupations, and the third deals with the spatial distribution of population. Although structural considerations cannot be ignored, the demographic approach is believed to offer the greatest promise from the standpoint of observation and measurement, and a demographic conception of urbanization is therefore employed throughout the balance of the paper.

Certain historical developments are then discussed. Although the city emerged with the dawn of history, it is shown that the past two centuries have witnessed an "urban explosion" that is utterly without precedent. In addition, it is argued that the study of urbanization as a societal process must involve an examination of the changing countryside as well as of the burgeoning city. Cities are viewed, moreover, as part of the essential infra-structure for economic growth; hence development policies must take more account of the social dimension of change.

Next, urbanization is viewed from a comparative standpoint. Available statistical data are marshalled in an effort to suggest some of the manifold interconnections between urbanization and economic development. Particular emphasis is placed upon the fact that rapid urbanization in the developing countries is taking place within the context of a "population explosion" that is also without precedent.

Finally, the paper concludes with some substantive suggestions regarding the organization and content of research on urbanization. An effort is made to distinguish between types of research on the basis of their salience in policy-making. Adler has recently distinguished the "operationally significant" from the "operationally insignificant," asserting that "an observation, a finding, a conclusion, is operationally

significant if it can be taken into account when policy is devised." 1/ The present authors are sympathetic to the felt needs of planners and policy-makers facing difficult decisions. At the same time, they recognize that such distinctions can rarely be made before research has been undertaken. Indeed, there would be no need for any research whatsoever if one could readily identify the "operationally significant." Nonetheless, the concluding section attempts to set out some tentative priorities and needed emphases in the study of urbanization.

THE SCOPE OF URBAN PROBLEMS

At the outset, we advance a tentative hypothesis that most of the social phenomena identified in the voluminous literature of the social sciences as "problematic" are themselves concomitants, correlates, or consequences of those rapid and far-reaching movements of population loosely designated as urbanization. So-called problems of public health, housing, nutrition, the family, education, employment, social disorganization, personal adjustment and mental health are commonly, but erroneously, represented as distinguishing features of urban society. Nevertheless, even relatively ubiquitous "problems"--those found within societies at very different levels of urbanization and within both urban and rural sectors of the same society--take on distinctive shape and become much more visible in a city milieu. In short, urban problems are becoming almost coterminous and coextensive with social problems.

With an appropriately broad conception of the term "social," it is possible to approach the full range of contemporary problems that are more narrowly defined as "economic" and "political." In our own society, agricultural underemployment, administrative centralization and governmental control are alike affected by changes in the distribution of population. Automation of jobs in manufacturing and service industries, for example, creates technological unemployment and involves the training and relocation of workers for other jobs. This, in turn, raises institutional questions as to whether these shifts in occupations and locales are properly the responsibility of government, private employers, or the individuals concerned. The accommodation to large shifts in employment opportunities among various sectors of the labor force and among the several regions of a country over periods of time will be affected by the availability of natural resources and especially of those inorganic resources which are not readily renewable by the adoption of conservationist policies.

Movements of population which are rooted in the changing technology-resource potentials of different localities and their impact on economic opportunities and residence patterns greatly complicate the existing balance of political power among geographical regions of a country and between urban and rural districts within regions. Eventually problems arise regarding the territorial definition of appropriate political and administrative authority. For example, the most economical provision of necessary services by local governments such as transportation, education, and _____

sanitation, raises questions of "metropolitan" government and the division of power between central and local authorities. For fiscal reasons alone, the viability of conventional units of local self-government is continually threatened. While most observers would agree that such changes are interrelated, much more research and deliberation is necessary concerning demographic responses to technological and organizational innovations before any general consensus can emerge and manifest itself in concerted community action.

The interrelatedness of social problems stemming from change, however, is not exclusively distributional. Even if it were possible to achieve a perfect spatial reallocation of population in accordance with occupational opportunities, a number of other problems would arise from changes in population composition. For example, the "baby boom" in various countries after World War II, following a decade or more of low fertility during depression and war, has resulted in a series of indentations and bulges in their population pyramids which are further aggravated in areas that suffered heavy wartime losses in particular age groups. The influence of these age-compositional factors on housing markets, school facilities, and activities oriented to the needs of infants and young people is too obvious to require further comment. To the extent that the size of the consuming population determines levels of output in an economy, however, the long-run alternating sequence of expansion and stagnation in a number of industries (with one extreme phase following closely on the other) will have serious consequences. While the amplitude of these fluctuations may be narrow enough to permit relatively mild adjustments in most sectors of the economy, their localized manifestations will require close study of both composition and distribution of the populations concerned. The American suburban panic over school places and instructional staff may be followed by a sharp reduction in demand for educational services. Housing, which is mostly a product of speculative investment, rarely keeps pace with changing demand at the local level. Chronic shortages of dwelling spaces in areas of recent population expansion have their counterparts in the increasingly obsolescent housing available in slow-growing areas. Finally, during a period of general prosperity, manpower may be attracted to, and alleviate labor shortages in new "growth" industries in one part of a country but not suffice to absorb surplus manpower in other parts of the country in which industries are dormant if not in actual decline. For all our willingness to advise developing countries on appropriate measures to avoid or solve this or that social problem, neither we nor they should overlook the fact that advanced urban-industrial societies have comparable problems of great gravity about which little is known and next to nothing done.

The array of "social" problems opened up by a study of population composition and movement is paralleled by a range of personal or "individual" problems conventionally associated with cities and urbanization. In his famous essay, "Urbanism as a Way of Life," Louis Wirth tried to suggest the behavioral implications of life in an urban milieu. He identified four demographic and structural characteristics as the distinctive features of urbanism: great size, density, permanence, and heterogeneity, with the

last conceived as both occupational and "biological" in the form of ethnic and racial diversity. The rest of his paper was given over to a consideration of the ways in which these gross morphological features impinged upon individual personality and behavior in an urban setting. 2/ Wirth found in the city (as opposed to the country) sophisticated rationalism, a blasé attitude, competitive impersonality, and a sense of alienation from one's fellow men, thus giving a "scientific" formulation to a popular and political prejudice that the city was the locus of personal breakdown and deviant behavior. While he thought of the city as the historic center of progress, learning, and rising levels of living, he identified the pathological with the generic condition of city life. Nearly twenty years later, Wirth himself had cause to regret that social scientists had not developed a more coherent set of empirically-based propositions clarifying the major characteristics and problems of urban communities: "To set up ideal-typical polar concepts such as I have done . . . does not prove that city and country are fundamentally and necessarily different. It does not justify mistaking the hypothetical characteristics attributed to the urban and rural modes of life for established facts, as has so often been done. . ." 3/

It is now time to confront the conceptual problem of urbanization more squarely. While emphasizing the larger social significance of changes in the composition and distribution of population, we have intimated an unsatisfactory vagueness in the use of the concept "urban" and, as a consequence, a lack of understanding, if not outright misunderstanding, of the process of urbanization. Ideal-type constructs have rarely been put to the empirical test, and measurements of social differences along a <u>linear scale</u> of demarcation have begged most of the theoretical questions involved. Attributes of the original dichotomous "urban" and "rural" types were merely reaffirmed by definition and the assumption was made that attributes varied together with the same degree of "urban" and "rural" quality along the continuum. If, as Reiss has suggested, the variables selected to discriminate between "urban" and "rural" are themselves questionable, then the tasks of measurement and analysis remain unfulfilled. 4/

When the identification of urban characteristics is approached from a somewhat different angle by defining <u>prerequisites</u> of cities, the business of conceptualization is not advanced very far. Preconditions are by definition "pre-urban" and cannot, therefore, constitute distinctive attributes of urban communities as such. If anything, the emergence of such conditions in history should be considered in a broader societal or cultural framework. It would appear that many social scientists have been too readily inclined to deal with surface manifestations of city populations, more expecially of cities in the West, and to confine themselves to "intra-urban" problems. 5/ Phenomena which are found in cities are not necessarily urban <u>per se</u> and yet this is precisely what most students of the city have implied.

In light of serious shortcomings in the concept "urban" and of the very broad connotation that we have given to the word "social," it is difficult to resist the conclusion that many problems commonly identified with urbanization represent a concentration of social changes which are

otherwise dispersed and less visible. Not only are such problems intensified in a city milieu, they are more conspicuous there. Historical adjustments to changes in the United States around the turn of the last century are especially illuminating in this regard. The American city had long been stigmatized as a cockpit of anonymity, vice, personal and group corruption. Even those contemporary observers who conceded some relation between urbanization and economic progress expressed misgiving over the political and moral tendencies of city populations. It is significant, therefore, that at about the time when social scientists were superseding the reformers in the study of "the city problem," a new species of scientist also appeared in the countryside to succeed the older generation of moralizers and grass-roots improvers. While the public affiliations and private predilections of early rural sociologists obliged them to give due deference to the myth of agrarian innocence, their professional concern compelled them to take a more critical view of country life. 6/ They found an urgent need to reform its attitudes and ameliorate its conditions. In the country no less than in the city, there were problems: health, poverty, housing, education, and social relations, and even religion were found wanting. 7/ Many of their concerns "to make rural civilization as effective and satisfying as other civilization," in the words of Liberty Hyde Bailey, found expression in the Country-Life Movement during the administrations of Theodore Roosevelt and William Howard Taft. 8/

Nevertheless, the city was long considered "abnormal" and rural life was regarded as wholesome and sane. Evidently there were grave problems arising in both town and country but, preoccupied with pathological symptoms, investigators failed to develop a very clear criterion of what constituted a "normal" community by which the relevance of their findings could be judged. Both rural and urban sociologists seem to have accepted the compartmentalization of society and to have adopted superficial distinctions from economics between "industry" and "agriculture." The point, however, is that until the searching light of inquiry was turned on country life, it was easy and comforting to believe that critical problems of social change were confined to the city. There they were concentrated for all to see, and perhaps it is the high visibility of problems in an urban milieu that explains the myopia of so many social scientists.

The high visibility of social problems in cities is a consequence not of population concentration alone, but of narrow and near-sighted vision as well. What an observer sees in the city can only be established by relating his focus of interest to a larger context or framework; the proportions of what is seen are determined in part by the observer's choice of perspective. A casual observer sees what his predilections allow him to see, an expert sees what he is trained to see.

No less expert an observer than Charles Abrams, United Nations' and New York state housing consultant, has recently called attention to the world-wide movement to cities. His remarks, reported by the New York Times, February 15, 1961, reach the crux of issues discussed in this paper. Speaking before the Fourth National Conference on Cooperative Housing in Washington, D. C., Abrams pointed to rates of urban growth in Asia that "are

400 per cent higher than in the West." This movement, he declared, is virtually ignored at the "higher echelons" where United States foreign aid policy is made. Abrams cited the migration of homeless "squatters . . . into the nations' capitals and other political nerve centers." He thought it "more than a coincidence that twenty-four out of twnety-seven representatives to the Calcutta Corporation [city council] are now Communist. One of four of Calcutta's people are street-sleepers." Deploring the United States government's indifference to this problem, he recommended changes in both U. S. and U. N. policies on urban development and housing in underdeveloped areas, and concluded that, with "a relatively small outlay and some imagination," the United States could make a major contribution toward improving people's welfare and toward strengthening democratic principles. Abrams declared that the efforts of "good people" in various federal agencies were frustrated by highly-placed opponents of housing aid and even the little that gets done "is wrapped in confusion and conflict." 9/

There can be no doubt of the reality and importance of things to which Abrams refers. But he talks of so many things that it is difficult to discern the precise relationship of one to another. At least two contexts are given: the world-wide movement to cities and the larger framework of the Cold War. The link provided is the housing problem in great cities. However much we are inclined to agree with Abrams' point concerning the Calcutta housing problem or his contention that a " relatively small outlay and some imagination" could solve the problem of that city's 500,000-600,000 "street sleepers," it does not bear too closely on the question of foreign aid programs in the light of India's larger social-economic problem. During the last decade total Indian population grew by 21.5 per cent, life expectancy increased by ten years (largely as a consequence of a low cost anti-malarial program), per capita income by only 19 per cent, and the share of urban population by only 0.46 percentage points. The problem of urbanization in India is not adequately stated, let alone resolved, in terms of minor adjustments in foreign aid programs.

We cannot resist the conclusion that many Western experts try to formulate the problem of urbanization in underdeveloped areas either in terms of a counsel of perfection--the achievement of <u>optimum</u> or "balanced growth," and enormous social change without violence--or in terms of Cold War strategic logic--the achievement of <u>maximum</u> growth along rational lines with a necessary order of priorities, enormous and rapid social change, again without violence. We have neither the intellectual capacity nor the hard knowledge to warrant either formulation, and neither the history of Western countries nor the current situation in Western countries suggest that we have listened to such counsel ourselves.

SOME ALTERNATIVE APPROACHES TO CONCEPTUALIZATION AND MEASUREMENT

The behavioral approach.

Up to this point, urbanization has been discussed in highly general terms as if it involved little more than a changing distribution of popu-

lation in space. We are aware, however, that many students of urbanization have not been satisfied with such a narrow conception of the process. Anderson, for example, has argued that urbanization,

> "is more than a shifting of people from country to city and from landbound work to urban types of work. Merely moving a man to the city does not necessarily urbanize him (although it helps), while another rural man may be very much urbanized and never leave his rural work or habitat. Urbanization involves basic changes in the thinking and behavior of people and changes in their social values."10/

This approach focuses on urbanization as "behavioral change" in the sense that it is the conduct of men that is at issue. The point of reference is clearly the individual person; if he should possess or acquire certain patterns of behavior--urban ways of thinking and urban values--he may be said to be urbanized. Similarly, persons found in non-urban locales may be regarded as urbanized if they manifest these specified behavioral patterns. This approach has the advantage of not restricting urbanism to the city milieu. The process of urbanization is one undergone by individuals in the course of time.

The structural approach.

Ignoring the patterned behavior of individuals, a second concept of urbanization provides quite another emphasis by fastening upon the patterned activities of entire populations. The process of urbanization, in this approach, is seen as a reorganization of activities, or a shift in social and economic structure that places a population in a new relationship to its total environment. It is said to involve a transition from agricultural to non-agricultural pursuits, and a concomitant increase in specialization of economic activities. Indeed, although a whole complex of identifying traits may be listed, Sorokin and Zimmerman have argued for an "occupational" conception of the urbanization process:

> "The principal criterion of the rural society or population is occupational, collection and cultivation of plants and animals. Through it rural society differs from other, particularly urban, populations engaged in different occupational pursuits . . . Such is the first and fundamental criterion of difference between the rural and the other, and particularly urban, communities." 11/

From this conception flows a definition of urbanization as a "movement of people from communities concerned chiefly or solely with agriculture to other communities, generally larger, whose activities are primarily centered in government, trade, manufacture, or allied interests." 12/ As it happens, this structural or organizational view of urbanization necessarily gives recognition to the spatial aspect of human affairs. Agricultural activities are relatively extensive users of space; to use a crude locational dichotomy,

they are "field-oriented," while most non-agricultural pursuits are "center-oriented." Moreover, the interdependent nature of non-agricultural industries compels recognition of the territorial division of labor that is likely to emerge between geographic areas. In a very meaningful sense, this territorial division of labor is a reflection of the social and economic differentiation between occupations and industries.

The demographic approach.

A third conception of urbanization brings space to the forefront. Unlike the "structural" approach, it ignores what people do--their occupations, the industries in which they are employed, etc. Likewise, it eschews any concern with the "behavior" or conduct of individuals. This is the concept advanced most explicitly by Hope Tisdale Eldridge when she asserts that: "Urbanization is a process of population concentration." 13/ This view obviously represents a purely demographic approach to the subject. Only two elements are involved: people and space. As a definition of urbanization it is at once the most abstract, stripped of all but the most essential terms, and the least ambiguous, devoid of connotations that are vague or troublesome. It is thus the most simple and concrete.

These alternative approaches offer distinctive problems and possibilities. Each is suited to a different range of analytical questions and each presents its own difficulties in conceptualization and measurement. We are disposed to work primarily with the third--the demographic--for a number of reasons. As already indicated, it seems to offer the fewest ambiguities and the measurement problems that it entails appear closer to solution than those connected with either the "structural" or "behavioral" approaches. It offers the prospect of clarifying, if not resolving, some of the confusion regarding other aspects of urbanization mentioned above. It is an exclusive rather than inclusive definition. As Eldridge avers: "It eliminates or throws into different categories other processes which, though associated with urbanization, may have opposing effects upon it. The concomitants of urbanization are not to be ignored; they are simply to be distinguished from it." 14/ Finally, most comparative work on urbanization, unlike historical work on the subject, has employed this demographic approach. For this reason, if for no other, it is especially suited to the purpose of this paper.

Under the demographic definition, even cities themselves may be distinguished from urbanization. Cities are viewed as points of population concentration; they are the consequence of urbanization, not identical with it. Urbanization is thus a societal process which necessarily precedes the formation of cities. There is no reason why urbanization in a particular area may not be focussed on one single concentration and while, by definition, it will continue to grow, there is no necessity for its growth to outstrip the growth of total population. If, in fact the number of points of concentration grows, as well as their size, and if a majority of population does come to live in urban centers, these aspects of urbanization are not to be explained by the process, for they define the process. Other conditions must apply.

It may be objected that an austere demographic concept of urbanization will not lead to an explanation of the phenomenon, for it merely describes a social process. In order for cities to multiply and increase in size, one may argue, there must be not only population and space but means and motivations as well. Thus urbanization is sometimes said to be the outcome of "secular" or "material" value-systems. It has been argued, for example, that the growth of wealth in the United States indicates that Americans have prized material achievement. Insofar as increases in urbanization have been broadly associated with rising levels of affluence, then the growth of cities is a product of American values, and urbanization is explained by these values. Such a formulation, however, does not exclude the possibility of other values, e.g., "togetherness," "dislike of the countryside," "an unconscious desire for anonymity," "a drive for success," etc., from having produced the same result. Indeed, it opens up a veritable Pandora's box of possibilities. What, moreover, of urbanization in other countries and cultures? In any case, the resulting wealth of Americans may have been incidental to any or all of these possibilities or largely fortuitous.

Granted all this, it would still be necessary to demonstrate the primacy of "material" values over all other possible values, singly or in combination, for this particular formulation to hold. Even if this were possible--and some sociologists have attempted the task in the form, for example, of "pattern variables"--there would still be a problem of measurement. Even if all these difficulties were overcome, it would still be necessary to introduce a number of other "non-value" considerations and conditions in order to explain the particular pattern of community organization that has emerged. Moreover, it requires no special familiarity with history to recognize that the pattern has changed over time and, even if "material" values singly or in combination explain the existing distribution, there is no necessary reason why "non-value" conditions may not have determined it in the past. We cannot, in short, use the fact of affluence to explain affluence, let alone the pattern of community development that may or may not be associated with its achievement. The motivations that, among other things, give rise to organized human communities are doubtless inherent in the particular form of urbanization; they are, nevertheless, distinct from it and are in no generic sense "urban" as opposed to "rural" motivations.

The question of the relation of population movements to means is not so opaque. What a population does in, and with, its natural environment depends in large part on its material means. The geography of North America was the same for the indigenous populations as for the English immigrants; their collective responses to the environment were dramatically different. It is means, therefore, which at once create material abundance and give form and focus to related movements of people. In the broadest sense of the word, these means have been technological.

Neither population increase nor technological progress, however, are to be identified exclusively with cities, but they may give rise to urbanization and hence to the growth of cities. There are, in Eldridge's words, two necessary conditions for urbanization: "one is people and the other is

technology. Population increase and surplus feed the process; technology gives it form and focus." 15/ Population increase, technological means, and urbanization proceed together. They are interrelated but distinctive processes; they interact and the outcome is urbanization. As Eldridge suggests: "A population does not necessarily reach a certain density before it begins to urbanize. Technology does not have to wait on population." 16/ The actual number and size of population concentrations, however, are largely conditioned by the technological repertory. The existence of natural resources is, to be sure, a further consideration, but the availability of such resources is itself a function of technology and organization, as was implied in our example of the English colonists and the aboriginal Americans.

Broadly speaking, the larger and more differentiated the technological repertory, the larger and more diverse the potential resource inventory; resource inputs per unit of output tend to decline with each additional input of technology. It is surely not a matter of indifference what resources exist and where, but the limiting effects of their presence and quality may be offset by advances in technology and organization. Innovations which affect communications, transportation, and sustenance potentials, therefore, condition the patterning of occupations and population. Technology is the sine qua non of urbanization but the reverse is not true: "Technology is not the exclusive property of the city," according to Eldridge: "it operates in every province and pocket of society." 17/ Thus the demographic approach not only defines the process of urbanization with absolute parsimony but, with the addition of one variable, explains the prevailing pattern of urbanization at any time, how that pattern emerged historically, and what the outline of its future shape may be.

In this way, it is hoped that the problem of explaining the process of urbanization--identifying its determinants--becomes more amenable to solution. By the same token, the investigator is in a better position to undertake analyses of the consequences of massing into cities. The demographic conception of urbanization is thus not as constricting as it might have first appeared; its scope permits inquiry into a number of important facets of social change while its root in population preserves the vital interest in characteristics and conditions of human beings living in organized communities, from the immediate family to the world at large. Distribution of numbers in space is of central interest, of course, but population analysis, historical and comparative, is no less concerned with the changing composition of population in areas of different type, and with the sources and outcome of such change. All of these interests have their place in the study of urbanization, and exponents of this view need defer to no other social scientist, regardless of his perspective, in their solicitude for human beings and their fate.

Measurement.

Having clarified some of the conceptual issues and indicated the heuristic merit of a demographic view of urbanization, it remains only to consider the possibilities of measurement. Simple as it is, the demographic

concept lends itself to a variety of measurement possibilities. We now briefly explore some of these possibilities, introducing a number of distinctions that seem pertinent to our task, and indicating how wide is the area of manageable inquiry that the demographic approach affords. First of all, this approach focuses attention on the number of points of concentration to be found in a country or region and the sheer number of cities, however defined, is a datum that reveals a great deal about the distribution of population in an area. A more interesting question is the ratio of cities to total population in an area. The ratio of cities to total rural population may be of equal interest, particularly from the standpoint of rural-urban migration. Countries vary in the number of possible urban destinations open to migrants of rural origin. This stream of movement, moreover, diminishes as more of the population is urbanized: the potential pool of rural-to-urban migrants becomes relatively smaller. As a consequence, more movements originate in and terminate in urban areas. 18/

Still another feature for measurement centers around the number of urban places of different size. Two aspects of this question, which may be termed the "structure" of urbanization, have been the subject of considerable speculation in recent years: (1) the extent to which there is a discernible order in the distribution of cities by size; (2) the extent to which the largest city exhibits a numerical preponderance over other smaller cities. The first aspect involves discussions of the so-called "rank-size" rule or, more generally, the Pareto distribution. 19/ The second turns on the relative magnitude of the largest or "primate" city. By far the most attention, however, has been directed toward the simple proportion of the total population to be found in cities, or in cities of a certain size. This measure may be taken as an indicator of the degree or level of urbanization discernible at a given point in time and it is the most familiar indicator to be found in the empirical literature of every discipline.

A feature that should be sharply distinguished from the level of urbanization--which is intrinsically static in conception--is the rate of urbanization. Here the analyst has a variety of indicators at his disposal. The most common measure, of course, is the percentage increase in urban and rural sectors. An alternative that is occasionally employed is the percentage-point difference between the proportions urban (or rural) at two different points in time; such a measure expresses, in effect, the net shift in levels of urbanization that has occurred in the time interval under investigation. Still other measures that recommend themselves for certain purposes are the proportional shares of total national or regional growth that accrue to rural and urban areas, and the ratio of these shares to those "expected" on the basis of the prevailing balance between rural and urban sectors at the beginning of the period under study. (Each of these measures can be elaborated by the use of city size-classes in place of the simple rural-urban dichotomy.)

A range of alternative measures can be readily developed, in fact, by reference to the ways in which the process of urbanization is said to proceed. The multiplication of cities, for example, can be measured quite readily in relative terms. Growth on the part of particular places can also be subjected to measurement. One can examine the individual performances of particular places, or one can group them into, say, size classes and observe

the relative gains registered therein. Finally, one can observe shifts in the numerical distribution of cities by size and in the shares of either total or urban population resident in the largest city or cities, or in size classes.

All of this is merely to suggest the variety of measures and analytical possibilities open to the investigator working with a narrowly demographic view of urbanization. This holds whether the focus of inquiry is on static or dynamic aspects of the phenomenon. No one of the measures is superior for all purposes and choice of a measure is, as always, ideally conditioned by the analytical purposes of the investigator. It is true, nevertheless, that two measures have received the greatest use by demographers and most other students of urbanization. These are: (1) levels: the proportions of total population found in variously defined rural and urban sectors, and (2) rates: growth observed in these sectors during a given interval of time. They constitute, respectively, the most frequently used indicators of the static and dynamic dimensions of urbanization.

The demographer, of course, is no magician; he cannot produce reliable results from unreliable sources. All census enumerations, for example, are subject to a variable degree of error: undercounts here, overcounts there, and occasional confusions of categories by the counters and counted everywhere. These shortcomings in the data are compounded for the historical demographer. Census categories are changed, items covered at one date are dropped at another and sometimes reappear later under a different title. Once the historian gets back before the first official census in any country, he must rely, for the most part, on fugitive sources, particular counts that have no claim to comprehension, such as directories, parish registers of births and deaths, "books of souls," various lists of taxpayers, the wildest estimates of contemporaries, and so forth. 20/ If he lacks numerological powers, the historical demographer, nevertheless, has had to develop all the arts of the conjurer in manipulating even the official census data to make his results consistent and comparable over time. 21/ This fact alone accounts for the paucity of historical studies of urbanization.

Given reliable data, the salient problems confronting the student of urbanization today are those of validity and comparability in time and place. How is the "urban" area to be delimited? The most common criteria, employed by censuses, are size and density (purely demographic indicators) and political or administrative status. Conceptual nicety is blunted, however, by the necessity of working with areas that are administratively bounded: for example, the legal territorial limits of municipalities. Finally, the definitions of "urban" not only vary over time within census systems but, more important, differ radically at all times between census systems. 22/ These data problems have probably discouraged many demographers from working in this area on a comparative basis. Formidable and perplexing as they may be, these difficulties are not insuperable. Time and money spent on their resolution would greatly enhance the scope and significance of comparative urban research. 23/

Idiosyncrasies of definition may themselves affect the apparent rate of growth of urban population in some areas. For example, if a country classifies populations in communities of 2,500 and over as "urban," all populations in places 2,499 and under at one census may be classified as "rural." Suppose there are ten of these places at the time with 2,490 inhabitants each; it will require a net increase of only 100 people evenly distributed among them at the next enumeration to add, other things being equal, up to 25,000 to the country's total "urban" population. Where there are many such places--and this is not unlikely in countries with high birth rates in "rural" villages--the rate of urbanization in the country may appear sizeable, although the actual increase in the communities concerned is quite small and very little else is otherwise changed. A proportion of the new "urban" population will almost always be a consequence of old "rural" population crossing the arbitrary urban threshold established by the census authority: for example, new incorporations.

Apart from anomalies of this sort that are rooted in dilemmas of definition, urban population can grow in only two ways--by natural increase, an excess of births over deaths, and by net migration, an excess of in-migrants over out-migrants. Migration to the city may have its origin within the boundaries of the country in question, in which case it is labelled "internal" migration and its component streams may originate in other urban as well as rural areas. Most demographic interest, however, has centered on rural-to-urban movements; and we shall stress these in the present paper, but it is apparent that the stream from the countryside diminishes once a nation has reached a high level of urbanization.

Historically, of course, urban growth in the United States was swollen considerably by "international" migration, as indeed was urbanization in other American countries and elsewhere. By 1910, for example, the proportion of foreign-born in the urban population of the United States already increased directly with city-size; the same relationship could still be found in 1950. 24/ Such international movements have subsided in recent years, except for special cases like Israel, and now seem to be of limited consequence. It is sufficient to note that a large part of international migration probably involved "rural-to-urban" movement, with the migrants coming, for example, from rural areas of Europe to the burgeoning cities of North America. In the case of rural aliens, the usual adjustment problems which rural people face in cities were doubtless intensified, and American urban history often tells more about the social and political problems of "Americanization" than it does about problems of urbanization.

Unfortunately, detailed historical inquiry into compositional features of these many-faceted movements to cities is hampered by lack of adequate data with respect to characteristics of migrants of every description. Even the bare outline of the cityward movement is obscure, let alone any analysis of migration differentials. Likewise, the historical contributions of natural increase to the growth of cities are not known in detail. Adequate registration data on births and deaths are not generally available in sufficiently long series to permit any precise measurement. In general, however, differentials between urban and rural birth rates would indicate that

migration has been much more important in urban growth, by virtue of its direct and indirect contributions (the latter via births to migrants). Some rather unique materials from the United States for the decade 1900-1910 suggest the possibilities of such analysis for social history. Thus, of 11,826,000 new city dwellers in 1910, some 41.0 per cent were alien immigrants, 29.8 per cent were native rural-to-urban migrants, 21.6 per cent came from natural increase, and a residual 7.6 per cent, the result of incorporation of new territories. 25/

In the light of this review of conceptual problems, we next consider the historical phenomenon of urbanization in its relation to social change.

URBANIZATION IN HISTORICAL PERSPECTIVE

Human populations have been forming into "cities" for nearly seven thousand years. For much of that time, however, recognizable urban settlements were confined under restrictive environmental conditions to a few widely separated areas on the earth's surface, and at no time did the cities themselves contain more than a minute fraction of the total population.

The last two centuries have witnessed an unprecedented urbanization of rapidly growing population throughout the world, with ramifications that mark it as one of the crucial disjunctions of human history. It is as if whatever conditions had hitherto checked the growth and redistribution of population had been suddenly relaxed. In terms of urban history, it represents the most far-reaching change since the initial "urban revolution" of Neolithic times.

The urban explosion.

These statements are so sweeping as to require documentation. Fortunately, the careful scholarship of Kingsley Davis and Hilda Hertz Golden has yielded a set of firm estimates on which we may draw. In the present section, all the historical statistics except those in Table V are based on their work.

As recently as 1800, only about 3 per cent of the world's estimated population of 906 millions resided in 750 local concentrations of more than 5,000 inhabitants; by 1950, however, the number of such places had risen to 27,600 and they contained almost 30 per cent of an estimated 2.4 billion population. Whereas world population had increased by nearly 165 per cent between 1800 and 1950, world urban population had risen by 2,535 per cent. This disparity of rates gives a rough quantitative expression to what we have termed the "urban explosion." (See Table I) Since 1850 the larger cities have come to contain a rising proportion of all urban residents. (See Table II)

The rapid explosion of urban population after 1800 and of large-city population after 1850 did not, of course, affect all parts of the world in equal measure. In 1800, for example, only Europe had a greater relative concentration of large-city population than the world as a whole. (See Table III) By 1850, however, the Americas had also achieved this distinction and, by the close of the nineteenth century, both America and Oceania (mostly Australasia) not only had greater relative large-city concentrations than the world as a whole, but had surpassed even Europe in this respect. As of 1950, Oceania, America, and Europe still contained the greatest relative concentration of large-city dwellers but by the middle of this century the growth of great cities was proceeding at a much faster rate in Africa and Asia than in any of the other major continental regions. (See Table IV) If Russia is treated separately from Europe, then it shares with the Americas the distinction of being the only region to have achieved rates of growth for large-city population above the world average for the entire century and a half, and it stands between Asia and Africa for the fastest rates of growth during the present century.

So much for the bare demographic facts of recent urban history. How do we explain them? Does urbanization necessarily entail economic and social change? Or, to pose the question differently, can economic and social change occur without urbanization? By abruptly introducing such considerations we move at once to the heart of our present concern. Judged by the limited amount of attention paid to urbanization in the literature of economics, such questions are largely irrelevant. At the other extreme, some sociologists make urbanization coterminous with recent social change and treat contemporary society in the United States and a few other countries as "urban" or "urban-industrial" societies. It is possible, however, to inquire whether a given level of urbanization is always, frequently, or rarely associated with definite levels of economic and/or social development. Do varying rates of urbanization correspond directly with rates of development, and vice versa? Finally, it may be asked, regardless of answers to the previous questions, in what ways and to what extent is urbanization likely to impede or facilitate such changes? It must be said at the outset that, in spite of the lively interest in economic development and social change recently exhibited on all sides, no consensus exists on answers to these questions nor even an agreement on ways to obtain answers. The rest of this paper will be concerned with exploring means by which some of the issues raised in these questions may be clarified.

Throughout most of the 5,000 years of urban history down to the close of the eighteenth century, it is doubtful whether urbanization ever affected as much as 3 per cent of world population or more than 10-15 per cent of population on a restricted regional or "local" basis. Yet in the relatively brief span of the Christian era alone, the net increase in world population to 1800 may have been as large as 700 millions, and far-reaching economic and social transformations must have occurred in many parts of the world without benefit of sustained urbanization. A change of two or three percentage points in levels of urbanization in the Roman world or

the European High Middle Ages, however sufficed to mark significant turning points in the development of an entire civilization. Although we rarely speak of an "urban" society before the nineteenth century (except on a very local basis), we persist in regarding European civilization, for example, as an "urban" civilization and confidently assert that a small number of ancient and medieval cities were the loci for economic, social, and cultural innovations which sooner or later transformed society. Within this single but many-sided tradition it is, nevertheless, clear that profound changes took place out of all proportion to the numbers of people ever involved in movements to cities. The most that can be said is that variations in rates rather than levels of urbanization may reflect more profound social changes. Even this guarded statement needs qualification. Overly impressed, perhaps, with changes that have taken place since the eighteenth century, it is possible, in the words of a medievalist, that "our teachers and our experience. . . conspire to make us exaggerate the meaning of urbanism." 26/

On the other hand, it may be argued that--regardless of actual numbers and relative proportions involved--the concentration of population in and around urban centers has always entailed far-reaching changes in the social order: multiplication of functions carried on in cities, adjustment of relations between town and country, and a growing complexity of social organization generally. Lewis Mumford speaks of the "urban implosion." 27/ We have termed the changes "differentiation." Specifically, concentration and differentiation heighten the need for continuity and communication among the more specialized parts of society within and without the city. Interdependence is achieved by instituting means of coordination. Concentration, however, also enhances opportunities for interaction and contact among differentiated groups and individuals and thereby heightens a society's potential for meeting its needs of communication and order. The realization of larger social entities is achieved by organizing greater and more varied interchanges of goods, services, people, and information through more or less differentiated points of concentration. The greater the accessibility of such points in organized interchanges, the more likely are they to grow by differentiation as opposed to mere agglomeration. Division of labor, stratification, and centralization are among the principal institutional means to implement this larger comity. They are not so much the results of social change, therefore, as its immanent forms. 28/

Such institutional forms are difficult to identify and measure with precision, much more difficult than either levels or rates of urbanization. Differentiation and stratification are found to characterize all human communities in greater or lesser degree and are not distinctive or generic properties of "urban" communities as such. Rudimentary division of labor, together with patterns of superordination and subordination, exist in the smallest villages and most primitive bands. Perfectly ubiquitous structural-functional characteristics cannot be readily combined, therefore, with other sets of political, legal, intellectual, and behavioral characteristics which allegedly do discriminate among "urban" and various "non-urban" type communities: "rural," "folk," "independent," etc. This point is not always made clear by the authors of works in urban sociology and city history. If

TABLE I. WORLD POPULATION AND WORLD URBAN POPULATION, 1800-1950

Year	World Population (in millions)	Population in cities 5,000 and over (in millions)	Per cent in cities 5,000 and over
1800	906	27.2	3.0
1850	1,171	74.9	6.4
1900	1,608	218.7	13.6
1950	2,400	716.7	29.8

TABLE II. GROWTH RATES OF WORLD POPULATION, AND POPULATION OF SMALLER AND LARGER CITIES, 1800-1950.

Period	World population	Per cent change in cities under 100,000	Per cent change in cities 100,000 and over
1800-1850	29.2	308.6	76.3
1850-1900	37.3	174.5	222.2
1900-1950	49.3	209.8	254.1

TABLE III. PER CENT OF REGIONAL POPULATIONS IN LARGE CITIES (100,000 AND OVER), 1800-1950

Region	1800	1850	1900	1950
WORLD	1.7	2.3	5.5	13.1
Asia	1.6	1.7	2.1	7.5
Europe*	*2.9*	*4.9*	*11.9*	*19.9*
Africa	0.3	0.2	1.1	5.2
America	*0.4*	*3.0*	*12.8*	*22.6*
Oceania	-	-	*21.7*	*39.2*

* Europe includes the whole of Russia. Regions above the world average are italicized.

TABLE IV. RATES OF GROWTH OF LARGE CITIES (100,000 AND OVER) BY REGIONS, 1800-1950

Region	1800-1850	1850-1900	1900-1950
WORLD	76.3	222.2	254.1
Asia	24.5	59.0	*444.3*
Europe*	*144.4*	*263.6*	146.3
Africa	-16.8	*460.0*	*628.6*
America	*1284.6*	*933.3*	*301.1*
Oceania	-	-	80.6

* Europe includes the whole of Russia. Regions above the world average are italicized.

we attempt to designate the more elaborate and complex of these community structures (howsoever defined) as "urbanized," we have not advanced our understanding much beyond that achieved by a simple measurement of levels and rates of urbanization. The larger the actual numbers and relative proportion of total population residing in such concentrations, then the more urbanized is the society involved.

One additional point has emerged: the word "urbanized" must refer to something more than the presence of cities or the existence of distinctively "urban" communities as such. Urbanization must be viewed as a societal process which goes on outside, if not apart from, cities. Cities are a result of urbanization. Urbanization must antedate their formation and they may continue to exist long after urbanization has subsided or ceased altogether.

Highly urbanized societies have only emerged during the brief span of the urban explosion since the late eighteenth century. Between 1800 and 1950, the net increase in world urban population alone (nearly 690 millions) was nearly 80 per cent as large as world total population in 1800.

Where did these phenomenal increases in urban population come from? There can only be one answer to this question: in overwhelming measure, from the countryside. Birth rates of urban population would have had to reach inhuman levels in order to yield an increase of this magnitude. In fact, birth rates of non-urban population were much higher than birth rates of urban population throughout this period in countries for which we have reliable historical information. In a sense, therefore, the "urban" explosion is a misnomer. Insofar as population is concerned, the awesome phenomenon we are discussing is a "rural" explosion. The shifting balance between country and town over the last century and a half reflects an eruption of the countryside following upon the decline of death rates. Here, as elsewhere, we see that the study of urbanization is a study of changes in country as well as town and that any divorce of the two, even for analytical purposes, may lead to a serious misunderstanding of the process itself.

We may go one step further: if we wish to identify social and economic changes connected with sustained urbanization, we should look first at the "non-urban" or "rural" sector. The transfer of so many people in so short a time from one milieu to another should have had a notable effect on the size and structure of rural communities in every area affected by urbanization. A backward glance at Table I immediately reveals that, in spite of rapid urbanization of world population, the absolute number of non-urban population has not yet fallen. In 1800, non-urban population stood around 878.8 millions and by 1950 it had climbed to 1,683.3 millions. In the first half of the present century it has increased by 21.2 per cent. (See Table V)

TABLE V. RATES OF GROWTH THE WORLD'S NON-URBAN POPULATION, 1800-1950

Period	Percentage Increase
1800-1850	24.7
1850-1900	26.7
1900-1950	21.2

In other words, rapid rates of urbanization achieved in the early nineteenth century and resulting increases in levels of urbanization everywhere, outside of Africa, did not reduce the absolute size of rural populations anywhere. Only in the twentieth century, in fact, has the rate of growth of the world's rural population slackened somewhat. Thus, urbanization, by definition, reduces the relative size of rural population but does not ensure its absolute reduction either in the short or long run. This depends on the rate of total population growth as well as on the rate of urbanization, although an increase in the latter may well contribute to the reduction of the former via its effects on fertility.

The case of modern Japan shows that a growth of total population, with a continuing absolute increase in rural population, is not incompatible with sustained economic development, provided it is accompanied by rapid urbanization. Between 1898 and 1955, Japanese population increased by about 96.6 per cent to 89 millions, but much the greater part of this increment was absorbed in urbanizing areas, especially after World War I. From 1920 to 1940, for example, net out-migration from communities of less than 5,000 inhabitants absorbed all but 19 per cent of their total natural increase of 7.8 millions and their absolute numbers net rose by only 1.5 millions. 29/ In the case of India, the situation appears far less favorable. During the period 1901-1961, Indian population (excluding the territory of Pakistan at both dates) increased from 235 millions to 438 millions, or by 86.4 per cent. In the last decade, population increased by 21.5 per cent but the portion classified as "urban" rose only from 17.4 to 17.8 per cent. In other words, by far the larger part of the decennial increment was absorbed in rural communities.

Urbanization may increase the absolute size of city populations without reducing the absolute size of rural populations. It is likely, however, to change certain structural features of the rising population and, most obviously, its occupational structure in both town and country. Almost everywhere, the level of urbanization in a country is inversely correlated with the extent to which the labor force is occupied in agriculture. Davis and Golden have demonstrated, for example, that areas of the world grouped by the proportion of males gainfully employed in agriculture show a consistent pattern of decreasing urbanization with increasing dependence on agriculture. (See Table VI) By continental regions the pattern remains essentially the same, with the exception of Oceania which has a relatively small total population and only a minute share of world population. Furthermore, countries with more than 50 per cent of males in agriculture have roughly the same number of people living in large cities of 100,000 and over (160 millions) as the less agricultural nations (155 millions). If the proportion of gainfully occupied males in agriculture is regarded as an index of economic development, however, the less developed areas are less urbanized than the more developed areas.

A more searching economic index is agricultural density, which shows the numbers of males in agriculture per square mile of agricultural land. This varies, of course, with type of crop. Though there is no correlation between level of urbanization and density of national population, Davis and Golden have shown an inverse correlation between urbanization and agricultural density: countries with the smallest proportion of urban population generally have high agricultural density. Leaving aside the matter of agricultural

imports for the moment, the agriculture of highly urbanized countries would appear to be very efficient. Their low agricultural densities indicate an advanced agricultural technology and relatively high productivity on the farm. As a consequence, they need relatively fewer people in farming to support their larger populations in the cities. Historically, the growth of urban populations eventually necessitates the industrialization of agriculture in order to achieve higher productivity on the farm, and by the same token, it entails the industrialization of non-agricultural occupations.

TABLE VI. LEVEL OF URBANIZATION IN THE WORLD'S COUNTRIES AND TERRITORIES CLASSIFIED BY LEVEL OF AGRICULTURALISM

Per Cent of Gainfully-Occupied Males in Agriculture	Number of Countries	Per Cent of Population in Cities 100,000 and over
0-19	11	32.3
20-29	11	23.6
30-39	7	23.2
40-49	7	21.9
50-59	16	17.7
60-69	17	8.9
70+	86	6.3

In countries like the United States or England, where these societal processes have gone very far, agricultural productivity has risen dramatically, population has crowded into cities, and enjoyed rising average levels of personal income. The more recent absolute increases in rural population in both of these countries do not represent a return to agriculture, except for a brief interval during the severe economic depression of the early 1930's. In the United States, for example, the agricultural labor force, 10 years old and over, fell from 12.3 millions in 1910 to 6.9 millions in 1950, rural population on the other hand rose from 49.9 millions in 1910 to 61.7 millions at the mid-century. Whereas in 1910 some 24.6 per cent of rural population was occupied in agriculture, by 1950 the proportion was reduced to 11.2 per cent. Thus, the growth of rural population in a highly urbanized country is a growth of rural non-farm population, a sector that is only nominally "rural," consisting of urbanites in the main. 30/

If the problem of underdeveloped areas is adjudged to be, at bottom, one of rapidly rising population with excessive rural-agricultural density and low agricultural productivity then, if per capita personal incomes are not to fall, both agricultural and non-agricultural activities must be industrialized. A growing share of the countryside's exploding population must be transferred from agriculture into specialized non-agricultural activity and productivity in both sectors raised. This will, at least, relieve the pressure of increasing agricultural density and permit of increases in farm productivity, though it will not necessarily mitigate the

pressures of rural density unless the bulk of the enlarged non-agricultural population is absorbed in urbanizing areas. Pressures on the city will then become intense under any circumstances through an influx of rural population; hence the growing city populations have to achieve specialized non-agricultural occupations and levels of productivity which enable them to sustain rising levels of per capita personal incomes.

Unless all of these changes can be brought about more or less simultaneously and kept in some kind of "balance," rural poverty may simply be transferred to an urban setting, exacerbating conditions in the cities without providing substantial amelioration in the countryside, since the absolute size of rural population is not likely to fall. The adjustment resulting from the expulsion of "underemployed" rural-agricultural population will be one of over-urbanization and underdevelopment. This will be a different situation from the prevailing one but, while none of the older problems will have been solved, new ones will have been added: "problems" of the cities. Over-urbanization and "over-ruralization" may thus exist at the same time and that is the essence of the population problem in many underdeveloped countries. Pressures on both cities and countryside might be reduced somewhat, however, if some of the non-agricultural population can be retained in the countryside in occupations specialized away from agriculture. A practical solution to the problem of creating a non-agricultural population with rising levels of per capita income is thus not exclusively to be found in the city, let alone the large city. An "optimum" rate of urbanization which lifts an underdeveloped area out of its present predicament is not necessarily the "maximum" rate. The maximum may simply jolt the area into a no less critical condition of "over-urbanization" and "underdevelopment."

Japanese development after the Meiji Restoration provides a special case representing, if not an "optimal" transformation, a remarkably "balanced" one: an outcome of peculiar historical circumstances. Japan achieved increases in farm output and productivity, together with a more rapid growth of non-agricultural sectors, without experiencing all of the extreme adjustments which characterized industrialization in many "western" countries. During the earlier phase down to World War I, the transformations proceeded at what seem to have been singularly "balanced" rates, at least in the light of postwar Japanese developments and the situation in many developing countries today. A non-agricultural labor force was created largely out of rural migrants, without any reduction of rural population (residents of communes under 10,000 increased by 13.2 per cent, 1888-1918) and with but a slight decline in the size of the agricultural labor force (about 5.5 per cent over roughly the same years). Over roughly the same period, the net output of agriculture rose dramatically, but net output of manufacturing and service industries made even more spectacular gains. 31/

The disparity in rates of growth among the different sectors in the Japanese economy is not to be taken as evidence of "imbalance." Throughout most of the period in question, the price of rice rose in line with the general level of prices, terms of trade between agriculture and other sectors remained steady apart from short-run fluctuations, and an

evident shortage of domestically produced food, from the early 'nineties, did not engender severe inflationary pressures. Moreover, the size of family farms, the distribution between peasant proprietors and tenants, and high rents in kind remained fairly constant. If anything, the burden of the land tax on farmers was reduced owing to increased production. Thus while total population increased by 44.8 per cent and the share in communes of 10,000 and over rose by 265 per cent over the years 1888-1918, a traditional type of agriculture and rural society endured.

Agricultural improvement in Japan took the form of intensive production: better irrigation and drainage, and some increase in the area of paddy on the one hand, and increased input of manures, superior seeds, and better cultivation on the other. By such means the agricultural sector contributed to the industrialization of other sectors by releasing food and population and, through silk and tea, contributed to a commercialized export surplus which permitted the import of capital. It did not, however, produce enough food; imports of rice became heavy after 1903 and very heavy after 1917. Pressures on domestic agriculture became increasingly severe after 1920 but rural society does not seem to have been devastated by continuing industrialization.

While Japanese family tradition imparted strength to rural society, it also eased the economic situation of country people. Their income-earning opportunities were never confined to farming: household manufactures, small factories, services, and distributive trades, for example, supplemented the income of farm families and mitigated the worst consequences of mounting pressures on agriculture. Departure from agriculture and eventual depression of agriculture, as Irene Taeuber has suggested, did not mean industrialization or even urbanization in the narrow technical sense of divorce from agricultural activity and rural residence, they were rather pervasive processes throughout the economy which affected every region and every prefecture within a region:

> "Urbanization was city growth, but it was much more. It was the total transformation of regions as they moved from the ancient agrarian to the modern industrial base. There was industrialization and urbanization within each prefecture, and there were continuing migrant flows from the less industrial and urban to the more industrial and urban prefectures." 32/

Down to World War I, at least, the rate of Japanese economic growth just sufficed to absorb the surplus over and above replacement population by non-agricultural sectors in town and country. If the experience of one country ever has much practical relevance to the situation in another country at a later date, then the developing countries of Asia (rice cultures in particular) might look to the Japanese case for "lessons" rather than to the United States or the U. S. S. R.

Until the inter-World War years, Japanese experience of industrialization deviates sharply from that of the United States or England and again from such continental countries as Sweden or France. It was more comfortable

and its immediate impact on agriculture and rural society, on the whole, less severe. There were, to be sure, elements or processes in common: generally faster rates of growth in output and income in the non-agricultural sectors, shifts of rural artisans and farm workers to more urbanized and larger-scale manufactures, increases in the size of fixed capital, realization of economies of scale and concentration, growth and modernization of a business-investing class, etc. Some of these tendencies were even visible in countries like Russia, India, and Mexico by the early years of this century, albeit in a more localized or metropolitan form. Similar "problems" of public health, housing, nutrition, congestion, delinquency, not to mention other conspicuous "evils of the city," had also appeared as concomitants of urbanization.

Such parallels, however, do not reveal an undifferentiated pattern of industrialization or urbanization, nor do they support a hardened stereotype of successive "growth stages," founded, disclaimers notwithstanding, on a few overly aggregated statistical measures. Changes in the relative income share of Japanese agriculture, for example, decreased more rapidly than in most European sequences of industrialization but the relative labor force share did not; this reflected, in part, higher agricultural density, lower levels of labor productivity, and lower capital coefficients in the Japanese case. 33/ Movements and measures to reform institutions and conditions likewise bear superficial resemblance in many countries both in accommodating commercial and industrial needs and interests and, to a lesser extent, in emancipating and molifying the working classes, but they occur under diverse auspices and serve divergent political ends. Thus, the axiom that, if non-agriculture is to grow more rapidly, agriculture must "export" population and products to the city, and the corollary that per capita output in agriculture must grow, do not account for the rates and resulting levels of such changes in actual historical contexts. Giving different values to terms in equations may indicate (all other things being equal) limits to possible changes. Well-founded in logic they, nevertheless, foretell little about experience and provide no certain guide for policy.

Thus many of the fine logical formulations and theoretical confrontations that have arisen in the economic literature concerning "balanced growth" versus "big push" or "forced" development are blunted and blurred by the concrete evidence and diverse experience to be found in the economic histories of major industrial nations. "Problems" must indeed be formulated in logical terms but, when so many nineteenth-century economists surrendered their classical interest in growth analysis (inherited from Smith and Malthus) for the sharper but more limited neoclassical focus on optimal allocation, they excluded most of the crucial exogenous growth variables from their logical frame of reference. By the mid-twentieth century, they had realized that economic growth was too important a subject to be left to historians; they swallowed their orthodoxy, and belatedly re-entered the field. For all the real advance that this has meant, it does not allow the economists to claim sovereignty in the formulation of development policy. Thus, the decision-makers should be skeptical of those who reduce the issues of the world to allegedly mutually exclusive questions of maximizing output by an allocation of factors which achieve equal marginal or marginal social product on the one hand or the

equal marginal per capita reinvestment quotient of capital among alternative uses, on the other. To represent the latter, moreover, as a totalitarian-political solution (indifferent to the needs of consumers) or the former as the liberal-economic solution (especially cognizant of humane values) is a disservice to serious debate. It smacks unnecessarily of querulous dogmatics.

The reasoning, for example, of Howard S. Ellis against the requirement of huge initial increases in the rate of savings and investment 34/ or the argument of Walter Galenson and Harvey Leibenstein in favor of an initial effort sufficient to raise per capita incomes so as to achieve savings and maximize capital/labor ratios, are equally cogent within their respective frames of reference. 35/ Ellis provides a more adequate description of the way in which growth has been accomplished in the past but he neglects many of the severe social and political tensions that disfigured even the "successful" developments. Galenson and Leibenstein provide a more searching analysis of growth problems today, at least for parts of the world sinking under the combined weight of population increase, low productivity, and capital shortage. They underestimate, perhaps, the severe shortage of both administrative-political and entrepreneurial talents on which the implementation of their more radical solution depends. Nevertheless, they specifically grapple with the population problem and seek to turn the phenomenon of urbanization to particular advantage. Thus, the cityward migration should be reduced to minimize the social costs of urbanization, such as the large investment in housing, sanitation, water, and canteens required in Turkey or the allocation of 18 per cent of projected capital investment to "social capital" under the Colombo plan. They argue, moreover, that the achievement of high initial productivity of labor, under their marginal per capita reinvestment quotient criterion, will yield a lower rate of urbanization cost to output per worker (than under the orthodox criterion of social marginal productivity) and thus help maximize the rate of local capital formation. On the other hand, they advocate increasing the rate of rural-to-urban migration in order to facilitate the reduction of fertility rates in an urban milieu. The paradox inherent in these two apparently contradictory courses is easily resolved--in theory: "Both the fertility effect and the social transfer costs effect must be taken into account and balanced against one another in terms of their combined effect on the eventual capital/labor ratio." Thus, increasing wages and productivity in the new urban milieu will hopefully make for rising average levels of living and thereby, as Malthus suggested in his Principles of Political Economy, create the proper atmosphere for fertility decline. Furthermore, the part of social transfer cost that aids in fertility reduction may be regarded as an indirect investment toward increasing the capital/labor ratio. Expenditures on educational activities, birth control clinics, and other facilities that produce attitudes conducive to fertility decline contribute to future increases in capital per worker and per capita output potential.

This "optimal" rate of urbanization is an intriguing possibility but it is too fanciful in its present form to be other than a theoretical "insight." If it were taken out of the narrow context of economic investment criteria and placed in a broader framework of social policy principle, it might indeed serve a very practical end. It is essential to realize that social policy, while inseparable from economic policy in budgetary practice,

is itself a distinctive and crucial frame of reference. Social policy exists in its own right and, what we take to have been Charles Abrams' point in his address before the National Cooperative Housing Conference, it is not to be regarded as an afterthought: a hastily improvised budget-conscious clearing-up operation to revive and rehabilitate the human and physical debris battered by industrial-urbanization and economic progress.

Economic progress achieved at the price of short-run retrogression in the context of many of the developing countries could only be self-defeating in the long-run. And yet this is a likely outcome, if in different ways, of the importunate policies advocated by economists of both liberal and totalitarian persuasions, whatever their euphemistic rhetoric of assistance and promises of pie now or later on. The pie is likely to remain in the sky. What we need urgently is a frank recognition that human investment or social investment are not categories separate from economic investment, although they entail much more than the conventional concern with capital formation and manufacturing investment would allow. The urgency in this regard moreover is not for quantitative answers but for principle. At the moment, as A. M. Martin and W. A. Lewis have suggested, there is no overall concept or theory of balanced growth in this wider social sense applicable to the expenditure policies of developing countries. 36/ Meanwhile, there is the chaotic scramble for the division of available funds between the private and public sectors, disagreement on priorities, and competition within the political bureaucracies themselves. Until questions of social principle have been answered, preferably by representative means, the economic or fiscal calculus cannot be applied to best advantage. As things now stand, economic policies are, in fact, being fashioned according to a rather vague and ill-defined social criterion: a rising level of living.

As suggested earlier, the question of "balanced growth" involves much more than a narrow economic judgment if countries are to escape from the population "dilemma" without being caught between the Scylla of over-urbanization and the Charybdis of underdevelopment. We submit that it requires a forthright discussion of social policy principles in order to achieve a more appropriate accommodation between social and economic programs. To be sure, this will raise awkward political questions which, if loaded with outmoded "western" ideological freight, will surely be as self-defeating as the fixation with economic progress itself. We must be prepared to admit the practice of so-called welfare policies in almost all of the economically-advanced countries (and not only for the benefit of "the poor" in a Victorian sense) and concede their possible relevance in a selective way to the socio-economic conditions existing in underdeveloped countries today. Education, health, and housing programs, for example, which raise the cultural and vocational standards of the labor force and improve its capacity for sustained effort on the job are not to be regarded as "expensive frills" which, for example, the British and the Americans got along without until late in the nineteenth century. They are the very stuff of which productivity increases are made and they should not be among the first items "axed" when drastic austerity programs are required to cope with an imbalance of payments, inflationary pressure, or other economic maladjustment. More important, they are worth while social policies in themselves.

If the domestic policies of the United States government are any criterion, this country is ill-prepared to give advice on social policy to others when it has so often failed to heed similar counsel at home. There are few more glaring examples of this than the "problems" of cities. Public discussion of the need for a "national department of municipalities" goes back at least as far as the administrations of Taft and Wilson; little has been added in substance to this discussion since the second decade of this century, before the full impact of the automobile was registered. 37/ Meanwhile, an increasing majority of Americans has come to live in and with the "problematic" cities. Much effort and money has been expended, if not wasted, in coping piecemeal with problems as and when they become politically embarrassing. Slum clearance, housing provision, transportation service, health and recreational facilities, for example, have received attention at one time or another but all have generally lagged for want of clearly defined policy principles that would recognize their "interrelatedness." At the same time, the nation's economic growth and the paramount interests of economic groups, while contributing to increases in average per capita wealth, have exacerbated conditions in the cities. Thus, the enormous outlays on federal highway programs and the more modest expenditures for urban renewal have recently been achieved not so much as a consequence of a clearly defined social policy as in the interests, and on the terms, of some of the very groups whose culpable unconcern and political intransigence led to the chronic conditions in the first place. Highway programs and urban renewal have often aggravated the incipient chaos they were supposed to redeem. It is only the indifferent quality and inadequate training of local planning officials in the past that compels us to admit that the frustration of the planning movement was not altogether the calamity which it might otherwise appear.

Thus, social and economic policies affecting city problems are no less interrelated than the social and economic processes that engender city growth. It is, moreover, the political process in the broad sense that determines the extent to which policies reflect the underlying currents of change. The social dimension of policy must take account of social aspects of the process. While domestic policies of the United States have largely ignored this dimension of social change (except in times of economic or institutional breakdown), it is unlikely that foreign aid policies can afford to do so any longer. Political necessity is the mother of a new and broader kind of intervention. In itself, economic progress does not secrete the balm of social harmony and yet, in a context of population increase, it remains an essential ingredient. Any larger policy devised to cope with problems of urbanization in developing countries, therefore, must frankly recognize the parity of social objectives. Ideally, the provision of housing, health services, education, and a minimum of social insurance will be seen as part of the necessary infra-structure for economic growth.

The means to formulate and implement a policy of "balanced growth" in this broader sense are not readily at hand. A belated clarification of United States policy objectives will not automatically produce the kinds of urban experts and expertise now suddenly in demand. Moreover, since every urban situation is highly concrete, any general policy based on a fuller

understanding of the urbanization process must be tailored to fit the needs of particular locales. As it is, we have neither the knowledge nor the personnel to interpret that process in actual historical context. It will be necessary to begin at the beginning to create the supply of both theory and practitioners. Accordingly, research efforts designed to inform policy must include both a highly generalized study of urbanization and highly particularized exploration of development situations. This will provide the only realistic foundation for country programming.

Recognition of the parity or complementarity of social policy objectives in actual historical contexts does not entail comprehensive programming of development let alone its controlled execution. It will not require a paternal or avuncular concern on the part of governments to avoid every dislocation, assuage all disaffected interests, overcome every shortage, or heal every wound. On the other hand, the role of government will not accord with the popular image of nineteenth century liberal regimes, such as those of Gladstone or McKinley. Public ownership of natural resources or public enterprise in business are not excluded. Nevertheless, the more governments encroach upon the conventional sphere of private initiative the more likely are they to neglect the conventional sphere in which public initiative may be vital: communications, utilities, education, transportation facilities, public health services, even rudimentary law and order. In many developing countries, the shortage of talent for public administration may prove to be more crippling than the dearth of entrepreneurs.

Historically, many of the maladjustments, discontinuities, and imbalances (about which some policy makers are nowadays so apprehensive) represent "opportunities" which, if seized by local entrepreneurs, can lead to the introduction of new technologies and new methods with resulting increases in per capita output and higher levels of living. If local institutions are inadequate to recognize and capitalize on existing "discontents" in this sense, they will forego many of the changes that, in western countries at least, inaugurated and sustained economic growth. It was in such myriad interstices that capital formation in manufacturing occurred during early phases of the industrial revolution in a number of "western" countries. The great mobilizations of capital through organized markets and investment banks were more commonly directed into resource extraction, transportation and power supply, at least until quite late in the nineteenth century. 38/ It is evidence that local institutions are, in fact, inadequate when local investors continue to earn such very high rates of return by lending money for the purchase of land while need for capital in other lines of production goes unfulfilled. This economic basis for preserving traditional preferences for land may account at least as much as "cultural" factors for the failure of new types of local enterprise to obtain capital.

A fundamental question for "an economic theory of economic development" is precisely: "Why is the structure of market opportunities in underdeveloped countries of such a nature that it fails to provide the personal incentive for individuals to undertake those activities which appear to be

conducive to economic growth?" 39/ In spite of the economists' enduring confidence in the equalizing effects of international trade, why is it, moreover, that after a century and more of rapidly growing intercourse among all parts of the world that, under generally favorable circumstances, commerce has failed to bestow its benefits more equally among the trading nations of the world? Whatever may be deduced from the theory of comparative costs regarding the equalization of factor prices, there is as yet little evidence that per capita income levels between the various industrialized and primary-producing nations have converged. 40/ The answers to these and related questions can be found perhaps in the analysis of local market structures, the impediments to factor mobility, and the failure of the full range of local services and processing to develop around the "base" of historic staple industries which contributed so much to the growth of international trade. Obviously, the operation of various "non-economic" variables must at times have exercised a decisive influence, whether in the American South where some convergence has been evidenced or in parts of South America and elsewhere where it has not. 41/ Before leaning too heavily on cultural difference as the independent variable, we can examine some of the structural differences between countries, especially in regard to levels and rates of urbanization, which many regard as a concomitant of economic development. It is to this question in a more rigorous comparative framework that we now turn.

OVER-URBANIZATION AND UNDERDEVELOPMENT: A COMPARATIVE VIEW

One theme that emerges from the literature dealing with contemporary underdeveloped areas is that they are "over-urbanized." Such a statement clearly implies a standard or criterion, just as the very notion that some areas are "underdeveloped" contains an implicit comparative judgment. Much has been written on the hazards of loosely applying the "underdeveloped" label to areas in radically dissimilar circumstances. We have been aware of the need to specify whether we mean, for example, (a) that an area is not developed to its full potential, or (b) that it simply ranks lower than a number of other areas on some scale of development, with (say) low per capita income relative to the rest of the world. The same precision has yet to be added to our vocabulary in speaking of urbanization and over-urbanization.

Some discussions of "over-urbanization" are quite rigorous in specifying the meaning to be attached to the term. Davis and Golden, for example, always make it clear that they are applying the label to countries which--at a particular point in time--depart substantially from the regression line that summarizes the generally strong statistical association between (a) the proportions of the population found in cities of a given size and (b) the proportions found in non-agricultural activities. Having made the identification, they proceed to an analysis of these "deviant cases," in an effort to explain those instances in which a higher than expected portion of the population is found in cities. (This procedure, of course, yields some instances of apparent "under-urbanization," i.e., cases in which smaller proportions are found in cities than would be expected on the basis of the population's industrial composition.)

Other discussions are not so explicit in their terms of reference, they employ criteria for which data are not so readily available, and they intermix statics and dynamics. One of the major conclusions of the Joint UN/UNESCO Seminar on Urbanization in the ECAFE Region was that "at the present time, there is a larger urban population than is justified by present levels of agricultural and non-agricultural productivity." 42/ Later, it was stated that "The cities in Asia and the Far East which are now in process of rapid growth, outdistancing the rate of economic development, are faced with many social and physical problems. In this sense--in relation to their economic development--Asian countries are overurbanized." 43/ One might reasonably inquire, in some instances, whether any substantial numbers in urban places could be "justified" in contexts of extremely low rural and urban productivity. As Harris has observed:

> "If it [the term 'over-urbanization'] is intended to convey the impression that the population of the cities is excessive by comparison with that of the rural areas, then I feel that the contention is unproved. We do not have empirical evidence showing that the conditions are in fact worse in the cities, and those best in a position to judge are continuing their migration. If, on the other hand, it is simply intended to mean that the cities are overlarge in relation to opportunity, so too are the rural areas. To me over-urbanization combined with 'over-ruralization' means only one thing: overpopulation!" 44/

Thus the rate of urban growth, while it may outstrip the rate of national growth, is nevertheless part of that growth, so that examination of increase in a country's cities cannot be conducted apart from an inquiry into the growth of the country as a whole. National rates of population growth, in turn, are usually so high in the underdeveloped areas of the world that per capita measures of changes in productivity--used as indices of development--are almost automatically prevented from showing any substantial increase. This situation had occurred earlier in some Western countries where population growth during initial phases of the industrial revolution probably outstripped productivity increases. 45/ We have here an apparent paradox that has its basis in simple arithmetic.

(1) Underdeveloped countries are growing rapidly by virtue of the widening gap betwen birth rates and death rates;

(2) A large portion of this national increase inevitably occurs in urban areas, whether they are few or numerous;

(3) Part of the increase also accrues to rural areas, and these areas--for a number of reasons--"export" large numbers in the form of rural-to-urban migrants, swelling the numbers of city dwellers;

(4) The total population increase swells the denominator in per capita indices of productivity, and particularly those computed on a country-wide basis, so that any measure of development with a population base is likely to show discouragingly small advances over time.

On this basis, one might reasonably infer that overall population growth--and not simply urban growth--is the crux of the problem facing most underdeveloped areas today.

Leibenstein, among others, has stressed the matter of population growth. It is noteworthy, however, that he has listed some 35 "characteristics of underdeveloped areas" and has grouped them under four main headings: (1) economic, (2) demographic, (3) cultural and political, and (4) technological. Thus under "economic characteristics," Leibenstein cites "rudimentary hygiene, public health, and sanitation." The first of the "cultural and political characteristics" listed by Leibenstein is "rudimentary education and usually a high degree of illiteracy among most of the people." Finally, under the heading "technological characteristics," Leibenstein lists "crude technology" and "inadequate and crude communication and transportation facilities." 46/ Without reproducing the entire list, we can say that fairly adequate cross-sectional statistical data on these subjects are available for a large number of countries and territories around the world. 47/ It is striking, however, to find that Leibenstein's list makes no direct reference to levels or rates of urbanization. This fact reflects the relative lack of attention that has been given to the subject in the literature on economic development. In some instances, of course, urbanization is regarded as a kind of automatic concomitant of industrialization, but it remains true that no systematic study has ever been made of the role of cities in recent economic development. 48/

For this reason, we shall continue to focus on urbanization in the context of economic development. Furthermore, our examination of the sociological literature reveals that the relationship between urbanization and economic development is regarded as virtually invariant, both historically and cross-culturally. "Industrialization," moreover, is commonly taken to be the prime motivating force behind the massing of large numbers in urban agglomerations. Thus Davis and Golden assert that "The achievement of high levels of urbanization had to await the Industrial Revolution. This remarkable transformation had its rise in one part of the world, western Europe, and thence spread to other parts as industrialism spread." 49/ Despite the plausibility of this argument, there are reasons for questioning its adequacy as an explanation of urbanization.

In another place, these same authors report a correlation of +.86 between urbanization, defined as the proportion of the population in places of 20,000 or more inhabitants, and industrialization, as indexed by the percentage of economically active males engaged in non-agricultural pursuits. 50/ Now when industrialization is defined in these terms, its relationship with urbanization may be regarded as virtually tautological, given the locational characteristics of agricultural and non-agricultural activities under industrial conditions. As we have noted, the "primary" industries (a class in which agriculture is the most prominent member) tend to be "field-oriented" and extensive users of land, while "secondary" (manufacturing) and "tertiary"

(service) industries are relatively "center-oriented" and intensive users of space. Yet these gross associations yield an incomplete picture. As Hoselitz has pointed out, "Although industrialization and urbanization go usually hand in hand, there is no necessary connection between the two processes. Industries can be and have been established in rural districts, and cities have grown up without large industrial plants." 51/ Historically, too, the association posited is inexact, as Heberle reminds us: "Industrialization and urbanization should not be considered as identical processes . . . Cities have been in existence before industrialization, and not all cities are highly industrialized." 52/ Indisputable as they are, these observations may well be irrelevant when current national levels of urbanization are at issue. Together with Davis and Golden, we must distinguish between the simple existence of cities and the relative extent of urbanization; as they show clearly, "Some degree of urbanization is present virtually everywhere . . . Not only is there no major continent without a city [of 100,000 or more inhabitants] but also there is no major country without one." 53/

One reason for the apparent failure to establish the empirical parameters of urbanization and economic development is undoubtedly the inadequacy of basic data for comparative use. As writer after writer has observed, the inauguration and maintenance of effective data-collection systems are themselves indicators of modernization. Both scientific and practical programs require data possessing minimal degrees of reliability; unfortunately, such materials are apparently the by-products of economic development in general. 54/ Thus data are either wholly lacking or plainly deficient in the very parts of the world for which we must have information. Still the situation is not as bleak as it is frequently portrayed. The efforts of various agencies of the United Nations have gone far in the direction of improvement in quality and standardization, and with respect to both "horizontal" (geographical) coverage and "vertical" depth or intensity. 55/ It is perhaps no accident that virtually all of the empirical studies of this subject date from the onset of World War II, with most of them appearing in the last decade.

Some statistical data.

The problems of coverage faced by any statistical inquiry with global pretensions are basically two in number: (1) problems of sheer areal coverage, or geographic completeness, and (2) problems of temporal specificity. The United Nations currently recognizes roughly two hundred self-governing nations and dependent territories, the latter covering a rather bewildering array of political statuses: colonies, trust territories, condominiums, protectorates, etc. Out of this welter of political units, we have been able to secure essentially comparable data for some seventy countries and territories; although not large, this number (depending upon the item in question) appears to cover from seventy to eighty per cent of the world population, mainland China excepted. With respect to the temporal dimension, there are analogous difficulties. For one thing, a cross-sectional approach is practically demanded. However, even aside from the lack of longitudinal or historical materials for most parts of the world, it is extremely difficult to pinpoint the international data to one year. For the most part,

the items employed here refer to the early 'fifties, with a span of only two or four years separating the various political units on most variables. The variables employed are eleven in number: the Davis-Golden measure of urbanization and ten indicators of "modernization." Limitations of space prohibit a detailed discussion of the quality of these data; evaluations are contained in some of the sources. Needless to say, the basic data are far from perfect. The coverage also varies considerably from item to item.

The basic question is this: Are there any other measurable correlates of urbanization beyond "industrialization," in the sense of the industrial composition of the labor force? A positive answer is contained in Table VII. Two points deserve special mention. First, one may be struck with the size of most of the coefficients, for 9 out of 10 lie between .50 and .90. Second, it will be noted that a few indices (energy consumption, newspaper circulation, and availability of physicians) yield correlations with "urbanization" that are slightly higher than does "industrialization" as it was measured by Davis and Golden (i.e, proportions of economically active males in non-agricultural pursuits).

The major conclusion to be drawn from these materials, however, is that the usual linkage assumed between industrialization and urbanization--valid though it may be in a gross way--represents an overly simplistic view. In point of fact, there are a number of variables that show equivalent degrees of association with urbanization. This is not a denial of the possibility that many of these other indices are themselves concomitants or consequences of industrialization. It is a plea, however, for recognition of the many facets of the topic that are likely to be overlooked by focussing exclusive attention upon industrialization in the limited sense of industrial structure. Certainly other organizational features, and technological, environmental and demographic traits as well, warrant attention in any full-scale analysis of the subject.

Now the reasons for anticipating the statistical correlation between industrialization and urbanization are many. In discussing the intrinsic qualities of extractive activities, economists and geographers, for example, have often remarked upon the space-consuming, field-oriented nature of these industries, and upon the land-intensive, center-oriented quality of non-extractive activities. Whether one is interested in the relationship between man and environment, in the relative costs and utilities of different means of exploiting nature, or in the sheer physical distribution of human activities in space, these tendencies are so obvious as to be apparent to all who will read them.

It must be reiterated, however, that one must always speak of the correlation between "industrialization" and "urbanization" in a qualified sense. Historically, of course, cities existed long before the development of industry

TABLE VII. SPEARMAN RANK-CORRELATION COEFFICIENTS FOR CORRELATIONS OF URBANIZATION WITH TEN INDICATORS OF MODERNIZATION, CIRCA 1950-1955

Indicators of modernization 1/	Number of countries	Correlation with Urbanization 2/
1. Per capita consumption of energy from commercial sources, in metric tons of coal 1952	72	+.84
2. Motor vehicles registered per capita, 1950-1955	67	+.74
3. Daily newspaper circulation per 1,000 inhabitants, 1952-1955	73	+.82
4. Per cent of economically active males engaged in non-extractive pursuits, i.e., in other than agriculture, forestry, and fishing, around 1950	69	+.77
5. International trade: Per capita value of imports and exports in millions of U.S. dollars, 1954	65	+.55
6. Per capita income in U. S. dollars, 1949	54	+.69
7. Number of physicians and surgeons per 1,000 population, 1948-1951	68	+.78
8. Per cent literate in population 15 years of age and over, 1948-1951	73	+.73
9. Average annual per cent change in total population between two most recent censuses	67	-.21
10. Age composition: Index of dependency; ratio of ages 15-64 to all other ages, 1947-1957	62	+.56

TABLE VII - continued

1/ Sources: Items 1, 2, 5: United Nations, Statistical Yearbook, 1956 (New York: Nations, 1955-1956). Items 3, 7, 8: United Nations, Report on the World Social Situation (New York: United Nations, 1957). Items 4, 9: United Nations, Demographic Yearbook, 1956 (New York: United Nations, 1948-1956). Item 6: United Nations, National and Per Capita Income in 70 Countries, 1949 (New York: United Nations, 1950). Item 10: United Nations, The Aging of Populations and Its Economic and Social Implications (New York: United Nations, 1956); and Vasilios G. Valaoras, "Young and Aged Populations," Annals of the American Academy of Political and Social Science, March 1958, pp. 69-83.

2/ Per cent of total population in urban places of 20,000 or more inhabitants, most recent census. Compiled from census sources by International Urban Research. A recent U.N. study, available in mimeographed form, reports the following additional coefficients of rank correlation for an unspecified number of countries:

A.	Urbanization and infant mortality	-.69
B.	Urbanization and school enrollment	+.71
C.	Urbanization and calorie consumption	+.69
D.	Urbanization and dependence on starchy staples	-.66

See United Nations, Report on the World Social Situation (United Nations, 9 March 1961), pp. 106-113.

as we know it. The dawn of civilization broke over the city. Actually, there are better historical reasons for identifying the city with trade and commerce, and with the functions of co-ordination and control -- the so-called "tertiary" activities -- than with manufacturing industries or "secondary" activities. The works of writers like Childe, Turner, and Pirenne amply document the fact.56/ At the same time, we have shown that societies in which the majority of men live in cities only became possible in the modern era.

Thus a distinction must be made between the simple existence of some cities and urbanization in the sense of urban majorities; cities exist around the world, and simple possession of one or a few sizeable agglomerations would permit every society to be labelled "urban." Urbanized societies, however,

are more properly viewed as those in which the mass of men live in cities. In any event, we are concerned with the relationship between urbanization and industrialization in more than the narrow and misleading sense of "manufacturing" activities. No discussion of industrialization would be complete if it depended solely upon an occupational-industrial conception of the transformation. Industrialization, in fact, is more frequently conceived in technological terms, i.e., as a process of substitution of more and more efficient energy converters. The fact that urbanization typically proceeds via rather substantial rural-to-urban shifts is critical here. Urban-ward migration on a truly large scale has ordinarily occurred only with the departure of large excess numbers from the soil, and with the creation of new occupational niches in the city.57/ To adopt the classical formula, migration on a large scale typically develops in contexts providing both a "push" and a "pull." The main point to be established here is that the technological means of energy conversion have a vital role at both places of origin and destination, i.e., in both rural and urban areas.

One should not be misled, however, into a belief that the interrelations between energy (production, distribution, and consumption) and urbanization are purely historical. The association that we read from the historical record is matched by an equally clear relationship when contemporary data are examined in a comparative framework. In other words, an international view reveals that it is the highly urbanized nations of the world that exhibit the highest per capita values in energy consumption. This is hardly surprising in the light of the considerations we have discussed immediately above. Only a high-energy society can support a large proportion of its population in non-agricultural pursuits. Moreover, it is the heavily urbanized societies that concentrate not only people but also capital equipment in large agglomerations. The skyline of a modern industrial city offers a graphic display of the mobilized mechanical resources of energy conversion.

The maintenance and utilization of a machine technology assume that at least the rudimentary skills involved in reading and writing are the common property of most men. In fact, literacy comes to be a "functional requisite," in the sense that an illiterate labor force would produce innumerable delays, blockages and breakdowns in the day-to-day operation of modern technique. It is difficult to see how the modern economies of the West could have made such intensive application of technological innovations if they had not simultaneously undergone sharp increases in levels of literacy. At the same time, the enhanced output of machine technology eventually provided the basis for pouring more and more effort and manpower into the improvement of literacy. Primary and secondary educational systems in many western countries have been influenced more by economic needs and the facts of differential occupational status than by purely educational philosophy and ideals. The two variables are thus historically interwined.

Childe and other writers have argued that literacy was a functional prerequisite to the development of urbanism on any substantial scale. Just as other systems (time-reckoning, etc.) operate to rationalize experience, a

written language serves a control function, in the sense that it provides a measure of order. There are good reasons for anticipating a close relationship between levels of literacy and urbanization in the contemporary world. First of all, an urbanized society depends upon a literate and flexible labor force to staff the urban enterprises which comprise the major industries. Secondly, it is only the industrial-urbanized society that can afford the deferred entrance of youth into the labor force, and that can support the elaborate organization and equipment required in modern mass education.

The technology of transportation is also said to be essential to urbanization. Distance -- sheer physical space -- poses a difficult problem. Historically, economic advancement and city building had to await the creation of means for overcoming space. Material goods, whether raw or processed, must be moved from one place to another; moreover, men must be mobile in order for population concentration to occur on any scale. Always and everywhere, the hard fact of the matter is that the great urban agglomeration is dependent upon other areas -- dependent in the sense that it requires foodstuffs and other material goods, and dependent in the sense that it draws manpower from elsewhere to staff the enterprises located in the city. These great flows of men and material can only be sustained by an effective system of movement. And more than volume is required; reliability and predictability are also essential. Thus it was that urbanization on a grand scale could only occur in a technological era of steam railways and steamships, together with all the related machinery of movement.

Again, we should see the same broad association between transportation facilities and urbanization whether we examine historical or comparative data. The most heavily urbanized nations today are those in which movement is easiest while the lightly urbanized countries are those in which the "frictions" presented by space are so formidable that they force isolated villages back upon their own meagre local resources. Rapid urbanization is possible, of course, in the absence of widespread use of automobiles and trucks; street cars and bicycles will suffice for local transportation. The historical experience of the West, and the current experience of other parts of the world demonstrate very clearly that urbanization is not necessarily tied to the internal combustion engine. Urbanization has occured and is now occuring without benefit of the entire repertory of transportation technology. The real significance of the motor vehicle lies in its shortdistance economy and flexibility, and in its potential for giving urbanism a new shape and direction.58/

A similar observation is in order with respect to the relationship between communications technology and urbanization. It is obvious from even a superficial examination of the historical record that very high rates of circulation are not essential to rapid urbanization. This fact, however, should not blind us to the equally salient fact that urbanization depends just as much upon ease of communication as it does upon speed and reliability of transportation. The city is vulnerable. It is strictly dependent upon systems of transmission of news and information from other parts of the world. The city does not live by bread alone; intelligence is also vital to its daily functioning, for it has traded off its self-sufficiency for the advantages of urbanism. The massive urban agglomeration is suspended on the visible and invisible threads of the communication network, and any break in that network

threatens breakdown. Such is the extent of interdependence, in fact, that it is difficult to conceive a highly urbanized society existing in the absence of a reliable system for transmitting information, for cities are inevitably linked to each other and a world outside.

In this connection, trade, both international and domestic, is commonly viewed as a critical factor in urbanization. Economists, of course, have long been aware that such functions as warehousing and goods-handling are intrinsically urban. To use Werner Sombart's term, these are "city-forming" activities par excellence. Indeed, Charles Herton Cooley's famous aphorism to the effect that population and wealth tend to gather at certain "breaks in transportation" reflects an awareness of the association between trade and urbanization just as much as it constitutes an hypothesis regarding city location. And in the course of advocating and illustrating a "territorial demography," Cooley went to some pains to show how the distribution of a population is intimately tied to the activities of that population.59/ Other writers have said the same thing in different contexts. Pirenne viewed the revival of long-distance trade as the prime force behind the resurgence of European cities in the Middle Ages. With the emergence of "location economics" as a viable specialty, such writers as Lösch, Christaller, Hoover, and Isard have made further contributions to this important stream of thought.60/

In the interstices between economics and geography there has recently arisen an interest in "basic" versus "non-basic" functions, with the former treated as export activities upon which the sheer existence of the urban center depends. Just as a highly ramified internal division of labor within a nation leads to population concentration, a strong set of external trading relations issues in the multiplication and growth of cities. Such is the force of world trade, in fact, that heavy population concentrations appear to follow intense trade whether the nation is an importer or an exporter of goods.61/

Exchange, then, is a source of wealth, and income and urbanization exhibit a number of interrelations that we have already explored in an historical context. But are universally higher income levels found within cities? After all, urban areas contain the more highly rewarded activities, and particularly the functions of co-ordination and integration, and the city is the seat of real power, whether in agrarian or urban societies. High national income favors urbanization, in the sense that populations at high per capita levels of earning are enabled to buy the rather specialized goods and services for which cities seem so remarkably suited. This situation can be expected to issue in an expansion of urban job opportunities. Finally, urbanization makes possible certain "economies of concentration" in the form of lower costs per unit of goods or services. This is mainly a matter of transportation economies, but when these savings are added to those produced by production on a large scale, and those yielded by a complex division of labor and other "external" economies, higher levels of real income can be safely predicted for the urban society. Both the growth and convergence of per capita personal income levels among the historic regions of the United States since 1880 have been closely linked to urbanization as well as other migration differentials such as "the westward movement."62/ All of these considerations merely bring forward certain salient economic aspects of the urban type of social system -- one that is geared to high outputs with minimal inputs of human effort, and to the

efficient distribution of the goods and services produced. In short, we have attempted to place income in a larger context by stressing the ways in which populations possessed of certain technological repertoires and organizational regimes may wrest a high level of living from some very unpromising environments.

Control of the environment is critical, and -- in particular -- the availability of health and medical facilities is not to be ignored. Looking at Western urbanization historically, large-scale agglomeration on a sustained basis was practically impossible before the solution of certain critical health problems. The important innovations were not made in the area of medical science; rather they consisted of certain rudimentary public health measures that had the effect of permitting large numbers to live together in relative safety from epidemic disease.63/

But there are also effects of urbanization upon medical services. It is only the highly urbanized societies that seem to be able to muster the men and material for the maintenance of adequate medical care.64/ In fact, it is the great city that tends to mobilize the organized manpower and the technological equipment of lifesaving for export to other areas at home and abroad. In any event, it is a striking fact that it is the modern urban nations of the West that have assumed the burden of up-grading the level of health of the population of the entire world. While we have some reasons for believing that this program has so far served the real interests of neither the benefactors nor the beneficiaries, the current situation is nonetheless remarkable when viewed in historical context. What we see is a successful attempt, for the first time in human history, literally to export the organization and technology of health to all parts of the world, with drastic consequences for the previous balance between population and resources.

The vital question is whether or not these actions have so prejudiced the attainment of true economic development as to prevent the agrarian societies from ever breaking out of the bonds of village isolation. In the view of more than one observer, the massive accumulation of human numbers is a "population bomb" of such terrifying potential as to dwarf the horror of nuclear holocaust. Many writers, mostly economists, adopt a posture of qualified optimism, placing ultimate faith in the possibilities of further technological advances. In point of fact, one can identify the optimists by their stress upon technological possibilities.65/ But the observers who stress the organizational matrix of Western development see faint prospects for a peaceful resolution of the demographic dilemma.66/ These writers do not anticipate a new and equitable balance between population and resources in a world that is beset with trade barriers, power blocs, immigration quotas, and other evidences of organizational disequilibrium. Whether the optimists or the pessimists are correct may be one of the most pressing questions of our age, but the results have been strongly conditioned by the actions undertaken by the Western nations in distributing its life-saving medical equipment throughout an already crowded world.

Overall population growth and urbanization reveal an interesting historical association. Throughout recent history, the most advanced societies have tended to exhibit the lowest rates of growth, despite the fact that the advanced nations are best able to afford high rates of increase. The very same processes that operate to assemble men in large agglomerations seem to inhibit national population growth; forces are apparently set into motion that

hold actual growth rates well below the limits that could be accommodated. Now urbanization has been traditionally accompanied by a fall in the death rate, and this demographic trend, if it occurred in the absence of any reduction in the birth rate, would result in rapid population growth. In point of fact, this was precisely the case in the early stages of Western urbanization. In country after country, however, this phase of rapid growth has been succeeded by a slowing rate of increase, with the decline largely a function of falling fertility. It is this sequence that has been labelled "the demographic transition", and it is by all odds the most significant population trend in modern history.67/

There are reasons, however, for attributing the fall in fertility, and consequent declines in growth rates, to urbanization per se. In addition to the historical coincidence of declining fertility and mounting urbanization, we can observe a virtually universal fertility differential in favor of rural areas. In other words, most parts of the world -- at whatever current level of urbanization -- reveal higher birth rates in rural areas than in urban centers. The exceptions usually involve cases of no difference between the two types of area, rather than reversals as such.68/ This finding is the more striking in view of the differences in age composition between rural and urban areas that give cities such an advantage with respect to fertility, for urban areas ordinarily contain significantly higher proportions of young adults -- persons in the reproductive years. Other things equal, this would lead to higher birth rates in urban rather than rural areas. But "other things" are clearly not equal, for the persistent tendency of rural birth rates to surpass those of urban areas is amply documented. These cross-sectional observations of rural-urban fertility differentials, then, tend to buttress the inferences drawn from the historical record. There seems to be something in the process of urbanization itself that inhibits fertility, or - more accurately - reduces the average family size to a level well below that of rural areas. What this "something" is may be inadequately understood, although it is now generally agreed that sheer population concentration is not the answer. Rather, recent research and speculation has turned to the organizational and psychological concomitants of urbanization in the search for the factors underlying the modern decline in fertility.

The population context

Before our attention passes to other matters, we might make a few general observations on the sequence and timing of changes in vital rates that occur in the course of the "demographic transition." The nations which have only lately passed through the transition seem to have "telescoped" the experience of the Western nations that went through it during the last century. In other words, the more recently the transition has been entered, the more quickly has it been accomplished. Japan is perhaps the outstanding case in point.69/ Now these facts have served to generate some optimism on the part of demographers concerned with the future of world population in general, and with the fate of underdeveloped areas in particular. It is hoped that the developing nations will be able to compress the demographic experience of a century into a few decades of high growth, and thus succeed in scaling the "population hurdle."

There are reasons for such an optimistic expectation. First and foremost, are the real opportunities to borrow upon the technological accumulation and organizational expertise that were so hard-won by the modern nations. It is just such a borrowing upon a grand scale that we have witnessed in the recent worldwide dissemination of Western health and medical knowledge, with such radical effects upon mortality and morbidity. On the island of Mauritius, the birth rate is now so high that four infants are born for every person who dies. This very example, however, brings the dilemma of underdeveloped areas into sharp relief. The plain fact of the matter is that it is now easy to lower mortality quickly and keep it at low levels. But it is apparently not so easy to cut fertility, and it is equally difficult to increase production quickly enough to absorb the rapid increases in population that have accompanied falling death rates. Thus the easy optimism that derives from superficial examination of population trends is soon tempered by an awareness of hidden dangers in the very ease of borrowing.

In fact, the dilemma is heightened by virtue of a peculiar reversal of Western experience on the part of today's emerging nations. If one examines the demographic history of the currently advanced and urbanized nations, one is sure to be struck by an interesting sequence. The early gains in urban longevity and the initial declines in mortality were effected by rather profound structural changes that took long decades to accomplish. Thus the development of an elaborate machinery of social control was in the making over a prolonged period before public health was firmly established in the crowded cities of the West. Once secured, these gains were only further implemented by developments in medical science. And once these latter innovations began to have a further effect upon mortality reduction in the late 19th century, the birth rate had started to fall -- apparently in response to the same structural forces that altered urban mortality. Summing up, and simplifying a long and complex set of developments, we may say that Western mortality fell initially in response to a series of small but cumulative structural and technological changes, and only later fell more rapidly via the impact of a sophisticated medical science. By the time that medicine made itself felt, in fact, fertility had begun to decline in response to the same organizational features of urbanization that had initially cut the death rate. Thus was a prolonged period of rapid increase foreshortened, and the population obstacle overcome in rather brief time.

But now consider the situation facing the emerging areas in the 20th century world. They have found it easy to borrow from the West the technological and organizational means of controlling mortality. Not only are some of these means remarkably cheap, but it has been possible to institute far-reaching medical and health programs without any radical disruption of the existing social structure and traditional modes of life. Thus all the gains in longevity that the West purchased only at the price of revolutionary structural upheavals have been thrust upon populations whose modes of social organization and ways of life are in many essential respects the same as those of long generations past. Western medical technology and organization have proved to be so amenable to export that large numbers of its recipients are probably unaware of its real impact. Thus the city sewers in the capitals of some nations may still run open and contaminated, while an inoculated population uses their polluted waters for cooking and washing with relative

immunity. Now also may a peasant village hold to its ancient ways, enmeshed in a family system that places a premium upon high fertility, while the nearby swamps are intermittently sprayed from the air as part of a malaria-control program administered from a faraway city. It is perhaps only after the passage of a number of years that one can expect the village elders to become dimly aware that there are many children playing in the dusty street. By that time, perhaps the population obstacle to development may have become so formidable as to be insuperable.

In any event, this strange reversal of Western experience is likely to be a factor of imposing proportions for underdeveloped areas. To have accepted the life-saving gift of modern medicine without having given up ancient forms of social structure may be their real undoing. This possibility looms even more largely if one stresses a structural interpretation of falling fertility. Without the organizational revolutions that appear to have played such a large part in cutting Western birth rates, the underdeveloped areas may continue to exhibit high fertility for many years to come. In a sense, contraceptives must be regarded as little more than the mechanical means of fertility control; declines in birth rates have frequently taken place in their absence, and increases have occurred recently in countries where they are widely available and generally known. If unaccompanied by profound organizational changes that provide the real "motives" for reduced fertility, the gadgetry of modern contraception is likely to share the same fate as those other elements of material culture that have been rejected by peoples whose social structures are inappropriate to advanced technology. In any event, one may register some apprehension regarding the future of areas which have turned demographic history upside down.

RESEARCH ORGANIZATION AND NEEDS

In developing a broader historical and comparative approach to the study of urbanization, we have touched on many things: the growth and redistribution of population, the form and focus given these movements by changing technology (notably the technology of energy conversion), the shifting balance between country and town. Special emphasis was placed upon the sweep from sporadic and localized urbanization to sustained and generalized urbanization following the onset of the industrial and communications revolutions. As industrialization gathered momentum, other sectors of the economy were transformed no less than manufactures and, with greater differentiation of productive functions in town and country, came a heightened dependence on organizational means to give coherence and direction to the larger whole. Meanwhile, concentration of population in towns intensified the social problems of poverty, illiteracy, nutrition, health, and housing which had festered for centuries in town and country alike. Newer forms of energy conversion (e.g., electricity and internal combustion engines) later relaxed some of the centripetal forces of the older technology, while the rapidly rising incomes of the few had already raised the expectations of the many. Urban agglomerations now spread out into the surrounding countryside and a measure of industrial relocation ensued.70/ The suburban trend of residence and, to a lesser extent, of productive activities mitigated problems of city life and

livelihood in some respects but increased them in others. Without relaxing the community's dependence on organizational centralization, it accelerated the general decay of the city milieu and drastically reduced its local tax base relative to the new scale of "metropolitan" problems.

During the late nineteenth century analogous transformations commenced in parts of the world no longer remote from the industrial heartlands of western Europe and North America. More significant, the changes in the newly developing areas during the present century gathered great speed: transitions which in western countries had required generations were there telescoped into decades. In many instances, the outcome assumed different and, in western eyes, distorted forms. Almost everywhere along the edges of European civilization, the chances of successful, let alone peaceful, transition were jeopardized by the upsurge in population.

We have touched upon so many themes because they impinge upon the study of urbanization, but we have repeatedly argued for a narrow and rigorous concept of the process itself. Similarly, we have pointed to gaps in our knowledge and deficiencies in method. We could now list all of the things we would like to know but there is little point in writing long letters to Santa Claus, Uncle Sam, or even to the Ford Foundation. It would be at least as helpful to urge upon these philanthropic people their limitations in making the world over. We will merely identify some of the organizations which must determine the research agenda and recapitulate some of the major emphases which should guide them in reaching their decisions regarding research in urbanization.

Organizations and institutions

(1) In the international sphere, the most obvious and experienced organization working on studies of urbanization is the United Nations and its specialized or affiliated agencies. The quality and scope of U.N. publications in the field of comparative urban research have steadily improved over the years. The new Report on the World Social Situation (1961) is a case in point. Its sections covering recent trends since the 1957 Report, the interrelation of social and economic development and the problem of "balance," social-economic patterns, expenditures for social purposes, and the coordination of social and economic development planning and programming, break new ground in the reporting and analysis of international data; its bibliographical references are invaluable.71/ Of course, many of the data which appear in such publications are limited in coverage and reliability and the progress of comparative analysis is to that extent hobbled, quite apart from other limitations of method. There is, however, hope for some improvement in current data as a result of such meetings as that of the Statistical Commission and Economic Commission for Europe's Conference of European Statisticians on locality statistics and the urban-rural classification held at Prague in May, 1959. Some attention should be given at future meetings to the improvement of historical time series, the utility of which has been demonstrated in Kuznets' important study of the quantitative aspects of the economic growth of nations.72/ Before leaving the subject of U.N. activities, it is well to remember that a great deal of technical assistance material relevant to urban problems has

already been gathered in reports by various U.N. missions. Unfortunately, much of this information is unavailable to professional scholars.

(2) International Urban Research, Institute of International Studies, University of California (Berkeley), Kingsley Davis, director, is probably the most experienced private agency working in this field. I.U.R.'s work should be strengthened in both the fields of country and comparative studies and its potential as a training center for professional students of urbanization (as opposed to narrow specialists) could be more adequately realized. It could also serve as a clearing house for urban information so that at least one private agency could centralize the record of countless urban research projects carried on throughout the world. As things now stand, we will need to do a lot of "research on research" in order to find out what and where things have already been done.

(3) The proposed federal Department of Urban Affairs and Housing should establish an international division comparable to those of the Departments of Agriculture and Commerce. While this new department is to be primarily concerned with coordinating the overly fragmented federal programs in this ill-defined area, it will need to study and understand similar programs in other parts of the world if it is to discharge its domestic obligations fully. The contributions of federal research and publication to the social science literature already constitute an indispensable source in many fields. Extension of this work to cover the study of urbanization at home and abroad will represent a major reinforcement of a tradition dating back to the first half of the nineteenth century.

(4) Research and publication in the international and national spheres requires very little justification. A less well-established sphere is that at the sub-national level. By "sub-national" we do not mean purely local or regional research, such as that of the New York Regional Study (and its predecessors) recently completed under the direction of Raymond Vernon, or other regional research groups, important and valuable as that work may be. We have in mind sub-national research carried on in a national framework, i.e., research which focuses on regional and local differentiation within a national structure: for example, the study of "Population Redistribution and Economic Growth, United States, 1870-1950" carried out at the University of Pennsylvania under the direction of Dorothy S. Thomas and Simon Kuznets, or the "Regional Studies" of Resources For The Future, Inc., directed by Harvey S. Perloff. Finally, we cannot close this section on sub-national studies without reference to the pioneering work of Walter Isard and his associates at the Regional Science Institute, University of Pennsylvania. Most of the work of this group has been concentrated in areas of theory and method but it holds promise for empirical studies and is currently being extended into the international sphere.

(5) Many universities have recently developed programs in urban studies. While practical training and planning programs at these institutions will obviously be doing much the same sort of work, it is essential that their research efforts should not involve unnecessary duplication. Funds and, more important, skills are too limited for this kind of luxury. Most

of the organizations mentioned above approach the subject of urbanization from an inter-disciplinary point of view but it is likely that most university research will go forward within the confines of existing disciplines and departments. With this in mind, the Social Science Research Council Committee on Urbanization, Philip M. Hauser, chairman, appointed in September, 1958, has undertaken a thorough review of existing disciplinary frameworks and will eventually provide some critiques of earlier work while making detailed suggestions concerning approaches, areas, and priorities for future research.73/

Research priorities and emphases

The notion of priorities is an intriguing one that has great appeal to policy makers and the purposeful organizations who nowadays sponsor research. Scholars, on the other hand, have conventionally surveyed existing knowledge and have asked themselves the question: what do I need to know in order to know this or that which I would like to know? But the bureaucratic concern implies that knowledge is not enough, that research should be pertinent to action or goals, and that the "urgency" of the actions and objectives will determine the order or time sequence in which research should be undertaken.

In the case of urbanization, research entrepreneurs are mostly exercised about the problems of cities, rather narrowly constructed as: what happens when large numbers of squatters settle in and about the major political centers of developing countries? Their objective is the amelioration of city conditions and they ask the question: what can be done with urban environments to prevent political disorder and the possible spread of Communist influence? While these are understandable objectives of policy, the research horizons they set are extremely low. Answers to such questions could be found by sending teams of experts on such matters as housing, sanitation, finance, and materials, under the direction of educated planners who are able to see the local problem whole. Together with local officials and experts in local color, such teams could explore local sentiments, appraise local resources, and estimate the strategic points at which ameliorative actions can begin.

In other words, the problem-solvers are faced with a complex local situation, they must bring it into an intelligent focus and recognize that specialized approaches are inadequate, if not dangerous. If housing and shelter are adjudged a critical point of entry, it will be necessary to understand local traditions affecting property rights, mortgage facilities, the cost of land in relation to surface structures, the possibilities of using local labor and materials, the availability of sanitary services, schools, transportation access to and from proposed housing settlements, and so on. It will mean drafting legislation which, as Charles Abrams has suggested, virtually sets up a way of life, since housing and related matters affect rights of use, eminent domain, sanitation and public health habits, relations among minority groups, attitudes towards debt, etc. It may be helpful to supplement these activities with urban community development teams which foster "self-help" and citizen participation as these terms are understood in some western countries.74/ The outcome of such on the spot investigations should be an appraisal of local situations, proposals for legislation, and,

a budget for meeting the costs of the actions proposed. Such investigations should only be undertaken at the request of the local government concerned and, where possible, the local government should hire the personnel to supervise the implementation of the program.

This type of patchwork program should, from an operational standpoint, receive highest priority. But it can only be successful if citizens concerned can secure an urban livelihood and maintain their families with some hope for the future. This immediately brings us back to the larger questions of urbanization and social change in which cities are seen as part of the evolving infra-structure necessary for economic growth. It is with these questions that serious academic research must be concerned and here it is a matter of appropriate emphases rather than priorities. What does urbanization do to the growth, structure, and behavior of populations in town and country, what forms of economic activity are most advantageously located in cities, what patterns of urban growth are most conducive to total economic growth in the light of rising population pressures? It is only when these general questions have been answered that economic and social advances in particular places can be made secure. Questions about the extent to which productive resources can be used for housing, education, health and welfare must be tested not only against the criterion of their contributions to growth as such but also against the criterion of reducing fertility. This last aspect of the problem has largely been neglected in earlier programs designed principally by economists.

In previous sections of this paper we have stressed the improtance of a demographic conception of urbanization. We have also made it perfectly clear that this complex societal process has many concomitants which are not encompassed by a minimal definition of this type, e.g., the structural or organizational aspects of urbanization. Thus large and densely settled agglomerations exhibit internal structural features significantly different from those in smaller communities but we are no less convinced that highly urbanized societies are vastly different in economic, sociological and political structure from those in which city-dwellers are in a distinct minority. However, two further considerations have made us hesitant about broader -- and seemingly more "realistic" -- conceptions of urbanization. 1) Little research has been directed at the non-demographic side of urbanization and it is likely that we have an extremely biased sample of urban structure. The whole sociological discussion of "urbanism as a way of life" rests upon an empirical base that is narrow indeed, being largely drawn from a few scattered case studies and impressionistic accounts of city life, mainly in the United States.75/ 2) On methodological grounds, we wanted to avoid building a large number of variables into our conception of urbanization, so that we might let them vary independently. A definition that includes both demographic and organizational aspects precludes any subsequent analysis of the interrelations between the two. Issues that are problematic are thus prematurely resolved by fiat. There would be no possibility of testing hypotheses regarding the interconnection between (say) population concentration and industrial-occupational structure, for a complex definition of urbanization would prejudge the matter by assuming a relation that may or may not hold under all circumstances.76/ The

principal research emphasis suggested in this paper, therefore, is a study of the relation between urbanization and industrial development in a controlling context of population increase.

Demographic emphases in urban research

(1) Our modest cross-sectional examination of statistical interrelations between urbanization and a number of other indexes of modernization in more than sixty countries (Table VII) suggests that the simple identification of urbanization with industrialization is incomplete. What we now need is a series of "deviant-case" analyses, following the ancient methodological dictum, exceptio probet regulam. Here we have at least two appropriate models: (1) Robert Parke's ingenious analysis of "over-urbanization" in Egypt, and (2) Golden's study of deviations from the strong association between literacy and industrialization.77/ One approach that recommends itself is to analyze countries or groups of countries in a particular region.78/

(2) Another disputed question is the speed of urbanization, or rates of recent growth. On the basis of informal observation, several writers have indicated that the developing areas are exhibiting extremely high rates of urban growth. More solid information on this subject is reported in a study making use of international data compiled for the "metropolitan areas" delineated by I.U.R., University of California.79/ A few writers have gone further and have suggested that cities in developing areas are growing at rates substantially above those achieved by the advanced nations when they were in a comparable stage of development.

(3) In addition to the study of levels and rates, there is much to be done in the comparative analysis of urban structure. A forthcoming monograph by Kingsley Davis and Harley Browning on "primary cities" analyses what is perhaps the simplest aspect of structure -- the distribution of cities by size -- and seeks the determinants of variations therein.80/ Other aspects of structure, as represented in the concept of a "system of cities," require more comprehensive flow data in order to describe interrelations between parts of the whole network.81/ The historical data presented in Table V above suggest that, in the West's transition to industrialism, differences in urban functions were of greater significance than mere differences in size. Throughout most of history, and perhaps in many developing areas today, urban settlements are distinguished by the services they render to the populations of their hinterlands.

(4) The possible effects of urbanization on birth rates and fertility are considered under economic emphases (10).

Economic emphases in urban research

(5) If research on the urbanization process in developing areas is intended to inform the "growth" policies pursued by governments, then a great

deal more information is required on the present economic base of cities, analyses of linkages and clustering of activities, and on the potential advantages and disadvantages of clustered versus dispersed development (economies of scale and external economies). Studies must also be made of proposed expenditures on water, sewers, streets, transportation, housing etc., compared with alternative possibilities, e.g. on the basis of different assumptions about the opportunity cost of capital, drains on balance of payments, and rates of obsolescence. Finally, and, from the standpoint of the present paper, most important, the possible effects of these alternative policies on fertility must be explored.

(6) One revealing clue to the economic base of cities and to the organizational dynamics of developing societies is to be found in the structure of the urban labor force. It has been argued that Western nations have experienced a rather regular transition in the industrial composition and organization of their labor force, characterized by a shift from largely "primary" activities (mainly agriculture) to a predominance of manufacturing ("secondary") activities and the eventual numerical preponderance of service ("tertiary") activities when high levels of development have been reached.82/ There is some evidence that a number of developing countries at the present are "skipping" the second stage, at least in the sense that the fastest gains are being registered in the tertiary sector while manufacturing industry languishes. This fact not only calls into question the entire primary-secondary-tertiary sequence as an appropriate device for summarizing the development process, but suggests the strong possibility that the expansion of tertiary activity in backward areas does not reflect the Western pattern of up-grading levels of living.83/ This trend may, in fact, mirror the wholesale transfer of rural poverty to the urban setting in face of population pressures. The greatest growth in the tertiary sector sometimes occurs in the most poorly paid and least productive activities, such as itinerant pot menders, street vendors, and household servants.84/ These changes are not so much the concomitants of massive structural developments, therefore, as they are the outcome of gradually worsening conditions in both town and country.85/

(7) Students of the economies of urbanization would do well to examine the subject of population distribution in greater detail. Where, for example, great numbers of agriculturalists are piled up on the land, rapid development is correspondingly difficult, depending on the type-of-farming; it is hard to get such people off the land. A redundent rural population, moreover, is ordinarily found in an organizational context that has built-in pressures to persist without radical structural change. Here are found the institutional arrangements regarding property and its inheritance that lead to further fragmentation of holdings and preclude rational land-use. Here also are discovered structural forms that encourage continued high fertility--forms that apparently arose as part of an ecological adaptation that once took a heavy toll in mortality. The demographic consequence of such organizational regimes are even heavier population pressures; its economic consequences are further barriers to modernization and the inhibition of true development.

Now it may appear that the "solution" is obvious. Expand employment opportunities in the non-agricultural sectors and large numbers of peasants will give up agriculture. But the difficulty is at once apparent when one considers the alternatives implied by substituting the word "urban" for "non-agricultural" in the formulation of the above solution. Hence, the possibilities of village industry are widely debated in the development literature. Some authorities contend that a system of manufactures dispersed in small plants or "garden cities" will avoid some of the disutilities and disruptions that attend rapid urbanization: crime, delinquency, desertion and divorce, and the high costs of misdirected migration.86/ The heavy investment in large factories and urban housing would also be avoided. This is an intriguing hypothesis for which there is some support but at the moment it is no more than a hypothesis.87/

The possibility occurs, moreover, that full-fledged dependence upon a village system might result in total failure. For one thing, a system of dispersed industry foregoes most of the economies of concentration that can only be realized with actual urbanization. Secondly, the specification of small-sized plants means rejection of economies of scale that only accrue to very large establishments. Third, such a scheme presupposes the existence of a complex communications and transport network of far greater efficiency than most developing areas may hope to achieve in the immediate future.88/ Finally, a system of decentralized village industry may provide too many opportunities for peasants to slip back into agriculturism on at least a part-time or seasonal basis. Along with this goes the continuance of high "non-economic" outlays for funerals, dowries, and other rites of passage. Indeed, what may well be required is a massive structural upheaval that uproots large numbers and transplants them in new habitats. Thus some degree of urban concentration may actually be a functional concomitant of real modernization.89/

The foregoing discussion, of course, is almost entirely speculative and is not to be taken as the result of accomplished research. Nonetheless, some of these ideas -- given further elaboration -- might serve as the bases for testable hypotheses regarding the place of urbanization in economic development. The real world presents us with such a rich variety of situations that it should not prove difficult to find a series of varying cases that exhibit sufficient contrast to comprise a kind of "natural experiment." If it should turn out that the hunches enumerated above have any real validity, the implications for developmental programs would be fully as useful as the propositions that would become candidates for inclusion in a full-fledged theory of economic development. Practically, the findings would be extremely helpful in industrial location programs and in planning for the assimilation of urbanward migrants. Theoretically, a demonstration of the interconnections between urbanization and modernization would fill a large gap in the contemporary theory of economic development.

(8) A common focus of much of the literature of development is found in such topics as savings, investment, and capital formation. Until recently, population factors have been given only a minor role, despite the strong demographic interest exhibited within classical economics.90/ This deficiency can be attributed to an extraneous factor or, more properly speaking, to a set

of circumstances that have no necessary relevance to theory, namely, the "actionist" bias of contemporary economics. Distrustful of palliatives and panaceas, the economist has fastened upon capital formation as the bedrock fundamental of development. Something must be set aside out of current production and diverted to areas with little or no prospects of immediate return, in order for future output to surpass existing levels. These are undeniable "facts" of accounting logic but their implications are various. For one thing, the analyst need not focus exclusively on capital formation itself; rather, he may turn to a study of the external conditions under which capital accumulation proceeds most rapidly. Granted the necessity for reducing life to sets of national accounts and slices of diagrammatic pie, it is well to remember that chunks of saving that go directly into manufactures have often been quite limited in the past compared with chunks that go into the infra-structure: transportation, construction, public utilities, government, etc. Some of the great surges in the economic growth of the West were connected with railroad construction, street railways, urban building, electrification, and so on. We need to know much more about these kinds of diversions which offered greater or lesser returns at various times, their capacities for absorbing urban labor force increments, and their individual multiplier effects. The relevance of this past experience to the present should, however, be interpreted in the light of Gerschenkron's "orderly system of graduated deviations" from earlier industrial revolutions.91/

The same narrow preoccupation with saving and investment has produced a kind of economic psychologist, immersed in the problem of "inducements" to save, and caught in sterile debate regarding human "propensities" to behave in this or that manner. This sort of psychologizing is one of the least promising by-ways down which economists have wandered in their search for "realism", since it is premised on a false proposition that understanding of the behavior of whole populations can be achieved only by reference to the actions of individuals who constitute the whole. In any event, the actionistic bias of contemporary economics, when it is considered alongside the microscopic drift of social science generally has yielded a peculiar conceptual set; concern with the process of capital accumulation and its psychological ramifications has proceeded without much reference to the contextual situation. Add to this the manipulative interest of the orthodox Keynesian, and his tendency to avoid long-run questions, and the current dilemma of economics becomes understandable. To find economists ignoring the implications of (say) urbanization in their analyses is no great surprise. But the disturbing thought occurs that the current preoccupations with the practical aspects of capital accumulation may actually hinder the understanding of development as a "natural" phenomenon. The actionist orientation of economics is certainly not to be derided as a fault in itself. What is to be criticized is the tendency to allow practical goals to obscure the objectives of scientific research, and to permit action-oriented assumptions to enter in the guise of theoretical postulates. As a consequence, we have only recently reached the point (through the efforts of Leibenstein, Coale and Hoover, and a few others) where there is a growing appreciation of the significance of population growth and composition for economic development.92/ It is in no small part the achievement of a mere handful of economists to have effected the "exile's return" to economics. While we have not always accepted his

solutions, Leibenstein's own work provides a convincing demonstration of the relevance of changes in both population size and composition to economic development. One misses, however, a corresponding treatment of changes in population distribution, e.g. urbanization, in the development literature. Except for the work of Hoselitz, one would have to say that the topic has been altogether neglected.

(9) It is apparent that economic policies are being promulgated in a vacuum of knowledge regarding urbanization in both Western and non-Western settings. It is of the first order of importance to learn the extent to which efficient large-scale production and distribution systems still require a concentrated labor force and market, or whether new means of power generation, transport and communications, reinforced by traditional elements, have lessened the need for the huge agglomerations that were created during nineteeth century industrialization in the West. On the labor force side, we need to know whether or not modern urban-industrialism can function effectively on the basis of seasonally migrant labor, to what extent trade union activities affect the rudimentary factor markets of developing countries, and almost by reflex, the ways in which management organization and policies operate in the same context of economic transition. Moreover, what is the effect of urbanization on the consumption habits of recent migrants? According to one author, urbanization has the effect of increasing imitative consumption; goods and services bought with new income are often less desired for their functional use than for prestige value and, most important, as a community assumes elements of the consumption patterns of more advanced societies, it probably becomes easier to adopt additional elements later on.93/ Imitative consumption is thus self-reinforcing and, as Malthus realized, "a decided taste for the conveniences and comforts of life" stimulates a man's efforts over and beyond the amount necessary to insure his food supply: he seldom grudges working overtime "which is but inconsiderable compared with the commodities it will purchase." Case study materials, in themselves, however, do little more than document the insights of Malthus achieved more than a century and a half ago when the English country folk were first becoming committed to the standards and styles of the town.

(10) Finally, another important area for investigation -- in view of the critical importance of the population problem -- is the possible impact of urbanization on fertility. We are aware that family separation and a surplus of adult males in cities apparently increases the incidence of prostitution, delinquency, and crime. But what does it do to the birth rate in town and country? Malthus thought that the movement of families to the towns and their pursuit of modest improvements in consumption might lower the tendency to reproduce and, in a more technical way, Galenson and Leibenstein expect a similar outcome. If anything, we know a little more about the effects of non-agricultural employment on the fertility of women in the country than in the town and what we know is disquieting. The study by Jaffe and Azumi, based on limited data from Puerto Rico and Japan, concludes that employment of rural women in cottage or domestic industry, is from a fertility standpoint, "not an unmixed blessing," even if it can be proven -- which is doubtful -- that such activities are economically advisable. Thus, from a population standpoint, "the most desirable industries

to be introduced... would be those using large quantities of female labor away from home, in modern factories, stores, offices, etc. If enough women were so occupied the birth rate would be lowered considerably."94/ Meanwhile, what do their men folk do? So far as it goes, this evidence does not augur well for the possibility of reducing the social costs of urbanization by planned developments of dispersed small-scale industry.

Social and anthropological emphases in urban research

In considering the effects of alternative forms of economic organization on fertility, the interests of some economists and sociologists tend to overlap. The same may be true for certain sociologists and anthropologists in considering the broader social aspects of urbanization in a comparative framework. In fact, the study of the city has been mainly pre-empted by the urban sociologist and thus it is a source of some embarrassment to admit that the comparative study of urbanization is not very far advanced. Sjoberg has argued that the dominant sociological approach has depended upon a seriously biased sample of Western cities and, as a consequence, has failed to come to grips with comparative questions.95/ His view seems to imply that there may be general "laws" that fit all cities in all places; perhaps it would be more accurate to say that the limits of extant generalizations have not been specified very carefully in the past.

It is true that there has not been a full-scale comparative study of urbanization by an American scholar since Adna F. Weber's dissertation was published in 1899.96/ The resulting deficiency in perspective can be seen in a quick examiniation of the standard texts in urban sociology which are largely unchanged since the pioneer volumes of the late 1920's. Most of them depend exclusively upon data from scattered studies of North American cities. The professional journals provide little more; most of the articles devoted to cities outside of the United States are superficial accounts of certain obvious departures from a selective North American pattern. In short, far too much time has been devoted to the surface manifestations of American cities and to detailing the infinite behavioral nuances of "urbanism" writ large. The only American sociologists to study determinants and consequences of urbanization and the conditions that give rise to differences between cities and societies have been those working within a demographic framework. The result has been a body of descriptive material that is badly out of balance, lacking proper weight to important organizational elements and other phenomena that are not discoverable by means of demographic analysis alone.

(11) One obvious subject for comparative study is that of the spatial structure of urban areas in various parts of the world. There are intriguing research questions concerning the shape of cities in the developing countries. For example, different patterns of land use in large Indian cities; they differ from each other in many respects as much as they do from North American cities. Another instance is provided by patterns of internal segregation. It has frequently been remarked by observant travellers that even large cities in backward countries tend to lack unity, consisting of

whole clusters of contiguous quarters that remain relatively isolated from each other despite their proximity; they are frequently separated by walls and joined only by gates. This pattern of internal segregation, very often along lines of religion, language and color, should be of considerable interest to sociologists and others concerned with organizational matters. For one thing, such a pattern is a direct physical representation of the internal "segmentation" that Durkheim viewed as the hallmark of the undifferentiated social structure.97/ In addition, knowledge of the day-to-day functioning of these constituent parts of cities in the under-developed areas would seem to be essential. Just as modern metropolitanism seems to represent a social and economic community composed of many cities, the form of urbanism of view in backward areas may consist of cities composed of many communities.

(12) Another question that has yet to be satisfactorily answered is the urban occupational destination of farm laborers and other rural migrants who abandon the countryside. This obviously has grave implications for the political attitudes of the new urban populations. Scattered evidence from the United States suggests that they enter the urban occupational structure near the bottom, at least since the end of large-scale immigration.98/ There is also fragmentary data suggesting that sheer length of residence in the community of destination is a critical variable with respect to a variety of behaviors on the part of individual migrants. Closely related is the question of the extent to which so-called "social class" differentials in fertility may be attributed to more fundamental rural-urban differentials. The possibility occurs that the widely observed tendency for the lower urban strata to reproduce at higher rates may be partially explained by the disproportionately large representation of recent rural migrants that they contain. Former residents of rural areas certainly bring their children with them, and they may also carry along fertility patterns more appropriate to an agriculture setting. Snapshot surveys at a single point in time may merely reflect basic rural-urban differentials.99/

(13) Anthropological methods are especially suited to studying the effects of urbanization on community life and organization in town and country. Thus the investigations of the British sociologist R. P. Dore in Japan combine the virtues of sociological, anthropological, and historical research in both urban and rural settings.100/ Not all of the observed decline and disintegration of traditional systems, of course, can or need be attributed to urbanization. The loose associations of clans and extended families in some parts of Africa, for example, were already being undermined by migratory invasion, slave traffic, religious penetration, and gunpowder, long before the onset of rapid urbanization. The same applies to the centrally-organized chiefdoms and other archaic state systems of sub-Saharan Africa.101/ The rise of "nationalism" in such places as Leopoldville, however, suggests that rapid migration to a metropolis may indeed have political implications.

The two subjects par excellence for anthropological study, perhaps, are (1) the effects of urbanization on family life, and (2) the acculturation

of migrants to the city ("deculturation" of migrants from the country). We have already referred to the "deviant" city life of male migrants when separated from their village-family life. What does all this movement do to personal relations and the established tradition of family authority? The Japanese family apparently rode out the early transition very well, much better than the family in the United States if urban sociology is to be believed. World War II and its aftermath probably produced more serious dislocation in Japan than urbanization itself. Comparative family studies under standardized conditions would no doubt help to clarify some of these more obscure issues. Does urbanization necessarily produce personal breakdown and a rise in mental sickness? This, of course, raises a crucial question which affects analyses of almost all urban phenomena: by what methodological means are case study and other microscopic materials related to the societal processes of population concentration? For what they are worth, however, a few limited case studies have discovered instances of "urbanization without breakdown."102/

Some political considerations for policy-makers

Apart from suggestions for the immediate improvement of urban environments, the focus of this paper has been on broad issues in urbanization research. The justification for this emphasis is twofold. Unlike many other questions relating to the improvement of development assistance programs, urbanization is neither a well-defined subject nor a narrow technical field of research. Its scope runs all the way from such prosaic matters as garbage disposal and the location of sewers to the great issues of the day: economic growth and social change in the context of the cold war. Accordingly, we have tried to clear up conceptual confusions, indicate the limitations of what is known, and suggest emphases for future research that will bear directly on our principal concern: the relation of urbanization to economic development and its implications for policy. In conclusion, we will append an estimate of the situation confronting the policy makers. One of the striking things about the substantial increases in the urban parts of developing nations is their juxtaposition with (a) extremely youthful populations, (b) certain elements of modern technology, and (c) social, economic and political structures that are formally unchanged from past decades. These aspects of rapid urban growth assume particular significance in the context of the widespread poverty in which they appear. In brief compass, however, the problem is as much "political" as it is "economic" and "social".

The main facts of political life are these. In the first place, a growing majority of the population in some underdeveloped areas has no real stake in the status quo; this would seem especially true in the cities. Much of the urban populace is young and not yet established; the age distribution, ethnic composition, and rapid natural increase alone would be enough to produce and sustain this explosive situation. The effect of urbanization -- in the sense of simple population agglomeration -- is to concentrate large numbers of unattached youth, and to transfer the poverty of the overcrowded village to the teeming city streets. Added to this, however, is the disquieting fact that very few benefit from the operation of the ancien regime.

Much of the real wealth is siphoned off by a small indigenous elite and/or by compatible foreign interests, some of which are directed by citizens of the United States.

The element that supplies a fuse to this powder keg is the presence of certain pieces of strictly 20th century technology. Radios and movable loud-speakers can be utilized to reach great numbers, literate or otherwise; busses and trucks can assemble them quickly; radio and movies can thrust across a propaganda-laden message much as the newspaper did in western countries, but with far more devastating impact. In this context, it takes only a clever and willful demagogue to whip into a frenzy the barely latent discontent of the new urban masses; the demagogues have learned these techniques from successful western examplars. Different leaders -- not all of them semi-literate marxists -- offer alternative panaceas, vying for the fickle support of crowds in the street. Small wonder, then, that recent years have witnessed political turmoil in the cities of the underdeveloped world. Most of the basic ingredients for violent upheaval are at hand, and some of them serve multiple functions. The mass media, for example, may vividly portray a way of life previously beyond the power of the untutored imagination. The motion pictures -- and American and European films, in particular -- may have an "anti-Western" effect, by displaying a glamor-tinged image of life in this part of the world. Thus may be fostered "the revolution of rising expectations," to use a descriptive phrase so appropriate that it has quickly passed into the public domain. In the presence of the new technology, the poverty-ridden youthfulness of the urban populace takes on an entirely new aspect.103/

Lest our language have the appearance of concern for the status quo, we must admit to the feeling that very little in the way of true development and modernization will take place in the absence of radical changes in the social structure of many underdeveloped nations. However, the possibilities that the new leaders, hard-pressed by domestic difficulties, will be catapulted into rash adventures at home or abroad must lead even the most remote observer to see these cities and their potential for explosion as menacing the peace of an uncertain era. Even if revolutions sometimes begin in the countryside, they will surely move on the cities. The goal -- in policy as well as in research -- is to gain some understanding of the forces that have been set loose in a world of stark contrasts between rich and poor, educated and illiterate, airborne and earthbound, opulent and starving, urban and peasant.

FOOTNOTES

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75/ William L. Kolb, "The Social Structure and Functions of Cities," Economic Development and Cultural Change, Vol. 3 (Oct., 1954), pp. 30-46; Elizabeth Pfeil, Grosstadtforschung: Fragestellungen, Verfahrenweisen, und Ergebnisse einer Wissenschaft (Dorn, 1950).

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77/ Parke's work is summarized in Davis and Golden, "Urbanization and the Development of Pre-Industrial Areas," op. cit. See also Hilda Hertz Golden, "Literacy and Social Change in Underdeveloped Countries," Rural Sociology, Vol. 20 (March, 1955), pp. 1-7.

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80/ For a discussion of "primary cities" in Latin America, see Harley Browning, "Recent Trends in Latin American Urbanization," Annals of the American Academy of Political and Social Science, Vol. 316 (March, 1958), pp. 111-120.

81/ Otis Dudley Duncan, et al, Metropolis and Region (Johns Hopkins University Press, 1960).

82/ Colin Clark, The Conditions of Economic Progress (Macmillan, 1940); Allen G. B. Fisher, "Production, Primary, Secondary and Tertiary," Economic Record, Vol. 15 (Feb., 1939), pp. 24-30.

83/ Indeed, where occupational specialization is retarded or rudimentary, the framework is positively misleading. See P. T. Bauer and B. S. Yamey, "Economic Progress and Occupational Distribution," Economic Journal, Vol. 61 (Dec., 1951), pp. 741-755: P. T. Bauer and B. S. Yamey, "Further Notes on Economic Progress and Occupational Distribution," Economic Journal, Vol. 64 (March, 1954), pp. 98-106; Allen G. B. Fisher, "A Note on Tertiary Production," Economic Journal, Vol. 62 (Dec., 1952), pp. 820-834; S. G. Triantis, "Economic Progress, Occupational Distribution, and International Terms of Trade," Economic Journal, Vol. 63 (Sept., 1953) pp. 627-637; Nelson N. Foote and Paul K. Hatt, "Social Mobility and Economic Advancement," American Economic Review, Vol. 43 (May, 1953), pp. 364-378.

84/ Surinder K. Mehta, "A Comparative Analysis of the Industrial Structure of the Labor Force of Burma and the United States," Economic Development and Cultural Change, Vol. 9 (Jan., 1961), pp. 164-179.

85/ It is necessary to refine the industrial labor force taxonomy if it is to be of much practical use. Thus, the primary labor force can be broken down into: agriculture, mining, forestry, and fisheries. Combined with data for value of resources to primary producers, such a breakdown yields a closer analysis of natural resource contributions to economic growth: Perloff et al., Regions, Resources, and Economic Growth, passim. Secondary activity can be reduced to first-stage processing and later-stage fabrication, or low, medium, and high value-added per worker. Tertiary analysis requires a breakdown in terms of, say, services to business, to consumers, to government, etc. Another alternative is to define categories in terms of income elasticities. See Lampard, "The History of Cities..." op. cit., pp. 100-101.

86/ Henry G. Aubrey, "Small Industry in Economic Development," Social Research, Vol. 18 (Sept., 1951), pp. 269-312.

87/ Village industry may certainly serve as a "holding operation" to moderate rural-to-urban flows and, if itself made the subject of "extension-type" educational effort, might provide a useful proving ground for entrepreneurial talent. We have already pointed to rural workshops and household manufactures in maintaining the income-earning opportunities of the traditional Japanese family. Others have indicated that small-scale improvements in agriculture, agricultural processing, rural manufactures, and some types of public works -- highways, drainage, irrigation, sanitary installations, schools, etc., -- may be constructed in small stages without capital intensive techniques. Hence, the questions of technical discreteness and other indivisibilities need not always arise and hence internal economies remain unimportant. Even some of the "external" economies associated with large-scale organization and trade associations are merely internal economies at one remove from the original producer. Internal bulk purchase, for example, represents gains for one large organization or group from another and, unless international transactions are involved, does not represent net national gains. A most informative case study is to be found in Wilbert E. Moore, Industrialization and Labor (Cornell University Press, 1951).

88/ Harris, op. cit.

89/ Exponents of "big push" development found their case upon a need for large initial increases in the rate of saving and investment and heavy outlays on manufacturing. Whether their argument applies, however, must depend on the circumstances. Some of the force of their case is lost when it is remembered that such facilities require very different gestation periods for their construction. If they are allowed to export some of their output, moreover, their technically-fixed minimum investments need not be excessive relative to aggregate demand, and overhead charges per unit of output are correspondingly reduced. Large inputs of private capital from abroad might be attracted into these industries and, if certain safeguards were forthcoming, development might continue along these lines at a modest pace, making for a more gradual absorption of migrants from the countryside.

90/ Certain population variables -- notably growth and biological composition -- have been brought back into the system by recent writers. Still to be absorbed into the economist's theoretical approach to development, however, is a concern with the sheer distribution of population through space. Here, of course, we would have to except the rather narrow disciplinary interest of location analysis, exhibited by writers such as Alfred Weber, P. Sargant Florence, August Lösch, Edgar M. Hoover, and Walter Isard. Their interest in labor force distribution has necessarily turned them towards the study of population distribution. It is significant, perhaps, that the work of the economic historian, A. P. Usher, on population and natural resources appeared in geographical journals, e.g., "The History of Population and Settlement in Eurasia," Geographical Review, Vol. 20 (January, 1930), pp. 110-132.

91/ Op. cit.

92/ Leibenstein, op. cit., passim; Ansley Coale and Edgar M. Hoover, Population Growth and Economic Development in Low-Income Countries (Princeton University Press, 1950)

93/ See, for example, Bert F. Hoselitz, "The Role of Cities in the Economic Growth of Underdeveloped Countries," Journal of Political Economy, Vol. 61 (June, 1953), pp. 195-208. Richard H. Holton, "Changing Demand and Consumption," in Wilbert E. Moore and Arnold S. Feldman (Eds.), Labor Commitment and Social Change in Developing Areas (Social Science Research Council, 1960), pp. 201-216.

94/ A. J. Jaffe and Koya Azumi, "The Birth Rate and Cottage Industries in Underdeveloped Countries," Economic Development and Cultural Change, Vol. 9 (Oct., 1960), pp. 52-63. They point out that cottage industries tend to maintain "high fertility levels together with relatively low levels of worker productivity."

95/ Gideon Sjoberg, "Comparative Urban Sociology," in Robert K. Merton, et al (Eds.), Sociology Today (Basic Books, 1959), pp. 334-359; see also his study of The Preindustrial City: Past and Present (Free Press, 1960).

96/ Adna. F. Weber, The Growth of Cities in the Nineteenth Century: A Study in Statistics (Macmillan, 1899).

97/ Émile Durkheim, The Division of Labor in Society, Trans. George Simpson (Macmillan, 1933).

98/ Ronald Freedman and Deborah Freedman, "Farm-Reared Elements in the Non-farm Population," Rural Sociology, Vol. 21 (March, 1956), pp. 50-61; S. M. Lipset, "Social Mobility and Urbanization," Rural Sociology, Vol.20 (Sept.-Dec., 1955), pp. 221-228.

99/ David Goldberg, "The Fertility of Two-Generation Urbanites," Population Studies, Vol. 12 (March, 1959), pp. 214-222.

100/ R. P. Dore, "Agricultural Improvement in Japan: 1870-1900," in Thomas C. Smith (Ed.), "City and Village in Japan," op. cit., pp. 69-91.

101/ United Nations, Report on the World Social Situation (United Nations, 1957), pp. 162-163; International African Institute, Social Implications of Industrialization and Urbanization in Africa South of the Sahara (UNESCO, 1956).

102/ Oscar Lewis, "Urbanization Without Breakdown: A Case Study," Scientific Monthly, Vol. 75 (July, 1952), pp. 31-41; I. P. Desai, "Caste and Family," Economic Weekly, No. 6 (1954), pp. 249-254.

103/ Leo F. Schnore, "Social Problems in the Underdeveloped Areas: An Ecological View," Social Forces, Vol. 8 (Winter, 1960-61), pp. 182-201.

RESEARCH NEEDS FOR FACILITATING TECHNOLOGICAL CHANGE IN THE LESS DEVELOPED AREAS

R. S. Eckaus

Associate Professor of Economics, Brandeis University, Waltham, Mass.
and
Research Associate, Center for International Studies, M.I.T., Cambridge, Mass.

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Research Needs for Facilitating Technological Change in the Less Developed Areas

R. S. Eckaus

SUMMARY

It is generally recognized that technological change has a central role in the improvement of the economic conditions of the peoples of the less developed areas. There is less appreciation of the problems of adopting technologies which will utilize the resources available as effectively as possible to achieve the growth desired. The less developed areas vary in their natural resource endowments, but unskilled labor is nearly always relatively abundant while skills and capital equipment are relatively scarce. The degree to which technologies are suited to these different resource availabilities and to the achievement of the growth targets determines their aptness for use.

Technological change is important for the less-developed areas but is opposed by strong forces of tradition which attempt to forestall the consequent social changes. Thorough study is required in order to decide which technologies will contribute most to economic growth and to find methods of implementation which will facilitate rather than counteract the change.

Research programs are necessary on each of these aspects:

(1) On the rules for making optimal choices of technology and the integration of such choices into a coherent economic framework.

Technologies are often implemented on an ad hoc basis without regard for the over-all characteristics and objectives of the economy. Practical methods need to be developed to provide guidelines for choices which are consistent and optimal in the total framework of the economy.

(2) On measuring the characteristics of alternative technologies now

available.

Policy decisions on types of projects and the choice of different production methods must finally be in quantitative terms which require a similar kind of supporting information on the existing alternatives. Relatively little of this type of information is currently available and a major effort must be mounted to obtain it.

(3) On the development of new technologies oriented to the special features of the less developed areas.

Science and engineering research are presently concentrated on and oriented to the economic problems of advanced countries. The potentials of research to develop technologies specifically for the conditions of the less developed areas must be explored.

(4) On implementing new technologies in societies resistant to technical change.

Research is necessary to find methods of introducing technological change which avoid or reduce the barriers raised to change by traditional society. This includes studying the sources of technical innovation and the cultural barriers to it.

(5) On institutional arrangements which contribute to the transfer of technology.

Investigation should be undertaken of the relative effectiveness in transmitting technology of private investment, consulting firms, demonstration farms and firms' training centers and other institutional arrangements. This would provide the necessary basis for deciding on the roles and emphasis to be given to each type of program in various sectors.

Economic assistance for development purposes is a major effort dealing with many inadequately understood problems. A research program on a sub-

stantial scale is required to provide guidance for this effort.

I. Introduction

The urgency of economic development in the less-developed areas of the world is now generally agreed upon, even though not so long ago such development was widely regarded as of only marginal concern for United States policy. In any case, the premise having achieved wide acceptance, there need be less distraction from the issues of understanding and implementing economic growth in the less developed areas.

There is also general agreement on the "importance" of technological change in economic development. Before this agreement can be translated into policy, however, a clear understanding must be achieved of how and why it is important. This is the subject matter of the next section of this paper. Methods of identifying technologies by means of quantitative measurements will be discussed briefly in Section III. This section will also survey the problems involved in making an optimal choice of technology, and suggest research on the methodology of such choices in order to make the problem more tractable. Section IV will take up the problems of actually finding technologies suitable for underdeveloped areas. This, in turn, is followed by a discussion of research which needs to be done on technological methods. Implementation of technological change is the focus of Section V. Here it is assumed that the alternative technologies are known and the optimal choice among them can be made. The cultural barriers to technological change are surveyed and research is suggested on ways of circumventing them. Section VI deals with a variety of institutional or organizational features of technological change and, again, proposes research on a number of issues.

The underdeveloped areas of the world exhibit great variety in their resources, the structure of their economies, their current capabilities and

their future objectives. The problems of technological transfer are not so specific, however, that they can be treated only in the context of particular countries. Nonetheless, the characteristics ascribed here to the less developed areas, their problems and research needs will have different degrees of applicability among them.

II. The Role of Technological Change in Underdeveloped Areas

On close inspection it is clear that there is no unanimity as to why technological change is important in underdeveloped areas, or, at least, no unanimity on its most important features. It may not be necessary to decide on which is its most significant role but it is necessary to appreciate the various influences which it exerts.

The role most commonly assigned to technological change is simply the achievement of a more rapid rate of economic growth and improvement of the standard of living than would otherwise be possible. The belief is quite widely held that in modern technology there is the means by which the less developed areas can avoid or reduce the sacrifices and the time span required to achieve a satisfactory level and rate of economic development. Certainly there is a substantially larger inventory of technology which can be drawn upon now than there was when economic modernization began in the nineteenth century. If this body of knowledge can be made available to the less developed areas, they will undoubtedly progress more rapidly than would otherwise be possible. Although technological transfer will make the tasks easier it is almost never costless and seldom, if ever, will yield something in the way of output for nothing but a new idea. So the essential economic problems remain of finding the techniques which impose the least sacrifices for achieving specified targets of future output.

Recent economic research on the growth of the United States has reinforced

the general impression that, quantitatively, technological change has been a major causal influence. Studies such as those of M. Abramowitz, J. W. Kendrick, and R. M. Solow indicate that ordinary capital accumulation and growth in the labor force can alone account for only ten to twenty per cent of the economic growth in the United States in the past half century or so.[1] It is by no means clear that all of the remainder is due to technological change[2] but there is a general consensus that it is a substantial factor. These studies, therefore, reinforce the impression of the importance of technological change in the development of the less developed areas.

Technological characteristics have a major role in many of the most widely discussed problems of economic development. The possibilities and the significance of "balanced growth" in economic development depend to a considerable extent on the character of technology. Economic programming, the relative roles of agricultural and industrial development and significance of "external economies" are likewise related to the technology of the various sectors. For such reasons the problem of optimal choice of technology to which we shall return below has been a central theme in development literature.

A less common conception of the role of technological change in the underdeveloped areas is that it should provide new technologies especially adapted to their resources and conditions. This approach recognizes the differences

1. Moses Abramowitz, "Resource and Output Trends in the United States since 1870," American Economic Review, Papers and Proceedings, Vol. XLVI (May 1956), pp. 5-23, also reprinted as National Bureau of Economic Research, Occasional Paper 52, New York (1956); John W. Kendrick, "Productivity Trends, Capital and Labor," The Review of Economics and Statistics, Vol. XXXVII (Aug. 1956), pp. 248-57, also reprinted as National Bureau of Economic Research, Occasional Paper 53, New York (1956); R. M. Solow, "Technical Change and the Aggregate Production Function," The Review of Economics and Statistics, Vol. XXXIX (August 1957), pp. 312-320.

2. E. Domar refers to it as the "residual." See his as yet unpublished paper, "On the Measurement of Technological Change," which surveys and analyzes the methodology of such measurements.

which prevail in the relative availabilities of productive factors in the less developed as compared to the more advanced areas. Most of modern technology has been developed in and for the latter areas and is, therefore, less obviously suited to the conditions of underdeveloped areas. Facilitating technological change in this conception means research to find new production methods suited to the less developed areas and implementing them there.[1]

In a number of analyses the touchstone of a country's prospects for development is its ability to initiate continuing technological change. Prof. Everett Hagen of M.I.T. makes this the heart of his theory.[2] One has the impression from Prof. Hagen that it is both a necessary and sufficient condition for economic development to occur. The rate at which technological change can be implemented is not independent of other economic conditions, to be sure, and there is great scope for all the tools of economic policy. Initiation of technological change is the key, however, and this requires initiators: enterprisers, who play the central role in Prof. Hagen's cosmogony. The most important issues in development are, therefore, the emergence of such individuals and the psychological and cultural factors which account for them. These define the crucial areas of research for understanding of the basic problems of development.

Prof. Hagen's emphasis is reminiscent of that found in a number of other analysts of economic growth, though none have carried research into the factors which create the entrepreneurial personality so far as he has. Yet the view

1. This is an avenue which is being explored at M.I.T. by the Center for International Studies and is discussed in the recent staff paper of the Stanford Research Institute, Scientific Research and Progress in Newly-Developing Countries.

2. See E. E. Hagen, "How Economic Growth Begins: A General Theory Applied to Japan," The Public Opinion Quarterly, Vol. XXII, No. 3 (Fall 1958), pp. 373-390.

that the role of the entrepreneur in initiating technological change must certainly be an important factor in development is reinforced by the fact that it has been stressed by Joseph Schumpeter[1] and even earlier historians and analysts of capitalist development.[2]

In addition technological change is regarded by many persons concerned with the advancement of underdeveloped areas as one of the major instruments for necessary changes in the general social structure. There is no doubt that this structure to a considerable extent always reflects former economic and technical patterns. Though these may once have represented an optimal adaptation to the existing conditions, the social patterns which facilitate economic growth are likely to be different. As a result old adaptations become modern barriers. Technological change is undoubtedly powerful in destroying the rationale of old social roles and demanding new ones. A special aspect of this is the effect of technological change on the distribution of income and, therefore, on the division of income between spending and saving. Since capital scarcity is one of the common features of the less developed areas, the effect of a new technology on saving is sometimes regarded as its most significant feature.[3]

The conclusion that technological change has a number of important effects in economic development is hardly challengeable. That does not, however, mean that all types of technological change are equally feasible and desirable in the process of growth or that the underdeveloped areas are intended to become

1. J. Schumpeter, Business Cycles, 1939.

2. The classical references are Max Weber, The Protestant Ethic and the Spirit of Capitalism, New York (1930); and R. H. Tawney, Religion and the Rise of Capitalism, New York (1926).

3. W. Galenson and H. Leibenstein, "Investment Criteria, Productivity and Economic Development," Quarterly Journal of Economics, Vol. 69 (August 1955), pp. 343-70.

technological facsimiles of the advanced areas. Nor are the means of introducing and disseminating technological change at all obvious. The criteria for technological change and the means of facilitating it must be developed in terms of the influences it is intended to have. All the influences described here are related to growth via increases in the amount of and the productivity of the available resources. Generally, the relation is direct, though in some cases, to be mentioned, it may be inverse.

The first job in discussing technological transfer is to establish a terminology and the methodology of measuring technology. These can then be used to address the issues involved in making the optimal choice of technology.

III. On Measuring Technology and Making an Optimal Choice

It is easy but misleading to assume that everyone knows what is meant by a particular technology. A little experience in discussing technology with engineers and businessmen is enough to show that lack of a common terminology is a major source of confusion. Clearing it up will actually take us surprisingly far along the path toward deciding what research is necessary.

The ordinary engineering names or descriptions of technology are usually qualitative and may refer to a set of physical or chemical processes. A technology may be described in terms of some basic physical equations in which the variables are physical quantities such as material weights and volumes or electrical energy or heat inputs. Often a technology will be described and summarized in terms of the name of a particular piece of physical equipment. Thus, an engineer or a businessman or a foreign aid official may discuss the introduction of high-speed automatic lathes in India as a particular technological change. Or they may refer to the Frasch process for sulfur extraction or some particular chemical process for which the equations are well-known.

These are deceptively easy ways of discussing technology. They are easy because they are connotative; they convey a general meaning, at least to people versed in the terminology. But they are deceptive terminologies because by themselves they do not convey a precise, quantitative indication of all the inputs and outputs required. It is necessary to measure a technology in order to arrive at an appreciation of its significance. The economist has developed the conceptual tools but has not gone very far in giving them empirical content. The engineer has his own set of concepts which do have empirical content but are not the most suitable for economic analysis. Therefore, for the means of measurement we must combine the skills of the engineer and the economist.

A technology is defined by an economist by identifying and measuring the various inputs of productive resources which are used to create a certain output.[1] The economist has usually had recourse to such global terms as capital, land (natural resources), and labor, which are not unfamiliar to the businessman as he often discusses his firm in somewhat similar words. These terms do not discriminate sufficiently between alternative types of resources, however, and thus do not match the types of inputs which the engineer will ordinarily specify as required for a particular output. Basically, however, the approaches are the same. Though an engineer may sometimes start from the most basic materials, energy and chemical change concepts, in working through his design procedure he will end up with the values of machinery and material of each type, electrical power, and labor of various skills required for a specified output. What is mainly needed between the engineer and the economist is some reconciliation of vocabularies.

1. In linear programming terms this is called an "activity."

The differences which exist in terminology do not vitiate the main point that ultimately technology is defined both by economists and engineers in terms of the amounts of inputs necessary to achieve a particular output. This permits the comparisons and evaluations which are the necessary basis for the formulation of a policy which must itself be in quantitative terms.

This concept of a technology as something which can be measured and precisely defined will be extremely useful in future discussions. It is not an overstatement to say that it is absolutely necessary if any headway is to be made in attacking the various problems just mentioned above of finding, choosing and transferring appropriate technologies. For example, the quantitative notion of a technology permits the distinction between processes which are physically efficient and those which are not and thus makes it possible to focus on only those processes which might be economically efficient. In comparing any two technologies one is physically inefficient if it uses more of all productive inputs or even more of any one input, if all its other requirements are the same. There is never any point in using physically inefficient technologies; it amounts to an absolute waste of resources.

When alternative technologies require, for the same level of output, more of some productive factors but less of others, then the economic issue arises: which is the best technological process to use in a given situation. This is the problem of making the optimal choice of technology which was referred to previously. Though the problem need not be resolved here, it is important to pose it. As we consider alternative processes in discussing the transfer of technology to underdeveloped areas the criteria for choice must be kept clearly in mind.

The optimal allocation or combination of resources in production, which is equivalent to the choice of technology, is an old problem in economics and fully discussed in the context of a static economy. In such circumstances the

rule for choice is, roughly, to use that combination of techniques in the various sectors which, over-all, will employ productive factors in proportions as close as possible to the proportions in which the resources are available. This is entirely consistent with using factors in different intensities in different sectors, for optimal allocation requires that resources make the same relative contributions to output in the various types of production. Thus, capital-intensive methods in producing electric power in central stations and labor-intensive agricultural methods, for example, may both be optimal for particular countries. The criterion for optimal choice does not involve maximizing either the productivity of the employed labor force, the equipment used or of any other particular resource input. Its objective is to maximize the total output which can be obtained from all the resources available to the country. Even with such an optimal allocation, the productivity of any one factor such as the labor employed in some particular line of production can be increased by choosing a different technology which is, say, more capital-intensive. That, however, will always involve a greater loss of output in other sectors. Of course, any costless method of increasing the productivity of labor or any other resource ought always to be seized but such methods seldom exist. A criterion for choice of technology which is confined to increasing the productivity of the amount used of only one productive factor, such as labor or machines of particular types, is quite misleading.

The criteria for optimal choice of technique in developing economies start from the static criterion and consist of modifications of it which arise from the many problems involving time in an essential way, the statement of different goals and the imposition of additonal constraints. In a dynamic context, for example, differences in the gestation period of production processes and in their durability must also be taken into account in choosing the technology which in turn determines the relative intensity with which productive factors

are used. As between processes with equal input requirements and equal outputs, the one with the quicker payoff is to be preferred. When a faster return requires having more inputs or getting less output, again an economic question arises.[1]

If the goal is to increase the rate of growth, another set of influences related to but not purely technological must be taken into account. Different technologies which use different combinations of labor, capital plant and equipment and materials will give rise to different distributions of incomes. Each income distribution will have its own savings characteristics and, therefore, will differ in the amounts of resources which will be made available for further investment and economic growth. In this way, there may be a specific savings and investment potential associated with each type of technology. The choice of technology in the context of a developing country must take this feature as well as the immediate contribution to output into account.[2]

The choice of technology in developing economies involves other features not generally considered in a static context. Economies of scale, which do not fit easily into static economic analysis may be an essential feature in a developing country. One type of technology may have external effects, as in labor training, which tip the scales in its direction.

These issues may be illustrated and made more concrete by a few examples. The recent Chinese experiment with small iron ore smelting furnaces provides a frequently cited example of a technological revival supposedly more suited to their conditions than the methods now generally in use as it requires a great deal of the abundant labor which they have. However, the

1. In this case the best procedure, put briefly, is that which gives the highest present discounted value.

2. A substantial literature exists on this problem. The recent article by Prof. Hollis Chenery, "Comparative Advantage and Development Policy," American Economic Review, Vol. LI, No. 1 (March 1961), pp.18-51; and the book by A.K. Sen, Choice of Techniques, Oxford (1960), are good guides into this area.

experiment appears to have been virtually dropped; it is likely that the process was simply physically inefficient. The small furnaces undoubtedly required more fuel per unit of output and possibly more capital also, as well as more labor.

On the other hand it is not unusual to find plants embodying the most modern technologies in the less developed areas, using a good deal of equipment per worker and relatively little labor with a very high average productivity. This may be justified on several grounds. Sometimes it is argued that such methods are the only physically efficient ones, or , that, even at the low wages prevailing, they are economically more efficient than methods which use more of the abundant labor which is available. Both of these answers, if they were true, would be adequate reasons, but, as stated above, it would be wrong to justify a technology solely on the grounds that it increased the productivity of the workers in the plant.[1] It is after all the productivity of the entire labor force and the output of the entire economy which is important for development.

To illustrate the impact of changes in technology on savings patterns the possible implications of a land reform program can be cited. In some of the less developed areas of the world land reform programs increase the labor intensity of cultivation by breaking up large landholdings and distributing them in parcels to individual families. This means that a change in technology as well as a change in property relationships is involved. The effect may very well be in such cases to increase output per acre or per hectare and total

1. As an example of this kind of reasoning see Richard L. Meier, "Automation and Economic Development," Bulletin of the Atomic Scientists, Vol. X, No. 4 (April, 1954), pp. 129-133.

output, though output per man would fall. A further effect might be that such an increased proportion of the total output is consumed as the result of its wider distribution in the hands of the actual workers of the land, and that total saving is actually reduced. This in turn would tend to impede further over-all progress by reducing the total investment possible.

The problems of measurement are handled best in the context of investigation of the characteristics of particular technologies and so will be discussed in the next section. On the other hand, the principles of optimal choice of technology can be investigated and established before they need to be invested with actual facts and numbers. The logic of making optimal choices has by no means been completely explored in spite of the extensive literature cited above. More work is needed in order to integrate the rules for optimal choice into an over-all programming framework. In the present state of knowledge the choice issue is usually analyzed for projects as if they are and could be considered separately from each other and independently of the over-all growth pattern of a country.

There are analytical tools which, when given empirical content, can be used to establish the consistency of various projects in an over-all plan. These are best represented by the input-output approach first developed by Professor W. Leontief at Harvard University[1] and, perhaps most skillfully used in application to underdeveloped areas by Professor Hollis Chenery.[2] Where input-output methods cannot be applied, something equivalent has to be developed for the purpose of establishing

1. Harvard Economic Research Project.

2. E.g., "The Role of Industrialization in Investment Programs," American Economic Review, Papers and Proceedings, Vol. 45 (May 1955), pp. 40-57.

over-all consistency in economic programming. The development of input-output type information must, therefore, be seriously considered in research plans for any underdeveloped area. However, it would be premature to put such research on the current agenda for every country. In many areas the economic programming currently required is not sufficiently complex or elaborate to require the full input-output apparatus to establish consistency. In these and other cases, the quality of the statistical data available may not warrant the empirical effort involved. Where the data make the project feasible, various methods of constructing input-output tables should be considered. These are by no means completely settled in themselves so that in this, as in other fields, alternative approaches should not be foreclosed by a premature commitment to a particular method.

The problem of optimality is logically and practically distinct from that of consistency. Though input-output tables will help establish the latter, more is required for the former problem. The theoretical framework for forming policy has not yet been completed, though theoretical programming models exist which give useful insights and are of value as partial guides. Relevant work is going on,[1] but much more needs to be done. Again, for some countries, the priorities are so obvious and the opportunities so limited that no highly sophisticated tests of optimality and consistency are necessary. For other areas with greater scope for choice and action and better data availabilities the problems of formulating a consistent and optimal development program are pressing ones.

1. E.g., S. Chakravarty, The Logic of Investment Planning, 1960, and "The Use of Shadow Prices in Programme Evaluation," (as yet unpublished); H. Chenery, "The Interdependence of Investment Decisions," in Abramowitz et al., The Allocation of Economic Resources, Stanford (1959); R.S. Eckaus and L. Lefeber, "Capital Formation and Economic Growth: A Theoretical and Empirical Analysis," (unpublished).

The recent attempts to place U.S. economic aid on a long-term basis highlight the need. This country may soon be asking recipients of our economic aid to prepare long-term development programs. Yet the means to do this are not fully available. Therefore, more research is necessary just to get a good start.

The problem of optimal choice of technology can be treated with the full generality with which it needs to be treated only in the context of complete, consistent and optimal programs. Though it will always be necessary to make pragmatic compromises with inadequate methods and data, the nature of the inadequacies should be recognized.

This conclusion can be illustrated and made concrete by another type of reference. One of the sectors in which the choice of technology is most important for underdeveloped areas is transportation. Transportation systems can be based on railroads and locomotives and rolling stock of various types or highways and buses, trucks, and cars, or some combination of the two systems. The choice of methods is a choice of technology. Yet it is obviously not one which can be made in abstraction from the rest of the economy for the choice itself will determine how the rest of the economy develops. That is, it is not legitimate to ask "What is the optimal technology to move so many ton-miles of freight?" and then choose a technology of railroads or highways and buses, and leave it at that. It is not legitimate because the answer to the question will change the way the question is formulated; specifically it will change the number of ton-miles which have to be transported to achieve the economic development specified.[1]

Lacking a fully general way of treating the problem we may have

1. See L. Lefeber, Allocation in Space: Production, Transport, and Industrial Location (Amsterdam, 1958).

to accept partial solutions, but that does not justify being permanently satisfied with second best. There should be a major effort to improve the ability of countries to take into account the full ramifications of technological choice: to have that choice fully sensitive to the targets specified, on the one hand, and to have the choice feed back and affect the targets to be chosen on the other hand. The analytical problems are among the most complex faced by economists. Research work in this area may seem far removed from the pressing issues of economic development because of its abstraction. Yet it is only by pursuing the abstractions that models can be formulated which, when given empirical content, will provide concrete guidance in particular circumstances.

There are relatively few individuals working in this area and nearly all of them are in academic institutions. The nature of the research, which must include tentative theorizing also suggests that academic institutions or private research organizations are the proper location for such work. It is likely to be done best if the injunction to make a contribution to development programming is clear, though full scope is given for theoretical development.

IV. Finding Technologies Adapted to the Conditions of Underdeveloped Areas

There are two aspects to finding technologies adapted to the conditions of underdeveloped areas. The first constitutes searching among already known technologies; the second involves research to find new technical methods especially suited to the unique conditions of underdeveloped areas. Both aspects will be discussed below but it will help to clarify the issues if another question is discussed first.

A. Why the choice of technology is less difficult in advanced

than in underdeveloped areas.

In principle the problems of technological change in advanced countries are not different from those in underdeveloped areas but practically they are of a different magnitude. The technological changes occurring, or in prospect, are first of all pervasive and profound departures from previously used techniques. These have become imbued with cultural traditions so that a change in production methods requires fundamental adjustments in all aspects of the society. By comparison technological innovations in advanced countries are, for the most part, marginal changes occurring in societies more readily adaptable to change.

Secondly, technological changes in underdeveloped areas are nearly always imported from advanced countries. The characteristic differences in the relative availabilities of the various productive resources in advanced and underdeveloped areas have already been pointed out. As a result, while some of the technological imports may economize on all factors and actually be physically more efficient than existing techniques, other imported techniques may very well economize on the wrong factors. For example, while it may make eminent good sense to substitute capital equipment for U.S. labor at three dollars an hour, it may not be sensible at all in other countries where equivalent labor is, say, three dollars a day, or three dollars for two days, or even less.

Technological change is a more obvious problem in the less developed areas and attracts more attention and greater pressures. It is done more consciously, more publicly and more often under government control if not under its direction. In advanced countries it occurs regularly with less public attention and seldom with government inter-

ference.

Not only do the less developed countries face more difficulties in adopting changes in technology than do the economically more advanced countries, they have much more difficulty in generating new technologies especially suited to their conditions. The overwhelming part of the research and development which is currently going on to develop new technologies is in advanced countries and directed toward their conditions. The amount of technological research directed especially at the problems of underdeveloped countries is virtually negligible.[1]

The research facilities in the less developed countries are themselves quite limited while research in the advance areas is directed to their own technical problems. The relative poverty and slow growth rates of the less developed countries means that they have not constituted a substantial market which has warranted the attention of those private companies which sponsor technical research. Lack of knowledge of the needs and potential requirements in such areas has also contributed to their neglect. Academic research in the advanced countries is preoccupied mainly with problems in the forefront of scientific and engineering sophistication. Rightly or wrongly the applications are directed primarily at the conditions found in the already developed countries.

It should, therefore, not be surprising that finding and implementing appropriate technological changes include some of the most difficult problems in economic development. However, these problems once identified are, themselves, amenable to research.

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1. The national scientific research institutes such as those of India and Pakistan do concern themselves with these problems to some extent.

B. The present state of knowledge about technology.

In spite of the central role which technology plays in economic theory, in general, and in development theory, in particular, economists actually know relatively little about it, though it is customary to assume a lot. For example, the degree of variability of inputs of productive resources is an important aspect of a number of significant issues of economic development such as the feasibility and desirability of balanced growth. Yet there are few available facts on the extent of input variability. Likewise, economies of scale in production are widely admitted to be an important consideration in development. Yet there is relatively little information of the specific and quantitative character necessary to be useful in understanding and assisting development. External economies and differences in the technological characteristics of the various producing sectors are also frequently cited, but factually elusive phenomena. The importance of training labor with the skills required to modernize production is well recognized and education programs are prepared with that objective in mind. In fact, however, there is almost no data generally available which specifies the precise amounts of the various skills required to operate different kinds of technologies. In the absence of such information much of educational policy amounts to calling for more of all types of educated labor. While it is true that more of all types of education is necessary for development, there are certainly differences in the degree of urgency of the requirements for some skills as compared to others.

Though economics has been relatively successful in preparing a framework for the analysis of the relative suitability of alternative techniques of production and in generating the right questions which need to be asked about technology in order to make choices

among alternatives, economists have not gone very far in answering the questions. This has not prevented the formation of quite strong views on the factual issues. As a matter of faith some economists insist that there must be a wide range of variability of inputs into any productive process. Less frequently the reverse is held to be true: that there is no effective choice whatsoever. Similarly strong and opposite views exist on the importance of economies of scale and "external effects," with relatively little specific information on these issues.

The existing engineering literature in turn provides relatively little information of the type desired. The relevant part of this literature is that dealing with the design of production processes and most of this is concerned with the principles of some particular aspect of a production system. Complete working specifications with all the inputs and outputs described in detail are almost never available.

Though there are many examples of the effective transfer of technology from advanced to underdeveloped countries by engineers and businessmen, there are many other examples of application of inappropriate technologies. There is a tendency among some engineers to believe that the "best practice" in the U.K. or Switzerland or the United States is the best practice everywhere. It is understandable that engineers whose experience has been mainly or exclusively in the context of advanced countries should not fully appreciate the economic significance of the application of different technologies in less developed areas. Moreover, it is naturally easier to reproduce existing designs than to start from scratch with a complete re-thinking and re-working of the technology of some process.

There are tendencies also in business organizations which would lead to the implementation of inappropriate technologies in the less

developed areas. Among the indigenous business leaders there is often an inclination toward a kind of conspicuous emulation of technology which brings them to adopt the latest and most "up-to-date" equipment rather than that best suited to local conditions. Among foreign investors one frequently finds attitudes similar to that found in some engineers that "best practice" does not depend on the locality. Moreover where there have been successful adaptations of technology to local conditions it is only very rarely that these are written up in the detail necessary to permit consideration of their transfer to other relatively underdeveloped regions. Thus there is relatively little business literature to which one can refer for guidance.

The particular difficulties of this research area may be illustrated by comparing it with the extensive empirical research which has been done on consumer saving and spending patterns. A wealth of detailed information about consumer budgets at various levels of income and in urban and rural areas exists not only in advanced but in many of the less developed regions as the result of the collection of national statistics and sample surveys of budget patterns. Certainly the information is not completely adequate any place, but enough has been generated to permit this to become a major field of economic research. Unfortunately national statistics are nowhere available with the detail necessary to yield information about technology upon which choices could be based. It is even doubtful that macroeconomic data are useful for this purpose though undoubtedly significant for inferences about the aggregative influences of technology and changes in it.[1] On the microeconomic level, no survey technique similar to the household

1. R. M. Solow, op.cit. supra, and R. S. Eckaus and L. Lefeber, op.cit. supra.

budget studies can be applied to the study of technology. Though consumer budget studies are expensive, the responsiveness of consumers as well as other features of the problem, such as the convenience of general categories of consumption, make mass surveys feasible. Business firms, on the other hand, are notoriously close about their affairs and for understandable reasons. Moreover, the heterogeneity of inputs and outputs makes the collection of data more difficult. Comparison is also more difficult due to the different impact of local production conditions, firm organization, past technological adaptations and so on.

Yet the type of information essential to understand and assist in the transfer of the most useful kinds of technology to the less developed areas is information at the microeconomic level. Both the aggregative and input-output research mentioned above would also be more useful if this type of additional information were available.

The increasingly obvious need for information about technology is spurring research by economists though the work is still at the beginning.[1] Some of the studies at the macroeconomic level have already been mentioned. More of these are necessary, yet by themselves they cannot penetrate to the causes of the changes which they observe, at least with type of aggregative data now available.

Input-output tables and their associated empirical studies on "technological coefficients" are useful tools of research and programming as pointed out in Section III above. Yet such technological coefficients are not revealing about production processes at the firm level as they are again too aggregative, combining as they do many different types of firms and products. It is even somewhat misleading to call the numbers in the input-output tables "technological" coeffi-

1. See the "Report of the Meeting of the Expert Working Group on Industrial Development Programming Data," Division of Industrial Development, United Nations, New York (May 17-19, 1961).

cients. They reflect many other than technological influences as, for example, the degree of vertical integration in plants and the amount of subcontracting which occurs in a particular industry.

Agriculture is classically the sector in which there has been the most work on the detailed characteristics of particular types of production and the alternative inputs required. Investigators in this area have also occasionally extended their interest to related food processing operations.[1] The work in this area is by no means done and there are particular deficiencies in the research on the types of agriculture found in underdeveloped areas. Moreover, since local conditions are to such a great extent controlling in this sector, there is a greater need for matching the research to the particular situation. The investigation of disguised unemployment in agriculture in the South of Italy, which was sponsored by the Italy Project of the M. I. T. Center for International Studies, is an example of the application of survey methods to a problem closely related to the resources and technologies available there.

In the area of industrial technologies, the Netherlands Economic Institute at the instigation of Prof. Tinbergen has adopted a fundamental approach and has turned out studies on woodworking, weaving, and lathing. This Institute as well as the Division of Industrialization of the Department of Economic Affairs of the United Nations have studied in detail particular construction and earth-moving processes. The Economic Commission of Latin America in cooperation with the Division of Industrialization is currently investigating alternative methods of investigating the technology of industrial sectors to

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1. See, for example, W. H. Nicholls, Labor Productivity in Meat Packing (Chicago, 1948).

provide information in the forms most useful for implementation of industry in the less developed areas. One approach currently being followed is an extension of the process analysis first developed at the Rand Corporation by Hoffenberg, Manne, Markowitz, and Rowe. This is a research procedure which begins by measuring inputs at the most basic level of industrial processes. Since it is such a fundamental approach we shall have occasion to return to it below.

The Center for International Studies at M. I. T. has had a continuing interest in this type of research. Work done there and sponsored also by Brandeis University and financed by the Rockefeller Foundation, though based on U. S. data, is intended to provide information which will be useful in the less developed regions. A study of labor skill requirements, which is quite far along, when adapted to such areas, can provide the basis for detailed recommendations for educational and vocational training. This is also the purpose of the study of foundry processes which has been started. In addition, economists have been exploring with members of the engineering faculty the possibility of establishing a group to develop new technologies or new adaptations of old technologies especially suited to the conditions of underdeveloped areas.

Another type of work which deserves mention is that done by the Stanford Research Institute on small industry. Their published studies are not confined to consideration of the most appropriate technology and, in fact, do not generally treat this subject at great length.

In addition, the work of I. C. A. itself in providing engineering assistance and helping to improve technical standards should not be slighted.

C. Research needs and methods for finding suitable technologies.

It is useful in tackling a problem which one knows in advance to be complex and hedged about with conceptual, empirical, and policy restrictions to state clearly both objectives and the optimal empirical information. Though these may not be fully achievable, if they are kept in mind, they point the directions in which to try to move and help in assessing the significance of the inevitable compromises.

The economist has long known what data should be available in order to make the best possible decisions regarding the use of technology. One ought to know the full range of alternative technologies. Referring to the terminology developed at the beginning of this section, the optimal set of information would be that which gave in quantitative terms all the productive resources required to achieve each output level. This would necessarily include specification of the time pattern of inputs and outputs.

The optimal set of information may be unobtainable but stating what it is helps to indicate the type of research which should be done. It should involve quantitative investigation of alternative technologies. Even if the complete range cannot be known, the investigation ought to be pushed toward the more intensive use of the more abundant factors in underdeveloped areas and away from the scarce factors. Since the relative availabilities of productive resources will vary from area to area and from time to time, the study of technology must be a continuing program of research but a major initial effort can cover much of the necessary ground.

Fundamentally there are two approaches to such studies. One is the investigation of actual production systems which have been or are now in

operation. The other is the design of alternative production systems, which amounts to simulation of production processes. These approaches are actually complementary and reinforcing though each has its own set of advantages and disadvantages. The former has the special virtue of realism. It impels the investigator to consider issues which might otherwise have been passed over. It may also reveal the reflexive or feedback effects of economic and other social forces on the organization of the production process itself. It requires an accounting of both inputs and outputs and this in turn implies a previous study of the production process to determine the set of categories and measurements which will best reflect the output mix, the input components and so on.

Real systems always involve adaptations to local conditions and may reflect a quite special set of practices. It may also be difficult first to find and then to measure the inputs and outputs for the variety of technologies actually in operation. This suggests the advantage in combining such studies with simulation or design of production processes using different combinations of inputs. Once a simulation model is set up it can yield information over a wide range of alternative methods and of alternative employment requirements of various types of skills and various material, equipment, and power inputs. On the other hand, however assiduous the attempts to reproduce the conditions likely to be found in the less developed areas, simulation necessarily involves some abstraction. While that also widens the scope and generality of the conclusions in one sense, it decreases their immediate applicability.

This is not the occasion to enter into the details of measurement, but it is useful to describe briefly just a few of the conceptual and

practical problems involved in order to indicate more precisely the nature of the studies contemplated.[1] In some industries the outputs are reasonably homogeneous or have some common feature so that they can be converted into comparable units. In these cases it is feasible to make comparisons of inputs on a plant basis and the problems revolve around finding the input categories which will reveal the significant variations in technology. Though concerned with a different problem, and, therefore, not providing the detail desired for the present purposes, the estimates of capital coefficients by the Office of the Chief Economist of the Bureau of Mines provide an excellent example of this approach. These studies were based on records of existing plants and were centered on mineral extraction and processing. For each "product," the amounts of each type of input necessary to expand capacity by one unit were computed. The capital coefficients computed from these studies are, of course, only one of the items of information desired as a basis for considering a transfer of technology. The studies provide good examples of methods of resolving product and input comparisons. However, they also indicate the inadequacy for our purposes of studies based on existing designs alone, as there is no basis for supposing that these designs are generally optimal for underdeveloped countries.

There are industries in which the product is quite heterogeneous so that it is difficult to find a high common denominator in the comparison of

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1. For details see R. S. Eckaus, "The Choice of Technology in Economic Development," Center for International Studies, M. I. T. and The Economic Weekly, Vol. XIII (Feb. 1961), pp. 197-202, Bombay, India, and "On the Methods of Investigation of Factor Proportions," Center for International Studies, M. I. T.

inputs and technologies. The answer then is to turn to an examination of the particular subprocesses involved and to compare inputs on this basis. The output of metal machining shops is quite varied, for example, though they use many of the common cutting, grinding and forming processes. In this sector a comparison of technologies at the process level is likely to be the most rewarding approach. One of the best examples is "An Analysis of Machine Tool Substitution Possibilities," by A. J. Rowe and H. Markowitz.[1]

The objective of the studies proposed here is to create, in a readily usable form, a body of knowledge of alternative technologies which, though not exactly fitting any particular case, would indicate concretely the range of technological substitutions possible. Though it is commonly said that scientific and technical knowledge is universally available, this is an understatement of the real difficulties of obtaining such information in the less developed areas. Though the fundamental principles may be known, knowledge of their most effective application and organization is not easy to come by. The purpose of organizing the studies described and obtaining the technological knowledge is precisely to speed the transfer of this applied information.

Though theoretical issues will undoubtedly be involved in the studies of technology suggested here, these need not be expressed when the results are made available to overseas aid missions. The material must be presented in a way in which local engineers and businessmen can understand the suggestions made. Guidance should also be supplied for testing whether the suggestions are appropriate in the local conditions and for exploring the possibility of other, still better adaptations. The studies call for considerable ingenuity whatever the method used. Dogmatism about techniques should be avoided so that

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1. Rand Corporation (June 30, 1953).

there is as much chance as possible for optimum adjustment to local factor endowments along the lines discussed earlier. However, the argument for such adjustment is not meant to prejudge the issue as to whether or not the most advanced technology available is or is not appropriate for use in the less developed regions. In some lines of production and in some areas it may very well turn out to be so because of the tremendous production rates which can be achieved. In other sectors it may not be so. The argument here is primarily of the necessity for having information upon which to make a judgment.

The engineer must eventually be the source of the technical information necessary, but in developing this information cooperation between the engineer and the economist is essential. The economist lacks the basic technical information necessary to establish the most effective set of categories and to measure inputs and outputs in ways which will facilitate comparisons. On the other hand, the engineer can profit from the help of the economist in deciding in which directions, in terms of saving scarce resources, the design of production systems should be pushed.

The studies may be organized and distributed in a variety of ways. Bound handbooks suggest a rather more definitive treatment of a technical area than may in fact be feasible in the face of the many new situations which will undoubtedly arise. Loose leaf files to which new case studies and designs may be added as they are developed provide a means of collection and dissemination of technological information which is more in accordance with the probable pattern of its accumulation.

One source of information which should certainly be tapped and made more widely available is the experience of technical assistance personnel in the overseas missions. Working as they do with actual problems and adaptations

of technology, they may provide valuable ideas if their experience is properly collated into a general file. To be most valuable the information should, as with other studies, be quantitative, in nature. One should hesitate in suggesting additional paperwork for overseas officers; intensive interviews provide a research method less demanding on them and probably capable of better results.[1]

The types of studies recommended as important for one area will be less so for another. Agricultural development is important everywhere. This sector probably already has more information in the requisite form than any other sector though additional effort in collecting and organizing the material is undoubtedly necessary. Civil engineering projects of various types are also of general importance and much more work on alternative construction techniques is desirable.[2] Housing and other types of construction are also of great significance and deserve more ingenious study. Again a great deal of information already exists which needs to be collated but original studies on the potentialities of local building methods and materials would also be desirable. Transportation is another sector in which the implications of alternative emphases on road and rail technologies are by no means fully understood though of very

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1. Examples of the use of such techniques for other purposes are in J. Montgomery, "Field Organization, Administrative Relationships and Foreign Aid Policies," Public Policy, Vol. 10 (1960), C. J. Friedrich and S. Harris, eds.; "Political Dimensions of Foreign Aid," Tradition, Values and Socio-Economic Development, R. Braibanti and J. J. Spengler, eds. and Politics of Foreign Aid: An Analysis Based on American Experience in Southeast Asia, forthcoming; also a recent project by the Center for Development Research and Training of the African Studies Program of Boston University.

2. See United Nations, Department of Economic and Social Affairs, Industrialization and Productivity. This journal has had several articles relevant to this subject.

great importance. A listing of research topics and the assignment of priorities is a preliminary step deserving special thought.

An aspect of production methods which requires special attention is the labor skill requirements. Labor skills themselves are one dimension for substitution of productive resources and are relatively scarce even in the less developed areas in which labor, in general, is quite abundant. Skills are in many ways like capital resources yet, because of the methods of creating this type of capital and its other unique features, they require special consideration. For example, because of the inalienability of labor it is likely that there would be underinvestment in education and training if all of it were left as a "business" decision. That is why it is necessary to have an overall judgment on the education and skill requirements associated with different types of technology. This is not a suggestion for research on the methodology of education but for research on what kinds of education and training are necessary for the labor force in the less developed areas, using the technologies best adapted to their conditions. Relatively little work on this latter subject has been done in spite of its significance but there is an increasing amount of interest in this area.[1]

In some sectors or aspects of the economy so many different industries, types of production and aspects of economic life are bound together that what is required is an overall, or "systems" approach or what the economist calls a model of "general interdependence." Without such an approach essential features are lost. Transportation and location of industries provide a good example. Separate studies of the technology of transportation are necessary as described above but they are less useful piece-meal than in a general approach which

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1. See R. S. Eckaus, "On the Comparison of Physical and Human Capital," Center for International Studies, M. I. T.

encompasses not only the technology of particular processes but their economic relations with the location of industrial and population centers.

This suggests another related area which calls for a comprehensive approach: urban studies. Here again many specific studies of alternative technologies are required. The need is particularly pressing because of the rapid rate of urbanization which is occurring and the high costs of the various urban services required. Technologies and designs for the various aspects of urban life have been transferred from advanced to less developed areas almost without change. It is possible that such transfer is warranted, that no other organizations and technologies can be found which would be more economical in terms of the resources available. On the other hand, studies of urbanization problems from the point of view of the economist are relatively scarce and much more needs to be done in the way proposed here by measurement of inputs and outputs.[1]

Of the studies proposed here some are necessarily quite large and others can be subdivided in many parts. Studies of many technological processes can be done on a small scale whereas other processes and issues such as those of transport or urban problems, involving many facets of economics and technology as they do, must necessarily be on a larger scale. For some of the studies academic or research organizations can be used quite efficiently and may be particularly suited to the more theoretical investigations. At least partial knowledge of the topics discussed here and the competence to do more research

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1. As an exception, see the studies jointly supported by SVIMEZ and the Italy Project of the Center for International Studies on municipal costs in cities of various sizes.

is widely distributed. Therefore, for the most effective use of the available research potential, it is suggested that research on particular types of technology should also be dispersed, though special responsibilities may be assigned to particular organizations especially where a broader range of problems is involved.

Such dispersal of research imposes more stringent requirements on the central organization for coordination, planning, and collating all the studies. As pointed out above, the foreign aid organization is itself a potential source of useful information on technology. Therefore, it seems necessary that a research organization should be developed within the foreign aid administration. Its functions in this area would include planning and supervision of research projects subcontracted to private individuals and institutions as well as collection and collation of data from internal sources. There is no intention in these proposals that such a research unit be foreclosed from having a wide scope. The suggestion is only that the potential of the research personnel committed to academic and other institutions should be mobilized as fully as possible.

The development of new technologies or adaptation of old technologies for the less developed areas poses different problems than the survey and measurement of existing methods of production. The finding of new techniques requires scientific and engineering projects, though they will be done most effectively with the cooperation of economists. Reasons for the relative neglect of this type of scientific and engineering research were set out above. Certain common difficulties arise in the contemplation of this research area by engineers and scientists. Due to lack of familiarity they do not identify the crucial problems to their own satisfaction and do not always fully appreci-

ate the inapplicability of existing technologies. To engineers and scientists in industry and in academic faculties who are accustomed to work for specific "customers," the lack of a technical statement of the problems creates an aura of vagueness in objectives to which they are not accustomed. Finally, and quite importantly, there have been no sources of funds for sponsoring research on the technical problems of underdeveloped areas and, therefore, no effective way for these problems to compete for research time and laboratory space. This type of research has been virtually neglected, in large part because the availability of funds for research on national defense and sophisticated production systems has monopolized the available resources. However, there is an increasing amount of interest in the technical problems of underdeveloped areas by both the research organizations of private companies and academic engineers and scientists.

The terms of reference of research to find new technical methods may be defined in broad or narrow terms depending on the skills and interests and facilities available. At M. I. T. members of the Center for International Studies and the engineering faculty have conferred on a program of research on the development of small scale energy sources for underdeveloped areas which would cover a range of engineering fields. On the other hand, such a specific project as the preparation of a fish powder as a dietary supplement has also been discussed tentatively. Implementation of this research now depends primarily on the availability of funds for the purpose.

Most of the research of this type might best be done outside of government in existing academic and private facilities, again because of the commitment of personnel to these institutions. That would not foreclose a certain amount of direct effort by a government agency. In any case to stimulate,

organize, and supervise this engineering research a high level of technical and scientific as well as economic competence must be created in the foreign aid organization.

An undertaking by the U. S. government to sponsor research for the improvement of the conditions of the less developed regions would make a direct contribution to our foreign aid effort. It would also stand as a symbol of the commitment of some of our best minds and research facilities directly to foreign assistance. By example and direct cooperation it might influence the scientific and engineering talent in the underdeveloped areas to attack their own problems more vigorously. Certainly no miracles should be expected or promised. There are no cheap and easy ways to prosperity but it may be possible to increase substantially the potential rate of development by creating technologies particularly suited to the less developed areas rather than by simply transferring technologies designed for the most advanced countries and different economic conditions.

Such a mobilization of our engineering and scientific resources in this country should be related to the previous research projects proposed on the investigation of existing technologies. The latter will undoubtedly throw up research topics and stimulate development along new lines.

V. Research on Problems of Implementing Technological Change

Implementation is often not a problem which is, for practical purposes, separate from those of finding and choosing among alternative technologies. The latter activities are usually undertaken by a public or private entrepreneur only when there is a clear prior commitment to act upon the choice made. On the other hand, lack of entrepreneurship is a commonly observed phenomenon even when the potentialities of alternative technologies seem to have been well established. In these latter cases, the problem of the implementation phase emerges as a distinct issue.

In turning to this issue the present discussion will be confined to the organizational and social and psychological aspects of it. The barriers to implementation of new technology which are created directly by such economic constraints as, for example, the shortage of savings and foreign exchange and high interest rates, will not be dealt with here. In view of the central place these problems have had in economists' discussions of foreign assistance programs there should be no danger that inadequate appreciation of them will be assumed if they are omitted from consideration at this point. Likewise implementation depends on the availability of particular skills in the labor force and this in turn suggests the usefulness of research on labor training programs and skill requirements as was mentioned earlier. Another paper at this conference is directed to these problems so they also will not be discussed here.

A. The social barriers to technical change[1]

Widespread reluctance to adopt new technologies even those whose superiority seems overwhelmingly obvious, is a commonly observed phenomenon. It is often

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1. In this section I rely in part on the research of Prof. Everett Hagen of the Center for International Studies, M.I.T. (see for example "How Economic Growth Begins: A General Theory Applied to Japan," Public Opinion Quarterly, Vol. XXII, No. 3 (Fall 1958) pp. 373-390). Prof. Hagen is, of course, not responsible for my interpretations.

attributed to "backward" or "irrational" ways of thought which can be changed only in the slow process of education and modernization of societies. On this, two types of observations must be made. First of all, there ought to be a healthy respect for local skepticism of new methods. "Peasant wisdom" is, to be sure, sometimes only ignorance and superstition. Sometimes, however, it turns out to contain an important kernel of truth. The examples of the former can be multiplied; beliefs that certain foods are poisonous, that only a particular crop can be grown on particular lands and so on. But examples can also be cited of projects which have foundered on the very difficulties predicted by local producers.

Objections to new and thoroughly tested procedures are often encountered which apparently can be nothing else but irrational once appropriate investigations have been made of the technical objections of local producers. To this a second response is required. There must be a full appreciation of the disruption of life which is caused by new technologies. These are important even in those advanced countries which might be expected to have adjusted to change as a way of life. One has only to mention the dislocation and uneasiness in many cities of the United States due to the current wave of automation of production processes. In the less developed areas, where technological changes disrupt a traditional society which is often without flexibility and the means to adjust to change, the threat is very great. In the face of this threat, it is natural that there should be a reluctance to embrace the enemy. [1]

It is convenient to talk of the disruptive effects of technological change on society as a whole but this is only a useful generalization of what it does to groups and individuals within the society. If they are in fact desirable changes, the new technologies will permit cheaper production than would otherwise

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1. The volume by Edward H. Spicer, ed., Human Problems in Technological Change: A Case Book, New York, 1952, is full of such cases.

have been possible. However, they will seldom, if ever, be confined to products entirely new and complementary to those already produced. Thus, these changes are bound to displace workers, destroy existing market positions and disturb established social relations. There is little point in claiming that the over-all economic growth which is engendered will make everyone better off on balance or permit adjustment into new lines of investment and labor. Though that hopefully would be true, the danger to the displaced individual is immediate and pressing. The reward is tentative and distant and there are at best only slim reserves which can act as a cushion for the adjustments required.

Self-interest is not defined narrowly in terms of economic improvement in any society, but in terms of the total adjustment to the community. Where status depends on or can be achieved by material advancement, technological change which achieves it will be attractive to some people at least. But where status is associated primarily with other features of social adjustment, technological change may even be abhorrent. For example, there are places in which the landowner or owner of an industrial firm is expected to act as the benevolent patron of his working force, to be a kind of super father figure. In such circumstances to introduce a technological change which would displace part of his labor force, would expose the owner to profound social criticism, so much so that he may not even be able to conceive of such an innovation.

This suggests another aspect of technological change which needs to be stressed. Not only does it often require new skills but it requires that new roles be filled. There may have been no exact counterpart in a society for the function of a supervisor or a foreman in a plant or even for a solitary worker at a machine. So the technological change may demand economic functions from the labor force which have not previously been performed. The inability of a society to adjust easily to these new requirements is another barrier to the implementation of technological change. Social prestige is often, but not always,

associated with economic functions. The criteria by which social prestige is distributed as a result of a new technology are likely to be completely alien to a traditional community and another source of hostility to technological change. We need not go far afield to find such patterns of behavior. The impact of the accelerating economic development of the South on race relations there provides a good example.

This suggests the significance of Prof. Hagen's argument that the innovators of technological change in the less developed areas are most likely to come mainly from groups in the society which, for one reason or another, are disaffected. They must, of course, at the same time have effective opportunities to become innovators rather than being so completely suppressed as to have become more or less passive. We need not go into the detail of Prof. Hagen's theory of personality adjustments to appreciate these conclusions. However, if technological change becomes associated primarily with such disaffected groups, that in itself may create another barrier to such change.

Self-interest has a powerful logic which can lead to a correct intuition of the indirect as well as direct effects of a particular technological change. Thus, many forces of a community are likely to be mobilized against it as its pervasive effects are perceived. These cannot be concealed or denied; they are, in fact, part of the object of technological change. It is disruptive and destructive of the status quo in spheres beyond the purely economic. It is unsettling; that is the social essence of it.

There is no point, therefore, in denying the existence of psychological and social barriers to technological change or in underestimating their importance by reducing them to "irrational" or "anthropological" quirks. They are real and rational in the total social context. Since they cannot be hidden or denied the only recourse is to try to understand them in order to predict their effects and to smooth the adjustments required.

B. Research possibilities on social barriers to technological change.

It has long been a complaint of some anthropologists and sociologists that their advice has not been asked about problems of development. This is partly because the questions which should be addressed to such specialists have not been obvious and partly because such specialists have not been concrete about what questions they think are important and can be answered by them. These are, however, the specialists who should be asked about the significance of cultural barriers to particular technological changes and the means of facilitating such changes. Their responses must be based on accurate knowledge of exactly what the changes entail in terms of changes in the quantity and quality of the labor force required, organization of work and so on. Information from the detailed studies of technology suggested in the preceding section would therefore be essential in this connection.[1]

In retrospect it has been possible for sociologists and anthropologists to say, for example, that a wage system would not work in a particular area because the workers were only interested in earning the price of a wife, after which they quit. Presumably it would be possible to make predictions about the labor force as well. Research is undoubtedly required to develop methods as well as a body of reference knowledge. Here again it would pay to arrange close coordination with the engineers and economists measuring and developing technology.

Another useful type of research would be on the sources of the innovators who emerge to introduce new technologies. This may reveal some patterns of social mobility which are more acceptable than others. For example, in many of the less developed regions participation in industrial

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1. An interesting start along these lines has been made by S. H. Udy, Jr., Organization of Work: A Comparative Analysis of Production Among Nonindustrial Peoples (New Haven, 1959).

or mercantile activity carries less social status than entering a professional career. This means that a law or an engineering education may become the route of ambitious individuals who wish to satisfy the social status requirements of a career but also want the material success obtainable from technological innovation. Relatively little is known about such patterns of movement. More knowledge would lead to a better appreciation of the social function of various types of education and the relative significance of their encouragement.

C. Experiments with institutional arrangements which facilitate technological change.

There are a variety of difficulties in improving technology which may be lumped under the heading of institutional or organizational problems.

Wide dissemination of knowledge is one such problem. Handbooks and files may contain much useful information which may be applied only slowly in the absence of effective demonstration. Therefore, some effort in experimentation with alternative methods of spreading knowledge is desirable. The method of establishing model farms in agriculture for demonstration of techniques is well-known. These have sometimes been criticized as unrealistic in their use of equipment of methods not feasible in typical local farm conditions. There should be a continuing experiment to find organizational approaches which, on the one hand, will be most faithful to the local context and, on the other hand, make the best use of resources generally available to the typical farmer.

It would also be worthwhile to experiment with this demonstration method in industry as well. There are ample historical precedents or analogies,

for example, in the development of Japan, for the practice of governmental firms playing a pioneering role in industry before giving way to private firms. Though industrial institutes and classroom training programs can be useful, they would be even more useful in combination with practical experience with particular technologies. In this sector also, there should be special care to reproduce for such model firms the conditions generally found in the industry in terms of the typical resource availabilities.

A related problem is the development of pilot plant facilities to test operationally new techniques developed in laboratories or considered for transplanting from different conditions. Lack of such facilities can be a major bottleneck in the implementation of new technologies. In considering this particular difficulty it would be most useful to have information based on the various ways in which it is resolved not only in the United States and other advanced countries but in less advanced areas as well.

In applying new technologies, adaptations to local conditions are nearly always necessary. There are "bugs" even in the most carefully planned production systems. These obstacles in achieving full-scale operation and effective use of resources are likely to be particularly important in underdeveloped countries since so many of the production organizations and types of outputs are relatively new and engineering skills by comparison rare. This suggests the usefulness of having on tap a corps of consultants to whom the local technical problems could be posed as they arise. In this the foreign aid administration might best act as a clearing house, matching inquiries against expertise rather than hiring a permanent staff of such consultants. However, to be a reliable clearing house it must develop efficient means of reporting such problems and of finding the expert advisers. A variety of organizational methods are possible here and again research to determine which are most effective would be a desirable preliminary step.

There are many training or development programs for personnel at all levels, from management to semiskilled labor, which are being sponsored by the U. S. foreign aid administration. These are undoubtedly filling a pressing need and there probably should be more of them. There is, however, also a need for better understanding of general and vocational education methods. A review of the literature in this country indicates that there is in fact relatively little understanding of vocational education methodology in this country in spite of the considerable amount of vocational education being undertaken. To be specific, there can be no doubt that effective vocational education methods exist, but there is little appreciation of their relative efficiency.[1] This is certainly an area which warrants a substantially expanded research program.

D. The role of foreign investments and consulting firms in implementing technological change.

Foreign investment has been one of the most significant carriers of technological change from the advanced to the less developed areas. Without judging the question as to whether the choice of techniques has always been optimal or the methods of implementation most effective, there can be little doubt that a considerable amount of experience has been accumulated. This must surely contain useful lessons if studied systematically and within a framework which would permit comparisons with other types of data. For certain industries and aspects of technological transfer, such studies should have a high priority. A number of fruitful research areas spring to mind: case studies on problems of opening new plants, evaluation of choice of technology and evolution of special adaptations are examples.

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1. See Matthew Radom, "Measuring the Results of Training," Conference Report, Sixth Annual Institute for Training Specialists (May 28-June 1, 1956), pp. 93-99.

There are other types of study which require comparison of plants in different countries. For example, it has been claimed that there are differences in the qualities of the labor force in different countries even when it has had similar training, become urbanized, etc. One difference may be in the intensity or consistency of application of workers. Such variations, if they exist, should surely be taken into account in the choice of technology to be implemented. Yet this accounting can be done adequately only when quantitative information is available. One way of obtaining such estimates under more or less properly controlled conditions is by observation and measurement in foreign plants of enterprises using approximately similar production methods.

Since foreign investments often have a somewhat unique identification in the less developed areas it might also be possible to study the diffusion of technology by movement of workers from these enterprises. This type of movement of workers is recognized as an important factor in spreading technological change but the factors controlling it are inadequately understood at this point.

Modern technological knowledge is undoubtedly concentrated in the business enterprises of advanced countries. It is probably also true, though perhaps to a less degree, that the ability to adapt technology to the special conditions of the less developed areas is centered in such enterprises. This knowledge is much less than fully utilized abroad, however, due to the suspicion of direct foreign investment and the uncertainty engendered which discourages such foreign investment. One of the results has been that, while the role of the production enterprises of advanced countries in transferring

technology has been inhibited, the role of the consulting firm has been considerably expanded. There are fewer constraints on the use of foreign consulting firms because their role is considered to be confined to technical advice rather than involving ownership and control of production facilities. This may have effects both on the type of technology used and on the effectiveness with which it is implemented. In any case it means that one of the most significant concentrations of skills in developing technology is not being utilized most effectively.

It would be useful to survey the possible interest in U. S. firms in undertaking consulting activities or other types of mutually useful relations with plants in underdeveloped areas other than direct investment. Consideration should be given in advance to the forms which this might take and the organizational problems involved.

The proposals here will not be entirely new to the U. S. economic assistance programs. Indeed in many ways they have already been anticipated by existing projects of the International Cooperation Administration and the suggestions are not intended to derogate those efforts. Increased understanding is required, however, to improve the efficiency of existing operations and support the larger range and scale of foreign assistance envisaged. Our foreign aid programs are working in many areas without the substantial reservoir of knowledge on which they should be based. The research programs described above are intended to help provide such knowledge in the form of concrete guidelines for improving the effectiveness of the transfer of technology to the less developed areas.

CONCERNING THE ROLE OF EDUCATION IN DEVELOPMENT

Mary Jean Bowman

and

C. Arnold Anderson

Comparative Education Center

University of Chicago

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CONCERNING THE ROLE OF EDUCATION IN DEVELOPMENT

Mary Jean Bowman and C. Arnold Anderson

In the contemporary world we are deluged with arguments and exhortations about problems of social, political, and economic development, and particularly about the dilemmas of the "developing" countries. Both new nations and old ones are putting more effort and faith in education than ever before--education not only of elites but of the masses of the world's population. Education is widely valued for itself and educational progress enhances national pride, any practical effects aside. The goals of national advance and educational advance have become linked. That education is one of the few sure roads to economic progress is a contemporary creed.

There are all too few facts with which to support this faith, and stated in the usual way it is far too vague. We need to know how education enters into political or economic transformation, in what ways it interacts with other social processes and in what sorts of time patterns. For which parts of the labor force is literacy essential? What, under various conditions, is the most fruitful allocation of resources between secondary and primary schooling, and with what distribution of responsibilities and costs? In what form and in which circumstances should technological training be given priority over academic? How do patterns of incentive and aspiration affect the outcome of this or that kind of schooling? How can incentives be modified to optimize the contribution of education to diverse sorts of change? How different are the methods for transferring "know how" from those that spread knowledge? When, where, and to what extent should more resources be devoted to the formation of human capital rather than physical capital? Are there situations in which education may even obstruct economic advance? Though these questions are asked and even boldly answered by planners and economic advisers, the answers commonly are sophistic and wishful. Estimates of "manpower needs" and their educational implications facilitate planning, but they contribute little to identifying the ways in which this or that sort of education might impinge on the economy.

The role of education in political development is equally important, diverse, and ambiguous--though naive faith in its efficacy may be less prevalent. Clearly, with the expansion of national planning and the shift of decision-making from local community or tribe to the national scene, widespread education is increasingly a necessary condition of political participation, but equally clearly it is not a sufficient condition. It may also undergird coercive regimes. What distribution of education of what kinds by what agencies conduces to one or another political development under what circumstances? What are the probable, and the unlikely, sequences of educational-economic-political phases?

Questions such as these exemplify the basic orientation of this paper. They stem from the two major goals that underlie American policies of technical assistance and related programs: facilitation of increasing popular participation in government and rising levels of material well being among the less developed

peoples. Research as such is not policy-making, of course, but it has a significant policy role. Research can identify critical situations and the directions and occasionally the quantitative impacts of alternative strategies. All policy involves a gamble, even a no-action policy; research may improve the odds.

None of the important politico-economic questions can be answered by viewing education as a separate system, apart from the surrounding society. In this paper, therefore, intra-educational projects are considered only as they are important to understanding the place of education in an evolving social order. "Education" is defined to include schooling, training on the job, extension services, and mass communication. This is something less than the educational aspects of all human experience, but it is considerably more than formal schooling. Obviously some delimitation is necessary. On the other hand, to limit ourselves narrowly to formal schooling would have been deliberately to put on blinders. The interconnections among the various sorts of education are of major importance. Also, the fact that research may itself be a powerful agency of education cannot be ignored.

Given this relatively broad definition of education, there has nevertheless been selective emphasis, conditioned in part by topics covered by other contributors to this volume. Only passing attention is given to political issues since political development is the theme of another paper. Also, the close links between our topic and those on manpower and on rural development justify foregoing discussion of some matters that would otherwise demand attention.

Our procedure will be as follows: First, out of the almost embarrassing wealth of theoretical concepts from which one might start, we have emphasized certain particularly helpful orientations. Next, associations between indexes of formal education and of income among nations are examined, not so much for what they demonstrate (which is comparatively little) as for the questions they point up. These questions go far beyond matters involving formal schooling alone. Then, with this background, we turn to consideration of criteria for research and the part it might play in economic assistance programs, and to a systematic discussion of promising research projects. The conclusion lists and comments briefly on the research that in our judgment should have top priority.

It would be a mistake to assume that one takes up these problems innocent of knowledge. Much of the overwhelming mass of empirical and theoretical background work in the social sciences is relevant. Also, we are beginning to have studies of educational developments in the early stages of Western industrialization and in Soviet and Japanese experience. Pertinent field studies in less developed countries have begun to appear. Among these, for example, are Mosher's splendid survey of experience with technical assistance in Latin America[1], reports by Ryan on Ceylon[2], by Susan Elkan[3] and Walter Elkan on Uganda[4]. There are studies of relations between education and occupation and of unemployed intellectuals in India[5]. Field studies recently completed or in progress by our own students include work on universities and the role of their students in Indonesian political

life, and studies of secondary schooling in the economic life of Ghana and of the Guianas.[6]

I. A Theoretical Framework

Five basic propositions underlie the approach to growth taken in this paper and condition the kinds of hypotheses deemed important in identifying promising research.

1) Economic growth is a process of structural transformation; it cannot be understood by empirical or theoretical approaches that assume too simple a continuity or that look primarily at aggregates and averages.

2) There are many alternative combinations of factors that can foster growth, or prevent it. But there are limits to the substitutions consistent with given levels of development. This holds both within the educational sphere and as between educational and other programs.

3) Attitudes and preferences within a population strongly condition the interplay between education and other aspects of development; they are also variables subject to change and influenced by the nature of perceived opportunities.

4) The "multiplier" and "external economies" concepts of the economists and the rates-of-diffusion analyses of geographers and sociologists constitute a promising framework for dealing with development. Sustained, relatively rapid growth depends upon the strength of the multipliers.

5) The concept of "balanced growth" is either a contradiction in terms or highly ambiguous. In its purer forms it rests on too generalized a conception of the range of complementarities. Decidedly unbalanced growth may be the only potentially rapid growth for many underdeveloped countries. A break-through may call for planned imbalance. This does not, however, mean there is no need for coordination between educational and other developments nor does it reject the complementarity principle as regards the components of a concentrated push--perhaps best described as selectively focused "integrated sets".

Probably Johan Åkerman has put more stress than any other economist on the significance of structural transformation in his theory of structural limits and transitions, which relates to political events as well as to endogenous economic change.[7] His view is an extreme one in that he tries to demonstrate the occurrence of basic changes in socioeconomic interaction patterns, not merely, for example, shifts in the loci of investment (within and between human and physical capital). Though he has concentrated on the histories of today's industralized nations, his work suggests questions about earlier stages of development and by implication concerning the role of education in different settings. Following his line of thinking, we should not be surprised to find formal schooling and other types of education playing different roles in some settings than in others. (This amounts to incorporating point 2 in point 1.)

Starting from a more orthodox orientation, Eric Lundberg reaches a similar position but within a single major structural frame.[8] He cites Solow

and Aukrust[9] who with other writers[10] demonstrate that increases in physical capital together with increases in labor force explain only a part of the rise in national incomes since 1929. He then poses the question: does this mean that allocation among investments is unimportant to economic growth; i.e., if the total is relatively unimportant, can its parts be important? He concludes emphatically that they can be, and are. The averages are misleading, including declining as well as expanding industries; marginal rates of return on investments in the latter may be very high and play a major part in growth even though returns in the more stagnant sectors may be small or negative. This general proposition relates to early as well as later stages of development; applied to education, it requires consideration of marginal returns to different components in the education mix under varying conditions.

Though Akerman's and Lundberg's views differ in many ways, both challenge implicitly the meaning of "balanced" growth. Indeed that notion is questioned by conceiving of growth as structural change, especially when growth and structural change are rapid. Taken together with the more sociological studies of the influence of attitudes upon societal processes and with the many studies of diffusion processes, such considerations lead to proposition (5).

Though most western writers of late have argued for balanced development, there are important exceptions. Moreover, there is a respectable history behind some elements in the unbalanced growth approach. It is clearly involved in Schumpeter's cycle theory and in Edwin Gay's stress upon "disruptive innovating energy". More recently related but different arguments have been presented by Hirschman and Streeten, among others[11], and even Nurske admits a possible positive role for successive limited imbalances as a growth mechanism (distinguishing the mechanism from the social end of "balanced development").[12] Soviet economists recently have been pursuing the idea of planned imbalance for growth, which is hardly surprising in the light of Soviet economic history. Amidst complex and mathematical models, one basic idea is essentially simple: rapid growth occurs, and must occur, unevenly, by concentrating effort now in one sphere and then (after a period of only partial digestion) in another. The arguments do not center on planning versus a "free" economy; in the Soviet as in the Schumpeter and Gay conceptions, sequential imbalances are important though they differ with respect to how much imbalance occurs, in what forms, with what timing, and at what costs.

The position taken in this paper shares the conception of successive imbalances as part of the growth mechanism, and it rests in part on some of the same economic arguments. However, it is in much greater degree a social-science as distinct from a strictly economic approach. It pays more attention to variations in socioeconomic starting points and there is a broader sort of multiplier and diffusion theory at its core.

This brings us back to propositions (3) and (4) concerning attitudes and diffusion. A few remarks here will anticipate later discussion. Because growth, especially in take-off and early stages, changes attitudes (by plan or incidentally), it necessarily entails conflict. Criticisms of aid programs commonly give too little recognition to this fact. Education that feeds into growth under such circumstances is entangled with complex processes of attitude transformation; it is therefore inevitably a threat as well as a promise. Moreover, the less favorable the prevailing attitudes with respect to change, the

more likely it is that a break-through will require concentrated efforts at particular points in the economy and in the educational system, with periods of highly visible and relatively extreme imbalance. Yet imbalance does not assure growth and may throttle it. Growth depends upon unleashing multiplier and diffusion processes. These are not merely the multipliers of the economits's money-flow models or his external economies and inter-industry employment and investment multipliers; they are also attitude and education multipliers.[13] They do not occur evenly through time and space. A more generalized multiplier and diffusion theory is needed, one that joins the approaches of the economist with those of other social sciences, and one that takes the time element more explicitly into account along with possible discontinuities and minimal reaction thresholds.[14] Education falls into place in this sort of framework.

Finally, a sixth basic proposition should perhaps be added, though it is a derivative from what has been said. The fact that we cannot isolate single factors in development does not mean we must fall back onto the negatives of the configurational approach. It does mean, however, that to understand the part education plays in any given situation (or the failure of educational advance to be followed by other sorts of development) requires us to view education in a broader context. We must search for alternative sets of critical factors, each necessary for growth but alone insufficient. Both dissection of "education" into components and consideration of non-educational factors are involved. If this view is correct, attempts to assess the influence of education by studying aggregate inputs and outputs, while essential in plotting the scale of possible contribution from the human factor, must be inconclusive. Yet approaches from one or another special angle, a bit at a time, are the unavoidable steps in making a rounded picture. The crude data we are about to examine are such partial abstractions, used here mainly as bases for rapid incursions into vaguely known territory.[15]

II. An Empirical Overview of Associations Between Education and Income

Though statistical association is no proof of causation, there are trait clusters that cannot be considered wholly accidental. There are observed patterns of developmental sequence even though no two histories are alike. A mapping of certain relationships points to potentially fruitful research on a more intensive level. The indexes on which the charts presented here are based are defective. Measures of per capita income, especially when comparing societies with disparate consuming and producing patterns, are crude. Moreover, income is only one element in economic development. Available education data are equally deficient. But the charts and correlations do point up vital issues and they do raise questions about some accepted generalizations.

This analysis is intended merely to provide a rough empirical framework as background for discussing research needs; it cannot be put forward as an example of finished research. Other limitations aside, it provides very little evidence concerning processes of change, despite inclusion of some crude relationships through time. Marginal analysis involving both more

variables and closer scrutiny of the time element is needed. Moreover, while in most association patterns we look mainly at the overall relationship and the predictive value of given variables, the situation in this case is different. Each particular deviant case is important in the problems with which this paper (and aid programs) are concerned. Both case studies and identification of type situations are needed.

A. Education and Income in a Multiple-Factor Matrix

The timely appearance of the Ginsburg and Berry Atlas of Economic Development supplies a convenient starting point for exploring world patterns of education in relation to various demographic and development variables. These data, supplemented by UNESCO literacy and school attendance reports and by Woytinsky's income estimates for 1938, constituted our empirical base.[16] The Atlas and a longer paper by Berry include a factor analysis of trait clusters for nearly a hundred countries; explicit educational variables are included together with closely related variables such as newspaper circulation.

In their first basic pattern (called the technological scale) all of the forty-three variables used had very high values, with infant mortality and birth-rates the lowest. Newspaper circulation and national product per capita matched or exceeded the basic pattern values of all variables except those associated with per capita energy consumption and fiber use. A close relationship between any educational index and either per capita income or, especially, energy consumption would imply a strong position for education in this scale. We can therefore infer that the ensuing analyses measure sufficiently well for our purposes the place of education in a whole cluster of technological traits.[17]

Two variables were selected for special attention, however. The first was energy potentials per capita (not energy consumed), chosen on the assumption that energy potentials might constitute permissive or limiting factors that conceivably concealed effects of education on national income. More precisely, it was assumed that education might actually have contributed tangibly to the income of countries with poor basic resources; their incomes might be high relative to what could have been attained otherwise even though they had not climbed very high on the international income scale. Energy potential was thus viewed as a proxy variable for productive potentials other than those due to past capital accumulation, and independent of socioeconomic organization or the quality of the labor force. It is used here only to classify countries into three categories within each of which educational indexes are related to incomes. Various measures of education were related also to energy consumption per capita, but this exploration was not promising; the zero order correlation between energy potentials and income is virtually zero.

One might expect that along with energy potential the basic agricultural resources (relative to population) would condition income potentials, especially through the lower- and middle-income ranges. However, no good index of agricultural potential is available. The closest approximation was cultivated hectares per capita. This ratio is in fact positively associated with national product per capita. However, the relations are diminished by the effects of industrialization upon the growth of urban population. Looking only at countries with more than the median proportion of population engaged in

agriculture, a closer relationship might be expected; but examination of the data indicated that this was not the case. Taking the world as a whole and each energy potential group separately, a low ratio of cultivated land to population contributed little to explaining low incomes relative to educational attainments or vice versa through most of the land population range. This may be an important factor for extreme cases such as Japan and possibly elsewhere in the Far East.[18]

B. Literacy

To what extent is literacy, spread through what proportion or segment of the population, an essential ingredient of economic advance? To what extent, on the other hand, may literacy be superfluous or inoperative in early stages of development? Dogmatic assertions on this topic are common enough, but firm evidence is scarce.

Lacking the necessary case studies of how literacy operates, the chief evidence is of two kinds: longitudinal, looking back to the earlier histories of presently developed nations, and cross-sectional comparisons of countries at particular dates. Both approaches suffer from the fact that literacy, like other elements in education, is both a means of production and a consumer good, expenditure on which rises with income. Moreover, literacy is part of a "package" borrowed from the West and it may be the other items in the package that are most significant for growth. Nevertheless, the available evidence is suggestive.

Archival research on literacy in European countries at early stages of development has scarcely begun, but a few clues are already at hand. Perhaps two-fifths of the young males in Tsarist Russia prior to 1914 were literate. Similar and higher rates are inferred from signatures on marriage licenses in England and France prior to their industrial revolutions. These levels of education may not have been essential for the ensuing economic changes, but the presumption that they were cannot be ignored. These literacy rates, higher than in most underdeveloped countries today, emerged gradually and in a quite different environment. There was at that time not so clear an image of a high-income society to stimulate national aspirations and create the pressure for speedy development that goads "new nations" today. There was no comparable problem of dealing with a frustrated pseudo-intelligentsia with unrealistic occupational and status aspirations.[19] For the most part, Europe moved into the industrial era almost unwittingly; the problems of coordinating economic-opportunity distributions with expected returns to schooling were slight. Moreover, for both agricultural and industrial revolutions, education moved on many fronts, not merely or even mainly within schools. The economic growth of Europe proceeded by a gradual, unplanned multiplier process in which jobs and skills fed into each other, facilitating adaptations of a qualified labor force as much in response to as in anticipation of economic change.

Bearing these facts in mind, the patterns revealed by Charts I: A, B, C and summarized in the accompanying table should not be surprising. (Ranks in newspaper circulation are used to identify countries on the charts and incidentally provide additional information.)

DISTRIBUTION OF COUNTRIES BY 1955 GROSS NATIONAL PRODUCT PER CAPITA AND PERCENTAGE OF ADULT POPULATION WHO WERE LITERATE IN 1950-54

Percent of Adults Literate 1950-54	Gross National Product per Capita, 1955 (in U. S. dollars)						
	Under $100	$100 - 199	$200 - 299	$300- 499	$500 - and over	Total	Per cent
90-99	-	-	1	2	21	24	27
80-89	-	-	1	2	1	4	4
70-79	-	1	3	5	1	10	11
60-69	-	2	2	2	-	6	7
50-59	1	1	3	1	1	7	8
40-49	1	2	3	1	-	7	8
30-39	2	1	4	-	-	7	8
20-29	-	4	-	-	-	4	4
10-19	5	6	1	-	-	12	13
Under 10	7	2	-	-	-	9	10
Total	16	19	18	13	24	90	
Per cent	18	21	20	14	27		100

In none of the thirty-two countries with adult literacy below 40 per cent was 1955 per capita income as high as $300, and the only country with literacy below 30 per cent and an income over $200 was oil-rich British North Borneo. It is tempting to conclude that a literacy rate of 30 to 40 per cent is a prerequisite to incomes exceeding $200 in most cases and $300 in all. This may well be the situation, though the charts cannot prove it.

Through the range from 30 to 70 per cent literacy (twenty-seven countries) there is remarkably little increase in income with rising literacy rates. In fact only five of the twenty-three countries with literacy between 40 and 70 per cent had incomes over $300. That other factors were especially favorable in one or another way is evident when we look at what countries these were: Venezuela, South Africa, Colombia, Panama, Cyprus. In all five cases income distributions were highly unequal and mean incomes exaggerate the situation of the populace. European participation is of course exceptionally important in South Africa and Cyprus. Venezuela is exceptionally rich in oil, South Africa in minerals.[20] Taking into account the special characteristics of countries with literacy rates under 70 per cent that managed nevertherless to attain incomes above $300, the data strongly suggest that rising literacy alone contributes very little to development over the range from 30 to 70 per cent literate. Two-thirds of the fourteen countries with literacy rates between 70 and 90 per cent do manage to exceed average incomes of $300 though not above $500. Moreover, the others, still under the $300 level, underline the fact that extending literacy to a majority of the population is no guarantee of even moderately high income; it may be necessary, but it is clearly not a sufficient condition.

Among the twenty-four countries with per capita income exceeding $500, only three had 1950 literacy rates under 90 per cent; these three exceptions were Puerto Rico, Uruguay, and Venezuela, and only the latter was under 80 per cent. It could of course be argued that wherever incomes reach $500 or better the demand for education as a consumer good establishes the high literacy. However, additional considerations support the conclusion that whatever the consumption component may be, literacy of something like 90 to 95 per cent is necessary to realize incomes over $500, barring exceptional circumstances. A complex industrial society depends upon many kinds of mass communication media and without near universal literacy these channels can function only imperfectly, requirements for higher levels of education aside. But to distinguish among countries in the higher ranges of education and income a more sensitive educational index is needed.

C. Percentage of Population in Post-Primary School

The level of adult literacy indicates the minimum educational equipment of the contemporary labor force. Post-primary enrollments measure adult educational levels, however, only to the extent that they are correlated with similar enrollments of an earlier generation. Among countries that have recently extended secondary education on a large scale it is too soon to expect any marked effect on national output; Yugoslavia is an example (Chart II:A). This index is a crude one in any case, mainly because of the wide range of quality in secondary and higher education. For countries like Eire or Luxembourg,

there is a downward bias due to attendance abroad. Yet with all these qualifications, the looseness of the relation between extent of post-primary schooling and economic level is more impressive than the existence of a slight positive association.

Literacy rates and post-primary enrollments are of course positively correlated, but there are interesting deviations from the predominant pattern. Particularly striking are the high post-primary rates relative to literacy in Egypt, Jordan and India (low literacy), in Lebanon and Taiwan (40-50% literacy) and in Puerto Rico, Yugoslavia, the Philippines and Cyprus (literacy 65-80 per cent).[21] In some cases this is clearly a recent development, and adult literacy rates are rising rapidly as today's youth grow up. In other countries there is a long-established elite with distinct educational privileges. Some of these elites appear to have made little contribution toward raising incomes in their homelands.

Correlations were computed relating literacy and post-primary education to per capita incomes for countries with literacy under 90 per cent, and for all countries. The variables were:

X_1 Logarithm of per capita gross national product, 1955

X_2 Literacy rates, 1950-55

X_5 Post-primary enrollments relative to population, 1950

	Countries with Under 90% adult literacy	All countries* Total	Energy potential level High	Middle	Low
r^2_{12}	.432	-	-	-	-
r^2_{15}	.283	.485	.531	.355	.443
$r^2_{1.25}$	.443	-	-	-	-
Number of countries	55	77	26	25	26

*In view of the wide income range among countries with literacy exceeding 90 per cent combined with the fact that almost all these countries had incomes above $500 and vice versa, the correlations involving literacy were limited to countries in which rates were under 90 per cent. This focuses on literacy-income relations at low and intermediate stages of economic development only, automatically excluding the most highly industrialized.

The correlation between post-primary enrollments and incomes are low but especially when the countries most advanced in literacy are excluded. Literacy alone is a considerably better predictor within this range (as well as for all countries). Adding post-primary education in a multiple correlation analysis improves the prediction slightly, but not significantly.

Obviously it would be absurd to conclude from these data that a well-trained elite is unimportant for development. These charts and other information about the history of secondary and higher education point to two facts. First, high income levels (over $1000) have been attained in countries with only moderate (but not low) post-primary enrollments among present-day youth and, by inference, among present-day adults. Second, poor countries with sizeable educated elites relative to their literacy position do not necessarily have much economic advantage over countries otherwise comparable but with low post-primary enrollments. Looking at this in another way, of the nine countries with the lowest incomes relative to their (moderate) literacy rates, only the Belgian Congo and Ceylon had low post-primary enrollments relative to literacy. These facts suggest that the distribution of investments in secondary as against primary education may be "out of line" in certain cases though the scope for substitution between one and another emphasis within education would appear to be a wide one. But much more important, the data impel us to raise questions about the nature of elite education and about the relations between elite and populace--not only within the educational system but throughout the social structure. They point also to questions concerning the quality and content of primary education and suggest that there are wide cultural differences in subsequent self-education. One clue to the latter behavior is newspaper circulation, which is exceptionally high relative to post-primary enrollments in Britain, Scandinavia, and Switzerland, exceptionally low in Mediterranean countries, Puerto Rico, and the Philippines.

D. Primary Enrollments and Income-Education Relations over a Generation

Intermediate between literacy rates and post-primary enrollments as an index of educational levels is primary enrollment.[22] The scatter of 1930-34 primary enrollments against 1955 incomes is shown in Chart III. For all countries, regardless of location or energy potential, the correlation is slightly closer and more consistenly linear (using logs of income) than is that with literacy rates, and it is much higher than the correlation with post-primary enrollments. The more consistent linearity here than on the literacy charts is attributable partly to the fact that primary enrollments differentiate among countries at the top whereas literacy rates do not. The income plateau observed on the literacy charts over the middle range of educational performance (30-70 per cent literacy) is not repeated in the intermediate ranges of primary enrollments to quite the same degree. However, examination of the countries at the income extremes within the middle education range indicates that there is a plateau here also.

As on previous charts, British North Borneo and Venezuela have markedly high incomes relative to education, for sufficiently obvious reasons. At the other extreme, Japan, Eire, Paraguay, Chile, and Ceylon have very low incomes relative to what their 1930-34 primary enrollments would predict. These deviations have shown up in other comparisons also, especially for Japan. Yet only Ceylon is in the lowest third in energy potential; in fact Paraguay is high. Four of the five are below the median in cultivated land per capita, but only Japan and in a lesser degree Ceylon are extreme in this respect.

The median hectares per capita for 129 countries is .48; the values for the individual countries were: Chile .78, Eire .42, Paraguay .33, Ceylon .17 and Japan .06. The low incomes relative to primary attendance and literacy in Chile and Paraguay are at least in part misleading; estimates of income in Chile have been recently revised upward substantially, and the education data for Paraguay are probably grossly overstated.[23]

On the assumption that education is a causal factor in economic productivity, the logical comparison would of course be the one just presented, using the earlier index that best indicated the education of the contemporary labor force. However, education is also an effect of income; hence we related both 1930-34 and 1950-54 primary enrollments to both 1938 and 1955 incomes.[24]

The variables are:

X_1 Logarithm of gross national product per capita in 1955

X_3 Percentage of population age 5-14 in primary school in 1950-54

X_4 Percentage of population age 5-14 in primary school in 1930-34

X_6 Logarithm of gross national product per capita in 1938.

A. Countries for which 1938 income data are available	All Countries; Energy Potential Categories				Excluding countries with 1950-54 literacy 90% or over
	Total	High	Middle	Low	
r^2_{63}	.712	.411	.622	.771	.568
r^2_{64}	.583	.632	.673	.397	.338
r^2_{13}	.663	.741	.543	.675	.290
r^2_{14}	.591	.627	.632	.365	.205
Number of countries	51	20	19	12	29
B. Including countries for which 1938 income data are lacking					
r^2_{13}	.686	.681	.628	.662	.422
r^2_{14}	.586	.562	.689	.447	.317
Number of countries	77	26	25	26	55

Whether the earlier or later incomes are used, the correlations with 1950 education tended to be higher than those with 1930 education taking all countries together. Even though this over-all pattern is consistent and appreciable only within the low energy group, the presumption that

education is predominantly a causal variable in the development sequence is not upheld. In fact, 1938 incomes predict 1950 education of children remarkably well for all countries and for all energy levels except the highest.[25] The wide income spread among countries with intermediate literacy levels is reflected in the lowest correlations when those having 90 per cent or more literate in 1950-54 are excluded (the last column of the above tabulation). Also, for the countries with less than 90 per cent literacy in 1950-54, the superiority of the correlation of 1938 income with 1950 primary enrollment over all other correlations is very marked; r^2_{63} came out at .568 whereas for the corresponding countries r^2_{14} was only .205.[26]

There is of course a strong serial income correlation. This raises the question: how well did 1938 income predict that of 1955 and how much is this prediction improved by adding education variables? The following data are directed to this point, using the 1930-34 primary enrollment data as the only ones that provide a time-lead measure.

	Energy Potential Category			
	Total	High	Middle	Low
r^2_{16}	.746	.783	.728	.700
$r^2_{1.64}$	.773	.804	.751	.710

It is evident that, taken alone, 1938 income predicts 1955 income better than any of the education indexes do and much better than 1930 primary enrollments in particular; adding the latter raises the coefficients only a little--certainly not significantly. But this does not answer the question as to relations between changes in education and subsequent changes in income. Earlier literacy rates are available for only 28 countries (even including cases in which the data are of extremely doubtful validity), and most of these were in the 90 per cent and over literacy category by 1950. Scattergrams comparing 1930 to 1950 changes in primary enrollments with 1938 to 1955 changes in per capita incomes showed very low correlations. While this is partially attributable to the crudities of the measures, especially primary enrollments rates in 1950-54, it certainly gives no support to the assumption that increasing schooling is uniformly followed by rising incomes.

Finally, tests were made substituting 1950 per capita energy consumption (X_7) for 1955 per capita gross national product. It might be expected that relations between education and per capita energy consumption would be closer than those between education and income since energy consumption is more closely associated with technological change and hence with alterations in the job structure and its educational demands. However, these correlations in fact turned out to be lower; the following findings are illustrative. For countries with less than 90 per cent literate in 1950, the correlation between energy consumption and literacy was only r^2_{72} = .253 as against r^2_{12} = .432. For the same countries r^2_{75} was .062 and for all countries it was .390 as against r^2_{15} values of .283 and .485 respectively. For all countries r^2_{73} was .493, while r^2_{13} was .663. (The zero order correlation between X_1 and X_7 was .582.)

These various findings point up the importance of interactions between education and economic conditions through time and also, comparing the energy categories, the diversities in time sequences. We might surmise that a long-term interaction between educational and economic development operates regardless of whether immediate motivations that lead people to school are of a consumer or an investment nature. Alternatively, one might argue that the skill demands of an expanding economy stimulate more education thereby creating an income-to-education sequence at the same time that the reverse is also operating. Both processes may in fact be involved, along with other factors that impede or foster them. The data suggest also, though they cannot prove, the occurrence of important, distinct stages in educational lead and lag: an early stage of education-economic break-through; a plateau in which diffusing education is still not sufficient to support a high-level economy; and a third stage in which another economic break-through is possible, built on a well educated population. In addition, evidence of other kinds strongly underlines the problem of culturally and institutionally conditioned disjunctions between schooling and economic roles of the graduates of the schools in many of the less developed countries. The observed relationships are open to many interpretations that suggest the importance of giving serious thought to Åkerman's thesis concerning structural changes in the development process. Education-income relationships may be quite different in one time and place from another. Many tasks for both the economic and educational historians and other social scientists are hidden in this puzzle, which illustrates the fallacy of posing questions about the role of education in unidimensional and one-direction terms.

E. Geographic Perspectives

That major geographic areas of the world are at quite different levels of educational attainment and economic development is common knowledge. Here we are interested, however, less in identifying regional levels than in contrasting regional patterns of relationship between education and income. A sorting of countries by world areas spotlights questions that arise when adjacent countries that have many things in common manifest quite different economic-educational attributes. A geographic focus facilitates the search for multiplier and diffusion processes relating to education and development. For example, external economies associated with access to markets and energy resources are often poorly identified by data for single countries--as the contrast between Japan and Denmark clearly attests. Possible effects of broad cultural traits some of which are common to large regions and of diversity within regions (for example, North versus South America) are more readily suggested when relations between education and other traits are examined for the world areas separately.[27]

Charts IV, V, VI and VII present education-income relations for these clusters of countries. The best educational predictor of 1955 incomes differs. For Europe taken alone, literacy is a poor discriminator and there was virtually

no association between 1955 incomes and 1950-54 post-primary enrollments. Even adding the high-income and well-educated countries of Australia, New Zealand, Canada, and the United States left the correlation very low. Hence only 1930-34 primary enrollments are shown on Chart IV. The positive association between the two variables is unmistakable; however, in the range from 60 to 70 per cent enrollment there is a wide variation in income.

Deviations from the dominant pattern are as interesting as the general relationship. Distinctly below the income level that would normally be associated with its educational position is Eire, which poses problems resembling those of retarded areas within advanced countries. By contrast, a cluster of countries, chiefly Scandinavian, have incomes above what their primary enrollments would predict--in part due to downward bias in the education index. Soviet incomes are much higher than 1930 primary enrollments predict; here both the pace of change on many fronts and intensive development of schools invalidate the crude comparison implied by the chart. Thus, much of the unexplained variance would have been eliminated with a more adequate measure of mass schooling.

The countries of Latin America present quite a different set of education-income relations (Charts V: A,B,C). Here the 1930 primary enrollments are the poorest predictors of income, while literacy rates predict much better.[28]

The Latin American charts raise basic questions, many of which are relevant to other parts of the world also. Why have so many of these countries developed so slowly--both educationally and in economic level relative to what had been accomplished in spreading education? How have incentive and opportunity patterns varied among these societies? How are graduates of various schools channeled into economic life? To what extent are members of the elite protected and eased into bureaucratic sinecures? Are the educational system and the infrastructure of roads and communications mutually supportive of diffusion processes that could both spread education and contribute to economic initiative and informed economic calculation? Could planned concentration on particular sectors of the economy (planned imbalance) break through the stagnation of these countries? If so, what are the strategic points at which schools and the content of schooling come into play, and at what points might development assistance from abroad contribute most? Though broad and rather general answers can be given to these questions for several countries, it is essential to locate the critical points in educational-economic strategy and assess reaction thresholds and multiplier potentials.

Boundaries between Asia, Europe, and Africa are arbitrary and those between Near and Far East even more so. With certain exceptions, the countries of the Near and Far East are at quite different income levels relative to their education, and the Near Eastern countries that have been culturally most closely linked to Europe have the highest incomes relative to schooling (Charts VI: A, B,C). This shows up particularly clearly with respect to primary enrollment, but it appears also when incomes are related to literacy rates. Malaya and British North Borneo in the Far East fall into the Near East pattern. Only part of the income advantage of the Near Eastern countries rests on oil. Both

cultural diffusion (including education in the broadest sense) and external economies associated with linkage into European markets are involved.

Japan was decidedly out of line in all the charts previously presented, its income being too low relative to education. However, seen in relation to other Far Eastern countries, Japan looks very prosperous; its income falls into line with the literacy-income and primary enrollment-income relations displayed by other countries of the area. Japanese educational accomplishments are impressive even in a European perspective; viewed in the Asian context its economic performance appears equally so. But to say this is also to stress the magnitude of the task of economic development throughout Asia.

The "population problem" is commonly invoked in discussion of economic development in the Far East and certain other areas, often in a sense of despair. The writers are among the worriers, but growth rates aside, population density as such is not wholly a disadvantage. Given favorable settlement patterns and conditions otherwise reasonably favorable, a dense population favors more rapid diffusion of education and practices conducive to economic advance at lower costs for building a communication infrastructure. But sheer numbers makes a break-through in agriculture exceedingly difficult. With the exception of British North Borneo, no Far Eastern country had even a half hectare of cultivated land per capita and most had less than a quarter hectare.

In turning to the countries of Africa we are examining education-income relations within the lower segments of both distributions. Only in South Africa, where European incomes distort the average, was 1955 income above $200, and in only two countries were literacy rates above 20 per cent. It is not surprising under these circumstances that the neatest associations are in the literacy-income relations rather than for other education measures. The most striking deviants from the dominant pattern--the Belgian Congo on literacy and Egypt and Tunisia on post-primary enrollments--have already been noted and require no further comment.

To sum up, although there are positive correlations between the level of education or its spread and economic levels, these connections are loose ones. Indicators of the spread of primary education are better economic predictors than the extent of post-primary schooling. But the latter is a poor measure of the current highly trained labor force. Especially important, this index gives no clues to the nature of secondary and higher education. More precise indexes of education and of productivity would improve the correlations; however, there can be no doubt that a large unexplained 1955 income variance, and variance in rates of economic advance, would remain. Part of any observed association is attributable to effects of income on education. There is no magic about investment in human as against physical capital that guarantees its productivity irrespective of the kind of human capital created. There can be wasteful and dysfunctional investments in education as in any other sphere. And potentially fruitful investments in education can be wasted by failure of the society to make effective use of its educated people. It is against this background that we outline research needs and priorities.

III. The Nature of Research and Its Roles

A few of the important questions concerning the place of education in economic and political development have been suggested by the brief over-view in the preceding pages. We will look further into some of these and other questions from the particular standpoint of research potentials and priorities in a moment, but a few more general comments are needed first.

A. Levels of Research

There are three partially distinct levels of appropriate research, even though in practice one merges into another.

1. Research into the nature of socio-economic processes and the roles of education in these processes is the broadest orientation. In execution it calls for a sorting out of elements that are virtually universal, those that occur in type clusters, and those that are essentially unique to a particular country or region at a given time. Identifying universals in human propensities and in social interaction is a basic task of the behavioral sciences. These broad tendencies lie behind most of our thinking about society, though often we confuse the patterns of social life in particular settings with the fundamental universals. In policy, awareness on these points would, for example, make us more flexible and more innovative in attempts to transfer American educational practices into other cultural settings.

2. Identification of maneuverable variables and processes of induced change in selected type situations seeks in particular to fix upon those elements of typical patterns that are susceptible to manipulation. These elements or variables are the tools in the policy game by means of which other changes are induced, modified, or reversed. The type situations are identified as sets of constraints and supporting factors pertinent to this or that policy or goal. There can of course be no doubt that innovation increasingly characterizes many parts of the world today. A dynamic orientation therefore necessitates foreseeing the emergence of new type clusters.

Some variables that may be manipulated by governments of the less developed countries must in aid programs be taken as givens; concerning some we may enjoy a limited advisory role; a few are primarily or fully within our control. It does not follow, however, that research priorities should focus upon those variables most amenable to our control, for these factors operate in a nexus of which they form only a small part. Intelligent foreign assistance programming requires adapting to both restraining conditions and to change-inducing policies that we cannot control. For these reasons there is no distinction of priority drawn here between research geared directly and explicitly to foreign assistance and research that may seem to be less immediately relevant to such projects.

3. We must examine the parameters of action in a given country in relation to alternative policy proposals and assistance programs and to modifications in a given program. Facts often must be gathered to establish the parameters needed for specific predictions on the basis of previously developed theory. But such data may also serve for further testing of hypotheses about societal processes, and they may lay the groundwork for subsequent objective evaluation of a social experiment. Immediate pragmatic aims and longer-run research needs may be more consonant than is often assumed. Base-line information can be particularly useful in research that exploits aid programs as social experiments; closer

articulation of research and assistance projects can be enormously productive.

B. Researchability

An inventory of what we would like to know does not automatically establish a list of research priorities until the question of "researchability" has been faced. This question has overlapping political, time, and data dimensions.

Political blockages within the United States are presumably within our control as a nation. Other limitations lie in the politics of the less developed nations and in their attitudes toward us. In some countries no local research is possible, in others the opportunities are subject to varying degrees of political restriction, and these interferences change over time.

The time element in limitations on researchability are of two quite different kinds. One of these is short horizons imposed by political instabilities and anti-western developments in host countries. Under such conditions research projects requiring a long period for completion may be a poor gamble as research, but some of them might nevertheless be the best gamble as action programs. The second major limitation arising from short time horizons, which may also be primarily political, relates to impatience for results, either at home or abroad. Many intrinsically suitable research projects are impractical only because of strict time limitations. It is perhaps in this time dimension that the real, as distinct from the superficial, differences between the interests and priorities of government and university are to be found. Results promised ten years hence are of little help to the man who must make a decision today or in a couple of years. On the other hand, the kind of research that we today fervently wish had been started ten years ago so that we could utilize its findings in formulating policy should be given a high priority on behalf of the policy makers of 1970.

The need for long time horizons in research is more often than not a need for time to cumulate a series of coordinated research efforts, each of which can make a contribution in its own right along the way. Long time horizons in designing, financing, and executing research are essential in coordinating efforts to build up this cumulation of data and for theory construction. Complementarity and comparability in sequential short-term studies are the steps to broader research goals. There are also research projects of great potential value that require a long follow-up period; assessment of the effects of education and experience upon intelligence and competence is an example. Others, more important for the developing countries, are pilot experiments in the transfer of know-how.

Data limitations are most serious in problems requiring information about the past. These and other gaps in data may be remediable but only at high cost. An underdeveloped country is one where policy making is often seemingly deliberate but where the necessary information is almost totally lacking. Hence newer methods of collecting data must be utilized -- such as sample censuses, polling, etc. -- but these necessities highlight the fact that there is a cost as well as a benefit side to the determination of research priorities.

Too often a problem is deemed intractable either because it cannot be attacked by some particular set of methods or because it has been too vaguely defined. But effective research on the place of education in societal dynamics calls for versatility in methods and broad competence. Skill in the more sophisticated mathematical techniques comes at the bottom of the list. Well-oriented "grubbing" is more essential.

C. Research As an Action Program

Research is learning and it can be teaching. Research as such, whatever the findings, is a form of education for the participants -- whether the problem concerns fertilizers for tropical soils or the spread of secondary schooling. Participation in research induces skill in methods and points of view that are intimately bound up with the broader processes of "modernization" of a society. This kind of learning can make a major contribution to economic and political development provided the research is well designed, and that nationals of host countries are active participants at high as well as subordinate levels.

It would be difficult to overestimate the value of research as an action program in aid strategy. Mosher argues this ably with respect to agriculture, but the point is equally relevant in virtually every sector of development. We suggest two sets of considerations that should be weighed in balancing such projects on the role of education in society against other topics and in deciding among research projects in education.

First, "hard" research in the natural sciences is often politically neutral and conveys much prestige -- obvious advantages when political tensions limit opportunities for social science investigations. There is a strong argument for fostering cooperative hard research at an early stage as a first step, provided subsequent fanning out into social science studies at an early date can be assured. But, second, some kinds of cooperative social science research, and in particular that on the relations between education and the economy, can play a more powerful role in development precisely because they require objective examination of politico-economic processes. Host country participation is particularly important here. It is strategic to tie research into action programs as small scale experiments. Opportunities for such linkages in technical assistance for agriculture are innumerable; equally promising but largely unexplored are assistance programs and research with respect to enterprise-linked training in non-agricultural sectors.

To specify that research has strategic value as part of an action program is thus to introduce inevitably the question of the aid programs themselves. In particular it becomes important to assess what kinds of assistance programs are most promising as social experiments and how they can be planned to maximize the feedback between economic programs, fresh research endeavors, and action programs in turn.

IV. Suggested Research Projects

To make a list of projects is to select from an indefinite number of possibilities. Hence a list is in itself a first step in specifying priorities. In the following discussion suggestions are grouped under four main headings.

A. Educational methods and the products of the schools

B. The diffusion of education

C. Costs of education, mobilization of resources, and distribution of the burden

D. The role of education in economic development

We start with the most explicitly intra-educational topics, though none of them is totally so. Category D is the broadest, but includes only a part of the "economics of education" viewed in relation to development. Putting this another way, returns to investment in education depend upon the quality of the "product," upon how readily schooling is diffused through self-generating processes, upon the costs entailed, and upon the ways in which graduates of the schools are integrated into economic life. Heading D concentrates on the last of these. However the four categories overlap at many points and a particular research project may contain elements that would fall under more than one of them.

No projects directly relating education to politics have been listed though this does not imply any underestimation of the place of education in civic life. In part it is sheer evasion; specifications for such research are particularly difficult to generalize. Often the best strategy may be to approach them indirectly. Fortunately, the most critical problems in this sphere are important, and in similar ways, for economic development. Viewed in the latter context, they center around the cultivation of a broad spectrum of educated persons and the integration of an independent, critical, and practical-minded middle class into the economy.[29] The other side of this picture is the stultification of development and the political malaise associated with the growth of unemployed pseudo-intellectuals and their obsession with bureaucratic sinecures.

A. Educational Methods and the Products of the Schools

1. Crosscultural studies in the learning process and elementary teaching

Direct transfer of western school practices has proved surprisingly easy in some underdeveloped countries, though more commonly it has been a formalized parody of the western elementary school that has initially taken root. But as the scale of school operations expands, the shortcomings of the transplanted variants of western-type schools have been revealed. So far most anthropoligical discussion of this topic has dealt mainly with what not to do, offering few suggestions for adapting the universal tasks of transmitting literacy and numeracy. It is not sufficient to talk about making schools "practical" or "adapting" the school to the culture; the imperatives of modernization give priority to western content for large parts of the curriculum over local cultural peculiarities. Also, how far can western teaching methods help? There can be no doubt that aid programs in this sphere have sometimes tried to transplant the shell instead of going back to the fundamentals that may have accounted for success in the West. Fresh research on adaptations in elementary education in different cultural settings is needed. Studies of this kind can help also on problems of teacher supply and in resolving some of the dilemmas of quality versus quantity in the spread of education (see C.2).

2. Comparative testing to establish achievement profiles

Comparisons of achievement in school subjects can be made between countries or between types of schools within countries. Establishment of profiles of

attainments for different dimensions and kinds of school performance not only serves to evaluate the work of the schools but supplies important information about the quality of human capital entering the economy. As in other efforts to evaluate the impact of the schools and the character of their products, one must relate the findings to a matrix of variables that identify the supporting and the inhibiting factors in the environment within which the schools operate. This project should be used with prudence in the least developed countries, otherwise it may aggravate propensities toward an excessively academic school system, a caution that does not apply to the study of examination systems.

3. Study of examination systems

This kind of project makes a good entry into many educational problems and illuminates many functions of schools. Modification of examinations under favorable circumstances can open the door toward needed educational and even broader socio-economic reforms, though in isolation it is unlikely to be successful. [30] As yet we have only scattered bits of information about the interplay between examinations and the supply of needed skills, emergence of maltrained people, or undue centralization of economic decisions; we know only that these relations can be critical. [31]

4. Factors determining literacy thresholds and literacy retention

Though this is a comparatively simple problem, it is vital for the programs of mass education in many nations. Until the average duration of schooling reaches a certain point loss of literacy predominates and much of the investment in schooling is wasted. But literacy retention depends also on inducements to its use. It is important therefore to conceive the research design in a multiple-factor network. Of special interest are experiments in the use of supportive communication media outside the schools and the operation of extra-school programs encouraging continuous use of literacy among people with little education.

5. Comparative field studies of educational attitudes and expectations

Continuation in school and selection of various types of middle or secondary schooling are strongly influenced by parental and community attitude patterns, which are closely influenced in turn by objective opportunities and by complex sentiments about modernization. Such studies should be combined with follow-up of subsequent occupations and attitude changes, using readily available control groups in other sectors of the population. It is possible also to launch experiments on the attitude effects of teaching methods, academic-vocational mix of curricula, on the job training programs, etc.

A widespread problem reported by many observers in the less-developed countries is the limited conception of what an "educated" man should do -- or has coming to him. The problem lies partly in the belated appreciation of opportunities in business and the low prestige of manual work, combined with exaggerated prestige attached to white-collar jobs. [32] There is commonly a pronounced passivity and security-mindedness that exaggerates the failure to visualize any opportunity for individual initiative, even where capital or credit facilities are available. Attitudes are not independent of the actual opportunities, nor would mere change of attitudes, even if it could be brought about directly, alone bring an economic breakthrough. But search for ways to influence

attitudes through the educational system is essential in developing an educational strategy for development (see D.6).

6. The general-vocational curriculum balance and job adaptability

Though this topic overlaps with the foregoing items, it deserves special attention. Collation of the mass of data available in many countries and accumulation of both contemporary and historical case studies is needed.[33]

7. Responses of educators to pilot-school projects

Where pilot-school projects have been inaugurated, their students would presumably be included in other studies already described. But here emphasis is on the processes of transfer of educational methods and content from teachers in one cultural setting to those in another, and in the special influence of pilot schools upon diffusion of educational innovations. Have the demonstrations been absorbed into local practice or do they constitute merely another route for escape from the demands of the local situation, to be abandoned when the westerners depart? What circumstances maximize the influence of such projects? Which of these conditions lie in the local milieu and which in the assistance program itself? Pilot schools are only one example of many kinds of experiments in crosscultural transfer of educational orientations and methods. Another that is particularly amenable to analysis in terms of "teacher-orientation" transfer is of course agricultural extension work.

B. The Diffusion of Education

1. International Comparison of factors influencing the diffusion of elementary schooling in the less developed nations today

There are wide divergences among the populations of various developing countries in their readiness to make active use of chances for elementary schooling. This variation in readiness is concealed by the unanimity among national leaders in paying lip service to educational goals; to be "for" education is respectable everywhere. Judged by their policies, some leaders display a qualified enthusiasm, however; more important, large parts of the population in most countries remain uninterested. Yet, given favorable circumstances, there can be quick growth in popular zeal for education.

Studies in this area would aim at establishing types of time sequences in the over-all diffusion of elementary schooling and the factors associated with these types. Intensive analysis of the educational transformations in a number of the developing countries are needed, with proper attention to relating such investigations to other studies of growth. In large part, readiness reflects past educational history; the spread of education as of other cultural traits tends to follow the usual growth curve. Countries now having, say, only 10 per cent literacy are in a quite different position from those with 40 per cent. But there may be plateaus of stagnation; for example, national figures may show that 30 per cent are literate or that 30 percent complete six primary grades, but in each case the persons making up this 30 per cent may be concentrated in one part of the country or one ethnic group. For the other 70 per cent the problem of initial break-through may be at the moment similar to that faced by the country with 10 per cent literacy. Apprehension of the factors conducive to educational diffusion is a prerequisite to the formulation of educational strategy.

Five broad sets of factors (and associated hypotheses) may be suggested as key points for such investigations; their study will of course throw light on many other problems as well. 1) Degree of polarization of the society or, on the other hand, the presence of a continuum of communication among various socio-economic groups in the population. (Mosher's property-ownership patterns constitute a corollary of this point). 2) The presence or absence of supportive mass communication media and auxiliary adult education and extension programs. 3) Spatial patterns of population distribution, settlement patterns, and communication or transport networks. 4) The nature of and grounds for patterns of non-economic motivation to acquire literacy--as religious motivation in Burma and Colonial North America. 5) Perhaps most important, existence of visible occupational opportunities for graduates of the schools. Most of the same factors are equally important in diffusion of secondary education.

Educational effort as such may be a key strategy for encouraging growth, but even to list the above factors is to point to the potential importance for education of changes on other fronts. Innumerable sorts of projects offer opportunities for identifying factors in particular countries that impede educational advance. A major effort may be needed to establish momentum in education, and revitalization of shcools where they have stagnated may be almost as difficult as initial take-off.

2. Ecological studies of educational diffusion in developing countries

This could be viewed as a sub-topic under B.1, extending it to include secondary schooling. However, it deserves separate consideration because of the focus upon geographic patterns within a country and because of the special theoretical and methodological frameworks available. Intensive studies in particular countries can accumulate evidence to provide a basis for comparative analysis. Recent advances in several of the social sciences provide techniques for making such studies amenable to use by policy makers. These projects fit in neatly with "regional science" work on centers of gravity, with sociological studies of mass communication, with economic studies of transportation and labor market areas, with studies of the job-opportunity grapevine in its speed and space dimensions, etc. There are two policy issues toward which ecological studies of educational diffusion could make a definite contribution.

First, given scarce resources, investments in human capital by means of education are sometimes viewed as alternatives to improvement of communication networks, as at least partial substitutes in a development program. However, consideration of thresholds of resistance and of the multiplier processes in diffusion of education brings the complementarity of the two sorts of investment into the foreground. This is to refocus the question of investment allocation in terms of alternative integrated sets of complementary policies.[34]

Second, to argue for multiple attacks on the task of spreading education and transferring technological and organizational know-how means, given limited resources, to argue for concentration of efforts at key geographic points. It seems imprudent to scatter scarce educational funds widely if this means that a "take-off" of schooling will be achieved almost nowhere. It seems equally imprudent to sponsor diverse assistance projects without regard to the location of other projects or educational programs. But this does not mean that effort should be put only into the existing nodes of educational and communication systems; a planned program that took account of diffusion and multiplier processes might well build up new centers. This not "unbalanced" investment in the usual sense,

but it does mean inequality; the available alternative equalitarian dispersion of resources may bring little advance anywhere and end up in similar inequality at a lower level. Also, concentration of resources in selected secondary centers might attract qualified teachers who otherwise cluster almost exclusively in "primary" cities. Thus the problems of city primacy and land use planning, discussed in other papers of this volume, are involved.

3. Studies of the social status aspects of education in developing countries

This problem (like B.2) is a special extension of B.1. It uses some of the concepts underlying ecological analysis, but with a different dimension of "distance." Moreover, rural-urban contrasts are normally associated with other status cleavages. The two kinds of study converge in a combined analysis of diffusion down the status scale and along the geographic gradients, for there may be significant local variations in status-diffusion patterns. But the core questions here are different. Under what conditions, for example, does academic secondary education spread through the population, along what channels, and at what rates? Where does it become dammed up? Does diversification of a school system foster diffusion, and if so how? What categories of the population are recruited into one or another kind of training, and why? Apart from their direct bearing upon education, these topics have implications for the development of an independent middle class capable of maintaining economic and political advance.[35]

C. Costs of education, resource mobilization, and distribution of the burden

1. Analysis of the opportunity costs of education in less developed countries

The real costs of education are what is given up in diverting resources into this activity: the opportunity costs. The term is used here in a narrower sense, however; i.e., contributions the students would otherwise be making by their work. Opportunity cost studies in this sense form an important part of over-all cost assessment, and are needed also to clear up some common misunderstandings.

It is frequently contended that peasants cannot spare their children from work in the fields, but in many societies elementary age children do little such work.[36] In other contexts, paradoxically, it is said that the marginal product of the labor of these children is zero. Also, there is much confusion surrounding the opportunity cost effects of unemployment, underemployment, and the institutional factors conditioning age roles in the occupational structure -- problems that are important in formulating educational investment policies. It is time that research on the economics of education dig into these questions.

We need also to disentangle the private from the social opportunity costs of shifting children from production into schools. The possible effects of compulsory school attendance upon agricultural practices and upon extension programs are often ignored. This is one of the few instances in which, at least for the elementary school ages, it may be possible to have the cake and eat it.

Analysis of opportunity costs for higher and secondary education involve the same confusions, but something is added; namely, what the graduates of the next lower level of schools do.[37]

2. Studies of teacher supply problems and potentials

Shortage of teachers is frequently a genuine bottleneck in extending educational opportunities. The most severe bottlenecks occur at different points for different societies and at different stages of development. However, at three points "shortage" is virtually universal.

One of these is shared by the already industrialized countries; there always will be a "shortage" of superlative teachers. The two principal other shortages are for teachers in rural schools and for individuals qualified to teach scientific and technological subjects by actual demonstration rather than by memorization. This latter deficiency is aggravated by certain types of occupational prestige sentiments. One may sometimes find two men teaching a class, the professor who talks and a trained assistant who does the manual manipulation. The wastage of trained men is obvious. Moreover, the demonstration of professional status may well be more appreciated than the importance of the subject -- and the image of the working assistant is a very negative way of conditioning students to do things.

In recommending research on problems of teacher supply it is not our intention to suggest additional inventories of manpower and projections of "needs" associated with some hoped-for extension of schools. Such surveys are merely a basis for research. We must go behind the "need" estimates to study the available alternatives and the critical points in relation to development dynamics, and we must go behind the supply estimates to their underlying factors. This entails "search" for unused or underused resources, for the incentives that could bring them into use, and for possible modifications in educational policies that can make more effective use of the resources that are available.

On this last point, it is essential to examine the effects of accepted "standards" with respect to formal teacher qualifications upon teacher supply. Also, levels of standards aside, are these standards distorted in the context of realistic alternatives for employment and in the light of the potential as against the actual roles of schools in economic and political life.[38] The self-conceptions of teachers play a central role in this situation. Teachers remain unused sometimes because they will not take certain types of positions or will not leave urban centers or their native province. In other cases teaching is viewed as a temporary halt on the road to political office. Special attention needs to be given also to assessing the untapped local resources of potential teachers.

Research on teacher supply ties in with many other aspects of education. It is related to research on educational methods and on the kind of people turned out by the schools. It is linked to study of the processes by which education becomes diffused and with the ways a society utilizes its trained manpower. For many reasons, this offers a particularly apt point of attack on a series of related problems.

A brief comment concerning international exchange of persons is in order. All such exchange, broadly, is an exchange of "teachers", for better or worse. In some of the developing countries foreign personnel constitute the core of the teaching staff in secondary schools and universities. Other than in the very short run, however, these foreign teachers can form only a small fraction of the staff.[39]

3. Distribution of the financial burden

Countries vary widely in how they distribute costs between central and local governments and between government and private sources, but education is a large item in the public budget nearly everywhere. Though studies of public finance must be undertaken for many reasons having little to do with education, there are special problems and opportunities with regard to school finance that demand attention.

A salient contrast between less and more developed countries lies in the greater importance in the former of the subsistence sector of the economy. Where this sector is relatively large, the effective ways of drawing private resources into the public domain may be quite different. For example, there may be a legitimate place for using a corvée to build schools (and roads) in lieu of money taxes.[40] Most of the other problems have their analogues to at least some degree in the more advanced countries.

Distribution of responsibility between local communities and central government is an issue that takes on a special cast where tribal or similar units are involved. Financial decisions and strategies for manipulating educational incentives are interrelated; thus diffusion and finance studies contribute jointly to decisions concerning the geographic locus of the burdens of school support.

There is a parallel set of questions concerning distribution of the costs between public and private sectors. These include the sensitive questions of stipends and loans: to whom they will be granted, for what kinds or levels of schooling, with what conditions about later job commitment -- and whether they are warranted at all. This brings us back again to the problem of teacher supply and to the complex problems relating to public subsidy of various kinds of educational endeavors.

Research cannot answer these questions outright, but it will identify the parameters of action potentials and the probable outcomes from alternative policies. Studies of public finance in the developing countries may seldom be fundamental social science research, but objective analysis of its socio-economic facets is vital for optimizing the allocation of scarce resources for development, and it can contribute to pointing up some new (and old) types of assistance projects that may be especially promising.

D. The Role of Education in Economic Development

Interpreted sufficiently broadly, "the role of education in development" would include many of the items already listed. However, the emphasis here is on the way education enters into economic activity, rather than on what it costs or how resources are mobilized for it, the nature or quality of those services, or their diffusion.

A question often asked but not answered is, what is the part played by literacy and primary education in economic advance? As usually posed, this tacitly assumes too simple a conception of the factors in development. To spell out a design for study of the contribution of primary education to development would lead into innumerable other topics, many of them already mentioned.

However, two broad hypotheses suggested by the evidence already at hand are worth noting here as indicative of kinds of questions to which the projects listed might be directed.

First, as the charts in an earlier section of this paper suggest, gains from a literate minority may level off rather quickly and remain level until education has been built up to a point at which widespread transformation of the economy is possible. There is perhaps an educational threshold for primary schooling that must be reached before further extension of such schooling can be brought into economic play. But some countries seem to offer exceptions. Clearly we need longitudinal data for particular countries as well as cross-section data. The variant situational conditions particularly need investigation. These comments suggest a further hypothesis that is important in its own right even if the foregoing one does not stand up.

This second hypothesis relates to the socio-economic milieu of education and it pertains perhaps more to secondary and higher than to primary education. A polarization of society and absence of a communication continuum among the subpopulations may inhibit effective economic utilization of any given level of schooling even when it has not checked the spread of such schooling. The loose but positive correlations between "competitive" political systems and economic development (referred to by Hagen in the accompanying paper) may well relate mainly to the existence of a middle class. Some of the exceptions in Hagen's paper would cease to be exceptions if this redefinition were adopted. However, to say this is also to point to the fallacy of considering status structures as unidimensional. Our second hypothesis then has two variants (and could of course have more). One of these, in line with the way it was initially stated, focuses on the "communication" factor; the other emphasizes the emergence and growth of a mundanely active "middle class," whether or not in its origin "deviant."

This pushes us into facing a question that is often asked <u>and</u> answered, after a fashion; it is answered because policy demands an answer. This is: what is the appropriate educational mix in various situations or stages in development? Presumably the impact of primary education depends partly upon a certain spread of advanced education. But the availability of complementary skills created in the higher schools is only one of the reasons for such a relationship. Another may well be the effects of the people with intermediate schooling, along with others having primary and higher training, upon the social status communication networks, and hence on what opportunities are perceived and acted upon. Again, non-educational conditions influence education's role in economic change as in political "democratization." What educational and non-educational strategies weaken social polarization and foster growth of a middle stratum, given various starting points? Studies of factors in educational diffusion and of the utilization of education in economic life are here joined.

Research on the economic effects of education does not divide neatly into sub-topics. The list of suggestions that follows distinguishes by types of research methods, especially historical versus field studies, as much as by the main questions posed.

1. Historical research on the relations between spread of literacy and elementary education and the occupational structure

While an adequate theoretical base for analysis of the role of education in development of the "new" nations cannot be constructed merely by identifying historical sequences and correlates in the earlier history of the West, that history can nevertheless serve to check some hypotheses and suggest others. One of the main questions calling for investigation is that of the interplay between the spread of literacy and elementary education in the early stages of the agricultural and industrial revolutions in Western countries and Japan. Such studies would examine the diffusion of schooling among status categories and geographic areas (see B) and development sequences in the spread of education, growth of markets, and changing occupational structures.

2. Historical research on the training of key groups in the industrial labor force and in entrepreneurial ranks

Despite the many educational histories, economic histories, and histories of particular industries, research concerned explicitly with the sources and training of key groups in economic life is only beginning. To study engineers and machinists in various countries is one example.[41] Another would be to build on work already done concerning the early Iron Masters of Britain and of Tsarist Russia, and so on. Some studies might of course be wider in scope: merchants in general, manufacturing entrepreneurs, skilled workers (however defined), within a particular country. There is reason to think that development can proceed with relatively small sets of trained men provided these are linked in the proper manner geographically and in terms of status relations. Probably also "imports" of skill have always been major factors. (In some cases projects could be combined with those in A.6).

3. Case studies of the twentieth-century history of Latin America

These countries are of particular interest because of their predominantly European populations and their stagnation under seemingly favorable circumstances. The extent of development also varies considerably among them. Broad studies incorporating in varying degree most of the topics listed in this paper are called for.

4. Special studies of the effects of education of rural populations upon agricultural progress

Selection of cases might well be devised to approximate controlled experiments, though special cases like Denmark and Japan are also of great interest. One would examine changes in agricultural practices and productivity in areas (within or among countries) that are similar in some critical respects but differ in the spread of general elementary education, crossclassified also by the presence or absence of agricultural extension and other forms of adult education. There is an especially strong case for cooperative research of this kind linked to experimental programs within a host country, projects in which there is explicit provision for study of control areas matching those in which assistance programs are undertaken.

5. Factors influencing relations between education and labor force "commitment"

Lack of a committed labor force is often cited as a major obstacle to economic advance. Identification with the job, responsibility for tasks, and adaptation to non-familistic organizations call for varying modification of prior patterns in the host country, but they require also modifications of Western institutions imported into new areas. Intra-educational factors affecting commitment include types of schools and methods of teaching as well as levels of schooling. But the degree to which these educational influences carry over into vocational performance reflects also many extra-school features of the society. These topics are well suited to experimental research linked to assistance programs, and they shade into topic 6.

6. Investigations of the efficacy of enterprise-linked training in developing economies

The term "enterprise-linked" has been used here deliberately to encompass a considerable range of activities, from on-the-job training in the lesser skills and strictly vocational apprenticeship to academic schooling provided by private concerns. There would be several facets of such studies, even excluding variations in the legal and financial setting. Who is trained, how recruited, from what sectors of the population? What are the perceptions and attitudes concerning education and jobs of the new entrants? How are these attitudes and perceptions changed? How do those receiving one or another sort of training compare in subsequent work efficiency and adaptability? And how do the new entrants and the "graduates" compare in these respects with comparable groups that have not had this experience, including those receiving training in technological versus those in academic schools.[42] Do the higher-level trainees see this program as just another facet of bureaucratic life and posts in the organization as the security equivalents (whether or not at equal "prestige" ratings) of jobs in the government, or do they perceive and act upon perceptions of less traditional economic opportunities elsewhere? To what extent, if at all, are attitudes of disdain for practical engineering, for example, modified or even overcome? What skills are developed, and how much adaptability?

To be able to interpret differences in the answers to some of these questions, one must simultaneously look into the factors that might explain them. In particular, for example, are they associated with prior training, with the kinds of education in the enterprise-linked program, with teaching methods and examples set by teachers, with family backgrounds of the students, with expectation (whether legally bolstered or not) or more or less permanent jobs in the firm?

The importance of this kind of research goes far beyond what would be justified by the present modest scale of enterprise-linked training. We already know that opportunity perceptions and prestige images impede effective utilization of educated men in economic development. These images are by no means divorced from reality, and they reflect the traditional exaltation of bureaucratic employment and its links with higher and even secondary schooling. Also, transfer of "know how" is far more difficult than teaching school subjects or narrow craft skills, depending as it does more closely upon participant experience.

Innovation in enterprise-linked training is one of the potentially most promising strategies for orientation toward progress in a kind of society congenial to the freedoms treasured in the West. It brings jobs and education more closely together in a meaningful setting consistent with economic advance. It offers exceptional opportunities for transfer of know-how,[43] and for development of a cadre of trained, practical men. There are many possible variants. In addition to those already tried, it should be possible, for example, to combine intern periods on the job with courses in higher and secondary technical schools and with credit arrangements and business advisory services for those trained.[44] But these types of program will call for innovations in educational finance also.

7. The Costs and Financing of Enterprise-linked Training

Even in the already industrialized countries it takes a long time to train a whole cohort of workers in a new plant as compared to the time needed to fit a few new men into a going operation. These special problems in the developing countries have received scant attention. To be sure, there is general appreciation of the inadequate managerial skills and lack of a committed labor force. But there is a tougher problem that is not solely one of unfavorable attitudes. In the developing countries, virtually all new enterprises are in some degree "infant industries," whatever the capabilities of their managers, especially if the technology calls for a skilled labor force. The foregoing are contributory factors encouraging the introduction of highly modern plants and capital-intensive processes despite the large "labor surplus."

Assessment of the training costs for launching a particular new enterprise is mainly the task of business consultants and managers. But research into the magnitude and implications of these costs is needed as a basis for public policy.

The preceding remarks referred only to those costs that are typically borne by the enterprise where there are neither subsidies to training nor legal requirements for training of local employees. Such requirements are feasible without subsidy only when there are special reasons for a firm to locate in a particular country and its prospective profits will cover what amounts to a "training tax." Oil and mineral exploitation furnish the best examples, but these are not the best settings for the kinds of enterprise-linked training that will most facilitate development. Cases of government subsidizing training in private enterprises without trying to take over the enterprises have not come to our attention. Material for research on training costs is available, for example, in records of some British enterprises in colonial territories. Various host-country mixed enterprises (notably in India) and public enterprises are equally available and may prove more important. Also, Soviet experience is particularly relevant (see D.6).

Given a body of data for realistic appraisal of this problem, research into new methods for financing enterprise-linked training may well throw fresh light on a whole series of policy problems and strategy potentials for development.[45]

8. Studies of the civilian impact of training in military service

Military schools would of course be included in any case in the strictly educational studies noted under heading A. Here attention is directed to military-linked training as preparation for civilian roles, asking questions similar to those raised in connection with enterprise-linked training (D.6).[46]

V. CONCLUDING REMARKS: TOP PRIORITIES

A. Basic Criteria

Priorities presuppose specification of purposes. In the present context there are two highly relevant policy goals: (1) raising levels of living in the developing countries and spreading these gains among the population; (2) facilitation of democratic participation in political decision-making and freedom to dissent from policies of the party in power--development and acceptance of a "loyal opposition." Fainthearted local acceptance of these goals throttles assistance programs and may limit research opportunities, but it does not impugn the use of these goals as guides for a priority ranking of research topics and methods.

It follows that priorities in research should be accorded those projects that give greatest promise of identifying reaction thresholds and the most potent multipliers. But this proposition is equally valid for those interested in "basic" research, since identification of strategic factors requires fundamental insight into societal processes. Two kinds of multipliers are involved, both of which require a large enough initial impact to surmount thresholds. First, there are the self-generating processes within education, calling for studies of the factors in educational diffusion and studies of complementarities and substitutions among these factors. Second, there are inter-sector multipliers, the supportive interplay between educational and economic (and political) development. Critical here is the integration of education into economic life; "more education" does not necessarily induce inter-sector multiplier processes. Cutting across the research proposals given priority below, and imbedded in some of them, there should be special stress on investigation of educational and cultural transfer as part of or in coordination with development assistance projects (or with experimental projects of host countries). High priority should be accorded also to research in which colleagues from host countries are active participants. Not only can such projects become valuable training programs; in many situations they are shrewd strategy for accomplishment of other ends.

High on any priority list also must be more diligent exploration of what is in the files of ICA and the heads of its staffs. Buried there are unusually valuable materials for research that would be of special pertinence for policy making. What has ICA experience with educational assistance programs been and with education by means of non-educational projects? What factors in the environments and programs have been associated with success and failure--viewing these criteria more deeply than publicity? Much that has been learned

is being lost and will have to be learned over again. The Congress, properly concerned with optimizing the gains from the United States investment in assistance, has in our view been negligent in not establishing large funds for research parallel to our assistance programs.

B. Six Top-Priority Research Topics

Grouping projects under headings that cut across the categories used in previous pages, we would emphasize the urgency of research on the following topics.

1. Studies of teacher supply problems, preferably conducted on the ground in several developing countries.

Teacher supplies are critical in educational development, they have quantity and quality and locational dimensions. They are tied up with a whole complex of interconnected problems concerning resource use for development. Also, a focus on teacher supply problems can be an exceptionally useful route into related studies; it is a handy starting point since the subjects are readily available for inquiry. The problem gains importance from the prevalence of what we believe to be fallacious tactics in teacher recruitment and from the relative ease with which policy can be modified.

2. Studies of the diffusion of education and its influence on diffusion of other traits.

This topic also is eminently researchable. It can make important contributions to social science theory and method. It is highly pertinent for policy making in the developing countries and for American assistance policies. Jointly with the next item, it offers an especially promising approach for cutting into problems of stagnation after take-off.

3. Studies on the role of education in social mobility in developing countries.

Such work combines analysis of the social status dimensions of educational diffusion with analysis of job destinations. What influence has education of this or that type had (as compared, for example, with the pushes and pulls of hunger and money) in moving people from one kind of work and orientation to another? Such studies can identify strategies contributing to the emergence and strengthening of the middle strata.

4. Exploration of the possibilities in various media of rural education.

Media can be used separately and in combination as agencies for injecting skill in decision-making into farm populations. Plans for educational research should be part of every agricultural assistance program.

5. Studies concerned with education of elites.

The usual questions about how much resources to put into secondary and higher as against elementary education are of the second order. The first order questions relate to the nature of the elites, their training, what they

can do, and in what ways they can become more effective agents of change. Unfortunately, powerful local elite groups can veto both program and research proposals; hence there is need for a strategy of introducing this kind of research. This information can usually be obtained in projects dealing with status mobility or with enterprise-linked training. Also, it could be a byproduct of manpower surveys or of a study of examination systems; if this focus were built into such studies they would have higher priority than otherwise.

6. Experimentation in the use and subsidization of enterprise-linked training.

We need to pioneer in building educational research (broadly defined) into programs of enterprise-linked training. This is of course also to stress the background research described in topics D.6 and D.7.) Since the specification of top priority for this sort of research may ultimately mean also taking a strong position with respect to a particular kind of experimental assistance program, our position must be argued on both fronts -- the action front and the research front.

On the action front such experimentation is justified on several scores. First, it is economically justified because of the "infant industry", or, in more respectable technical economics, the "external economies of scale" problem in its human resource form. It is justified, that is, as providing a boost over the big hump between now and the point at which the "economies of scale" that depend upon existence of an experienced intermediate-level labor force can be reached. It provides one channel for integrating education more effectively into economic life and getting inter-sector multipliers moving. Also, it may be that experiments of this kind will provide the most effective methods of transferring higher level know-how from foreigners to the inhabitants of the host country -- including in the process the innovative adaptations that are needed for successful transplantation. (The latter specification, by the way, suggests some of the experimentation and research problems that may be peculiar to a transfer situation.) And action programs of these kinds are justified as one of the few ways in which we may help foster development of a genuine middle class.

But like other assistance programs, these would of course be gambles; some almost certainly may fail to come up to what had been hoped of them. Others might be surprisingly successful. Parallel research that could identify the reasons for these successes and failures should obviously have extremely high priority. Over time, the research contributions should multiply, both in their basic scientific value and in the assistance they would provide to men responsible for policy changes and for sponsoring trials of new approaches or in new locations.

FOOTNOTES

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11. Albert O. Hirschman, The Strategy of Economic Development (New Haven: Yale University Press, 1958). Paul Streeten, "Unbalanced Growth," Oxford Economic Papers, Vol. n.s. XI 1959), pp. 167-91.

12. Ragnar Nurkse, Ibid, pp. 295-7.

13. Some other aspects of the problem are discussed by the second author of the present paper in "The Impact of the Educational System on Technological Change and Modernization," in UNESCO, North American Conference on the Social Implications of Industrialization, 1960 (forthcoming).

14. Ragnar Frisch's well known contributions to a more positive conception of the role of time in economic analysis are relevant here.

15. For previous treatments of some of the topics in the present paper, see J.B.D. Derksen, "Illiteracy and National Income," and Hilda H. Golden, "Illiteracy and Urban Industrialization," Chs. 9 and 10 respectively in UNESCO, World Illiteracy at Mid-Century, Monographs on Fundamental Education, No. 11, 1957; see also the introductory chapter of UNESCO, World Survey of Education, Vol. II.

16. Brian, J.L. Berry, "An Inductive Approach to the Regionalization of Economic Development," in Norton Ginsburg (ed.) Essays on Geography and Economic Development (The University of Chicago Press, 1960), pp. 78-107; W.S. and E.S. Woytinsky, World Population and Production (New York: Twentieth Century Fund, 1953), p. 389.

17. However, this tells us little about countries deviating markedly from the prevalent pattern in a scattergram relating education to income or energy use. Supplementation of the factor analysis by elaborate multiple correlation using many independent variables was considered but we decided that it would have dubious additional explanatory value. Most of the variables are too closely intercorrelated; they serve better as measures of technological development than as clues to what brings this about. In fact there are no available indexes for most of the presumptively important causal or constraining factors in growth that are not at the same time measures of levels attained.

18. On this and other questions concerning Japan, see below. In the Caribbean there are ratios of cultivated land to population as low as most in Asia, but income is not low relative to education.

19. This does not mean there was no concern about this problem; there have always been members of elites who feared an oversupply of educated men, as is still true in Western countries today. It is also too easy to overlook the fact that Tsarist Russia was far ahead of most underdeveloped countries today in both its economic and educational attainment. To get to the Tsarist level would mean a major advance for many of today's developing countries. For an illuminating discussion of the questions concerning various sorts of elites, see Edward Shils, "Political Developments in New States," Comparative Studies in Society and History, Vol. 2 (April and July 1960), pp. 265-92, 379-411.

20. The advantages of oil resources to Venezuela (as to British North Borneo) are particularly evident, as is also the tragedy if this income flow is wasted.

21. The post-primary rates for Puerto Rico and West Germany seem too high.

22. UNESCO has published the percentages of 5-14 year olds in primary school for 1930-34 and 1950-54. In some countries numerous children have moved into secondary school at ages of 12 to 14 and are not counted in this index; in half the countries with high primary enrollments in 1930-34 this rate declined during the next twenty years. Nevertheless outside of Europe the 1950-54 rates are quite good indexes, and the 1930-34 rates are useful even for European countries. Differences in school starting age also distort the picture. Where pupils begin at seven, the share of 5-14 year olds in primary school will be less than where entry is at five or six. Yet the total schooling in the first case (as in Sweden) may be greater.

23. The Japanese case and some of the puzzles presented by the entire Asian and Latin American pictures will be discussed further when we look at the situation by world regions.

24. Since 1938 income data were available for fewer countries, correlations were computed first including only countries for which a full set of estimates were available -- mainly Europe and the Americas.

25. The latter are dominated by the countries in which the 1950 primary enrollment rates were most distorted by entry of children into secondary school. In many of these countries primary enrollment rates as here measured actually declined. For the high energy group especially, better education measures might have strengthened the prediction of 1950 educational indexes based on 1938 incomes, bringing them in line with the other energy potential groups.

26. In view of the low zero order correlations between 1955 income and 1930-34 primary enrollments among countries with less than 90 per cent adult literacy in 1950-54, it is hardly surprising that inclusion of 1930 enrollments did not improve predictions based on 1950-54 literacy alone or on 1950-54 literacy and post-primary enrollments in combination. In fact, for all countries with less than 90 per cent literate in 1950-54, the values of $r^2_{1.245}$ were so little above those of r^2_{12} and $r^2_{1.25}$ respectively as to make no difference when rounded to two places. Replacing the 1930 by 1950 primary enrollments improved these correlations slightly, from $r^2_{12} = .432$ to $r^2_{1.23} = .456$, and from $r^2_{1.25} = .443$ to $r^2_{1.235} = .628$. Note that for these countries r^2_{12} is .432 and r^2_{13} is .422; the correlation of concurrent adult literacy with income is slightly, but only slightly, higher than that between 1955 income and 1950-54 rates of primary enrollment.

27. Berry (in Ginsburg, Essays, Op.Cit. p.96f) also identifies regional clusters in development.

28. Venezuela is out of line on all charts, due to oil incomes. The anomalous positions of Chile and Paraguay may well be due to the errors in income estimates for the former and in education data for the latter noted earlier. The contrast with Brazil and Colombia is striking.

29. In using the expression "practical minded" we do not imply that men who realistically assess opportunities and express their preferences by seeking white-collar or government jobs are foolish from the point of view of their personal advantages.

30. See Benjamin S. Bloom, The Improvement of University Examinations (Delhi: University Grants Commission, 1961) and Evaluation in Secondary Schools (New Delhi: All-India Council for Secondary Education, 1958).

31. "If care is not taken, the excessive importance attached to diplomas and especially the fact that they give direct access to every kind of public office will lead to atrophy in the private economy sector, a plethora of "white collar" workers and a pretense of development which is the very negation of reality." E. Valin, The value of examinations: a technical study carried out in Lebanon (UNESCO Educational Studies and Documents, #40, 1961) p.8.

32. Once again the anthropologist may object that these images are realistic, but the issue is not the "realism" with which individuals assess prestige. The prestige of certain jobs is "exaggerated" in terms of a societal goal assumed here: advance toward higher levels of material well-being. It

should be noted that the comparatively high civil service incomes are often pegged; the elite tax people to pay themselves independently of their productivity. Economically these incomes may be quite unrealistic though to the striver for a post they are very real indeed.

33. Soviet educational history is particularly illuminating on this topic. For some related projects, see D.4, D.6, and D.8.

34. This reformulation becomes even more important when considering how to absorb newly educated cohorts into vocational life.

35. The influence of parental status upon educational diffusion has received an unusual amount of research attention in advanced societies; but most of it refers to recent decades and the pattern of successive diffusion waves has received little attention. Similar work in developing societies has barely begun, as is true of archival study of the situation in early western history and in Japan.

36. See the study of Egya, Ghana by Philip Foster and also his forthcoming study of secondary schools in Ghana; see also Susan Elkan, Op.Cit.

37. At this point studies of costs and analysis of the economic roles of youth completing various levels of schooling merge, sliding into some of the research suggested under heading D.

38. This question of realistic standards in relation to resource limitations and development goals and requirements is of course a pervasive one. For example, to apply American or Swedish or British standards in training physicians in most of the developing countries is more likely to retard than to hasten provision of better health care among the population as a whole. For further discussion of this quality-quantity problem see Keenan's chapter.

39. Studies relevant to decisions in the United States as to what kinds of teachers can serve most effectively in certain countries are unlikely to bear much relation to the teacher supply projects suggested here (but see A.7, D.6, and D.7).

40. Readers may be reminded of the American tradition of housing and boarding the rural teacher in rotation at the pupils' homes.

41. W.H.G. Armytage, A Social History of Engineering (London: Faber, 1961).

42. On comparison of apprenticeship with vocational school training, see Keenan's paper in this volume.

43. In this connection see Eckaus' discussion of experiments with institutional arrangements which facilitate technological change and of the role of foreign investments and consulting firms in implementing such change.

44. There are other possible combinations. The Mexican government did not require that Sears institute a training program, but its stipulation that a large part of the inventory be purchased in Mexico led Sears to inaugurate a kind of business-management advisory service. The learning aspects of this program warrant study.

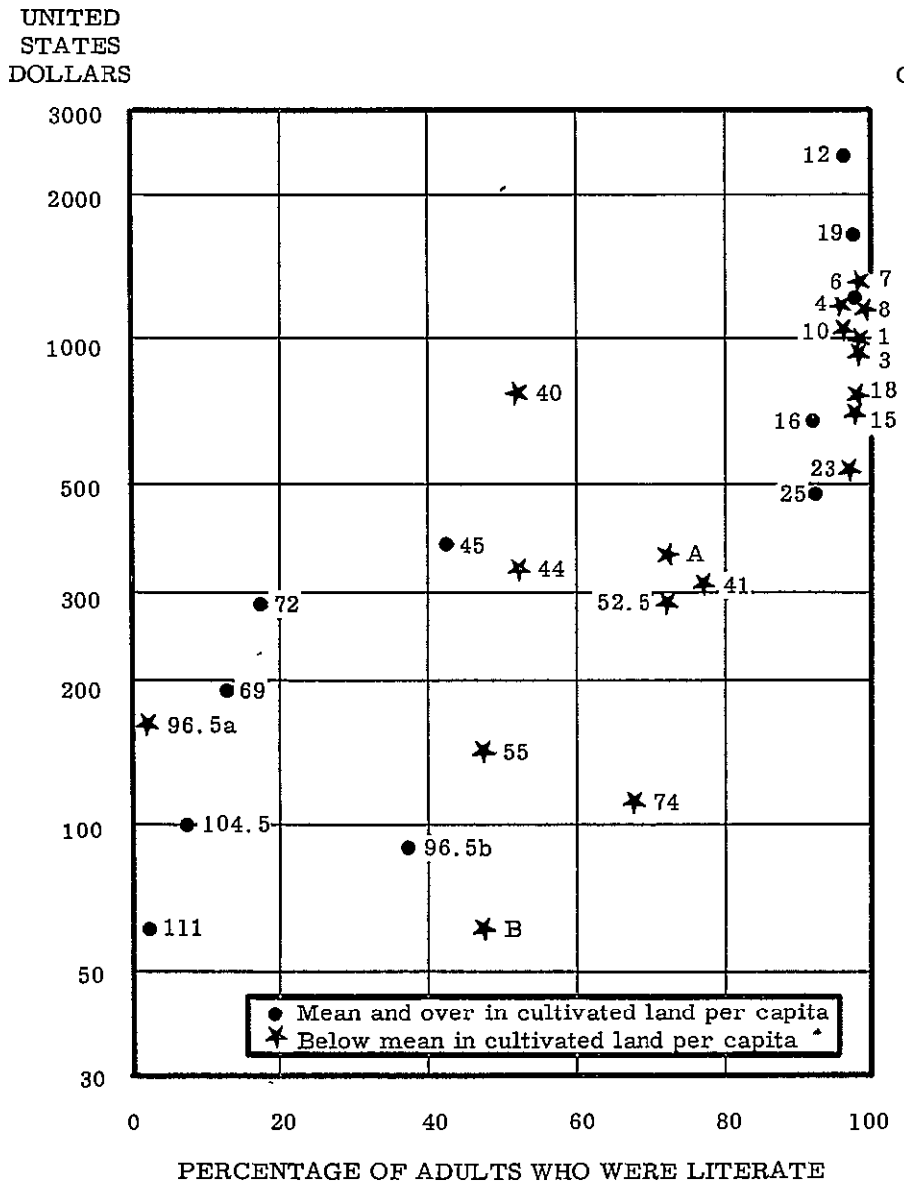
45. Notice the suggestions concerning government subsidization of apprenticeship in Keenan's paper.

46. Ibid.

Chart I A

GROSS NATIONAL PRODUCT PER CAPITA, 1955 (IN UNITED STATES DOLLARS) AND PERCENTAGE OF ADULTS WHO WERE LITERATE, 1950*

TOP THIRD OF COUNTRIES IN ENERGY POTENTIAL



RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

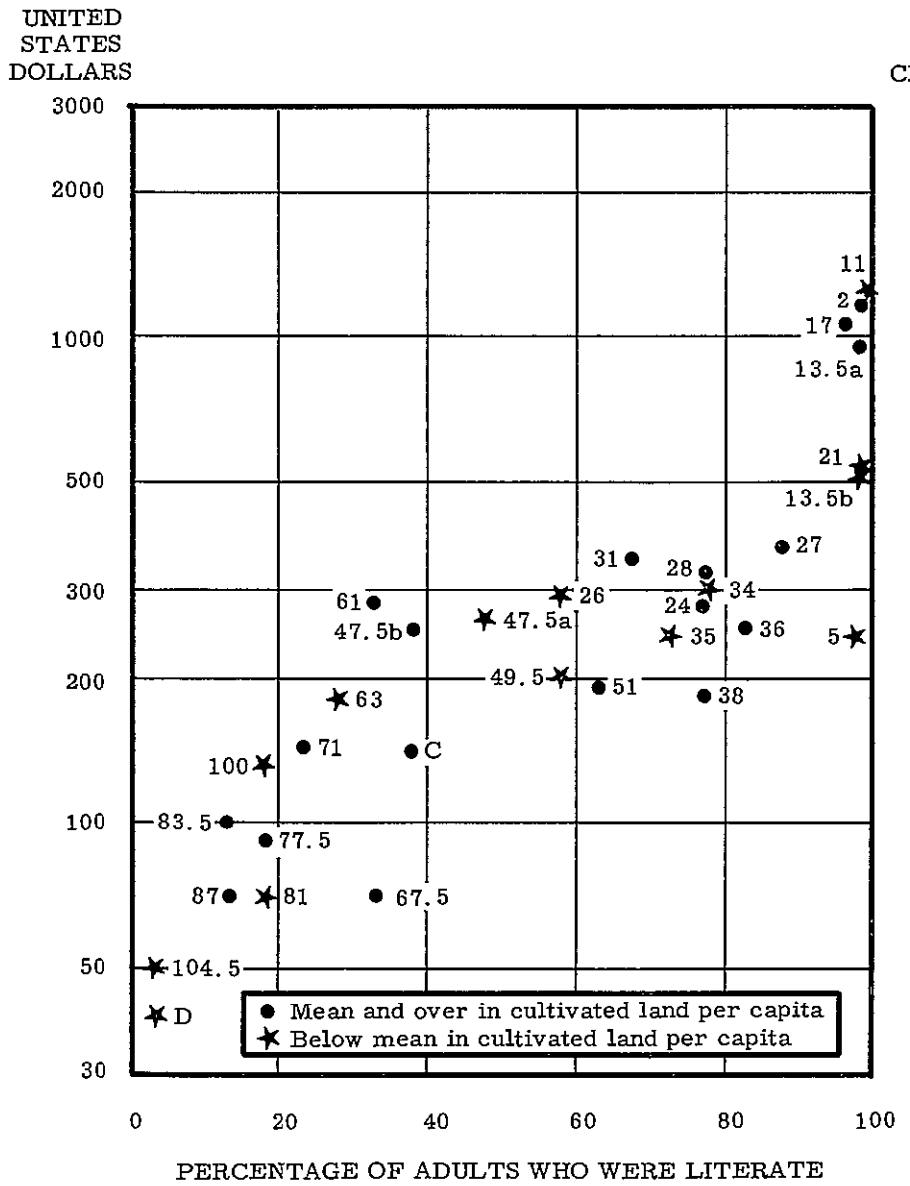
1	United Kingdom
3	Norway
4	Luxembourg
6	Australia
7	New Zealand
8	Iceland
10	Belgium
12	United States
15	Netherlands
16	Soviet Union
18	West Germany
19	Canada
23	Czechoslovakia
25	Poland
40	Venezuela
41	British Guiana
44	Columbia
45	South Africa
52.5	Yugoslavia
55	Peru
69	Iraq
72	British North Borneo
74	Paraguay
96.5a	Saudi Arabia
96.5b	Belgian Congo
104.5	Liberia
111	French Equatorial Africa
A	Surinam
B	China

*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

Chart I B

GROSS NATIONAL PRODUCT PER CAPITA, 1955 (IN UNITED STATES DOLLARS) AND PERCENTAGE OF ADULTS WHO WERE LITERATE, 1950*

MIDDLE THIRD OF COUNTRIES IN ENERGY POTENTIAL



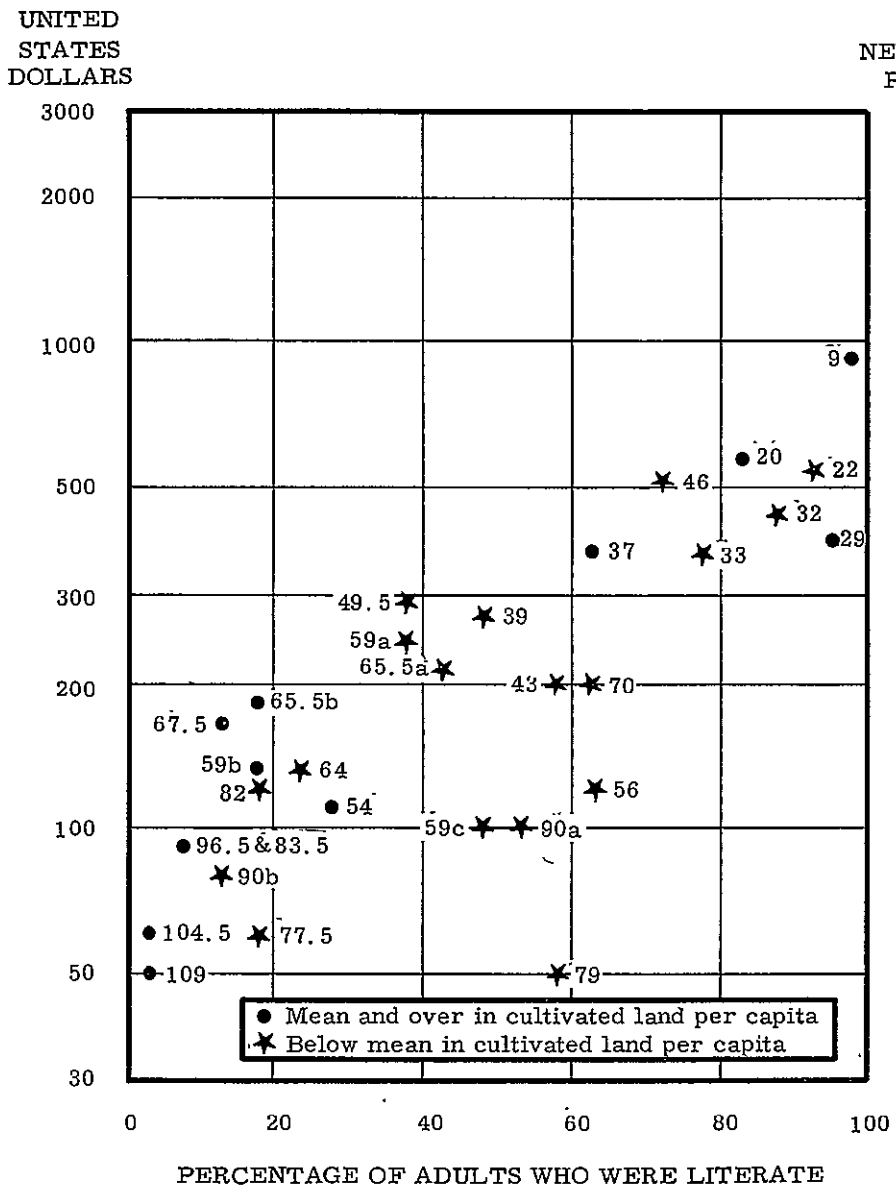
RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)	
2	Sweden
5	Japan
11	Switzerland
13.5a	Finland
13.5b	Eire
17	France
21	Austria
24	Bulgaria
26	Hong Kong
27	Argentina
28	Rumania
31	Panama
34	Costa Rica
35	Greece
36	Spain
38	Chile
47.5a	Brazil
47.5b	Nicaragua
49.5	Ecuador
51	Mexico
61	Turkey
63	Guatemala
67.5	Bolivia
71	Ghana
77.5	Jordan
81	India
83.5	Iran
87	Nigeria
100	South Vietnam
104.5	Afghanistan
C	Honduras
D	Nepal

*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

Chart I C

GROSS NATIONAL PRODUCT PER CAPITA, 1955 (IN UNITED STATES DOLLARS) AND PERCENTAGE OF ADULTS WHO WERE LITERATE, 1950*

LOWEST THIRD OF COUNTRIES IN ENERGY POTENTIAL



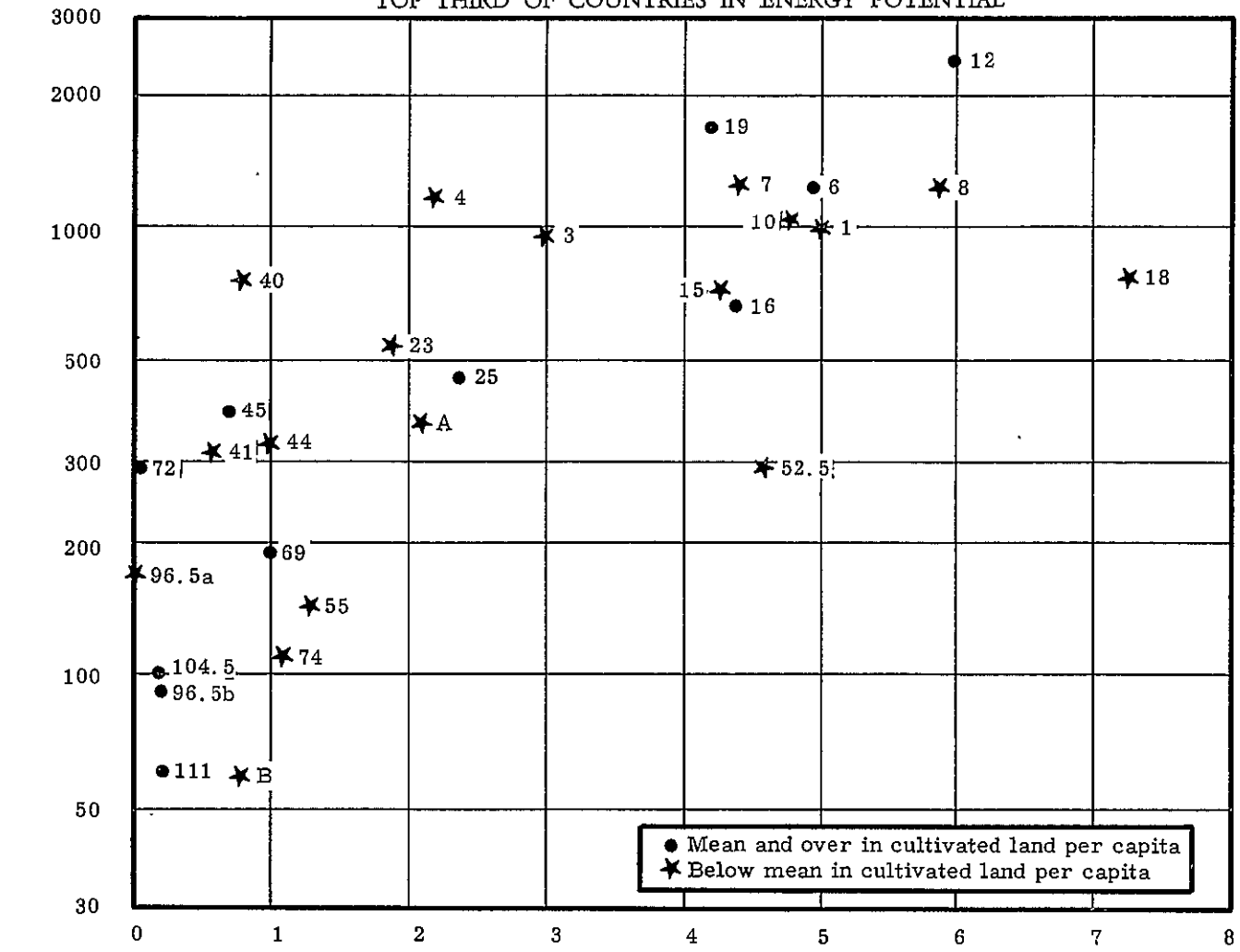
RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

9	Denmark
20	Uruguay
22	Israel
29	Hungary
32	Italy
33	Cuba
37	Cyprus
39	Lebanon
43	Portugal
46	Puerto Rico
49.5	Malaya
54	Syria
56	Ceylon
59a	El Salvador
59b	Tunisia
59c	Taiwan
64	Egypt
65.5a	Dominican Republic
65.5b	Algeria
67.5	Morocco
70	Phillipines
77.5	Pakistan
79	Burma
82	Indonesia
83.5	Libya
90a	Thailand
90b	Haiti
96.5	Sudan
104.5	French West Africa
109	Ethiopia

*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

GROSS NATIONAL PRODUCT PER CAPITA, 1955 (IN UNITED STATES DOLLARS) AND PERCENTAGE OF TOTAL POPULATION WHO WERE IN POST-PRIMARY SCHOOLS, 1950*

TOP THIRD OF COUNTRIES IN ENERGY POTENTIAL



RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

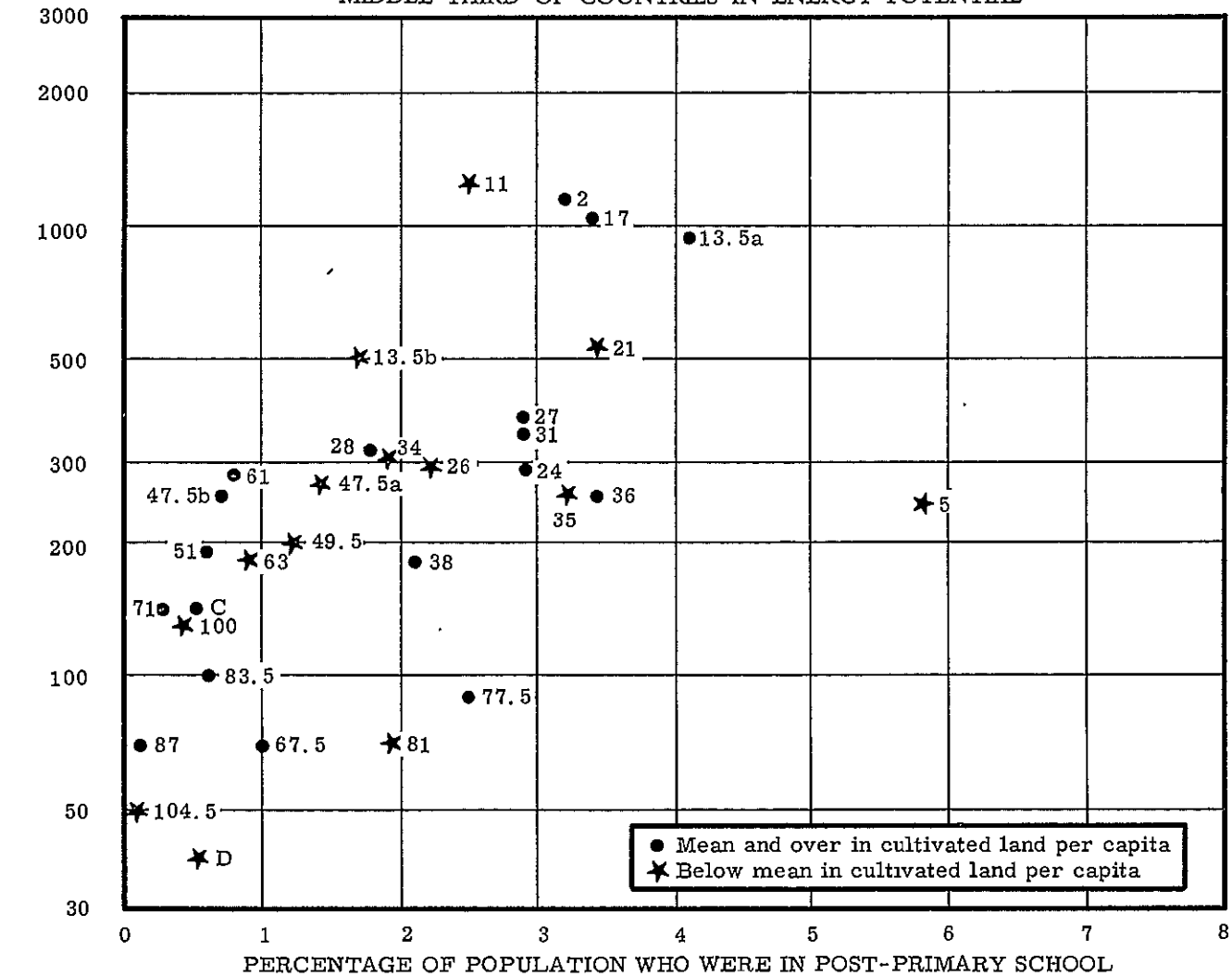
1	United Kingdom
3	Norway
4	Luxembourg
6	Australia
7	New Zealand
8	Iceland
10	Belgium
12	United States
15	Netherlands
16	Soviet Union
18	West Germany
19	Canada
23	Czechoslovakia
25	Poland
40	Venezuela
41	British Guiana
44	Columbia
45	South Africa
52.5	Yugoslavia
55	Peru
69	Iraq
72	British North Borneo
74	Paraguay
96.5a	Saudi Arabia
96.5b	Belgian Congo
104.5	Liberia
111	French Equatorial Africa
A	Surinam
B	China

Chart II A

*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

GROSS NATIONAL PRODUCT PER CAPITA, 1955 (IN UNITED STATES DOLLARS) AND PERCENTAGE OF TOTAL POPULATION WHO WERE IN POST-PRIMARY SCHOOLS, 1950*

MIDDLE THIRD OF COUNTRIES IN ENERGY POTENTIAL



RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

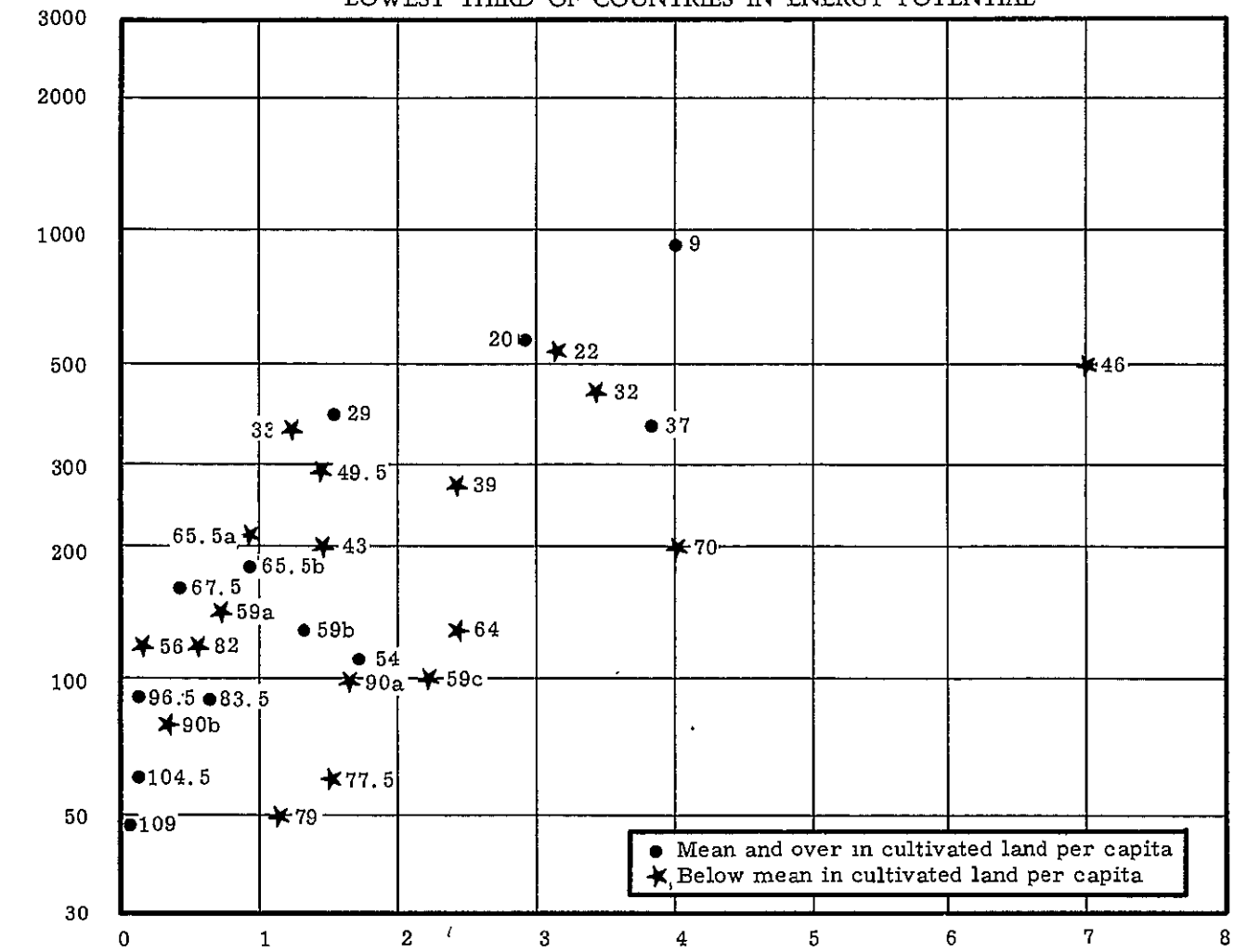
2	Sweden
5	Japan
11	Switzerland
13.5a	Finland
13.5b	Eire
17	France
21	Austria
24	Bulgaria
26	Hong Kong
27	Argentina
28	Rumania
31	Panama
34	Costa Rica
35	Greece
36	Spain
38	Chile
47.5a	Brazil
47.5b	Nicaragua
49.5	Ecuador
51	Mexico
61	Turkey
63	Guatemala
67.5	Bolivia
71	Ghana
77.5	Jordan
81	India
83.5	Iran
87	Nigeria
100	South Vietnam
104.5	Afghanistan
C	Honduras
D	Nepal

Chart II B

*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

GROSS NATIONAL PRODUCT PER CAPITA, 1955 (IN UNITED STATES DOLLARS) AND PERCENTAGE OF TOTAL POPULATION WHO WERE IN POST-PRIMARY SCHOOLS, 1950*

LOWEST THIRD OF COUNTRIES IN ENERGY POTENTIAL



RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

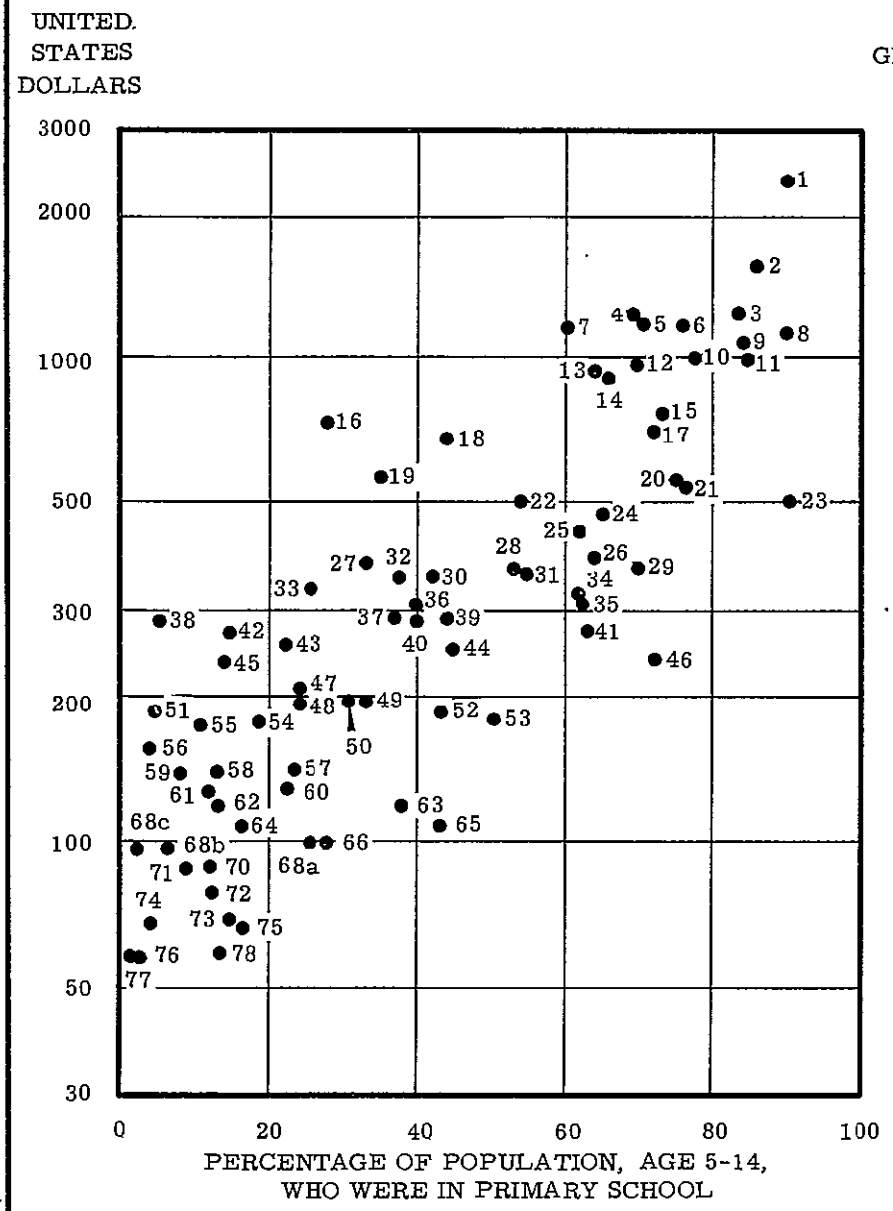
9	Denmark
20	Uruguay
22	Israel
29	Hungary
32	Italy
33	Cuba
37	Cyprus
39	Lebanon
43	Portugal
46	Puerto Rico
49.5	Malaya
54	Syria
56	Ceylon
59a	El Salvador
59b	Tunisia
59c	Taiwan
64	Egypt
65.5a	Dominican Republic
65.5b	Algeria
67.5	Morocco
70	Phillipines
77.5	Pakistan
79	Burma
82	Indonesia
83.5	Libya
90a	Thailand
90b	Haiti
96.5	Sudan
104.5	French West Africa
109	Ethiopia

Chart II C

*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

Chart III

GROSS NATIONAL PRODUCT PER CAPITA, 1955*(IN UNITED STATES DOLLARS) AND PERCENTAGE OF POPULATION, AGE 5-14, WHO WERE IN PRIMARY SCHOOL, 1930**



RANK IN GROSS NATIONAL PRODUCT PER CAPITA, 1955

1	United States
2	Canada
3	New Zealand
4	Switzerland
5	Australia
6	Luxembourg
7	Sweden
8	Iceland
9	France
10	Belgium
11	United Kingdom
12	Norway
13	Finland
14	Denmak
15	West Germany
16	Venezuela
17	Netherlands
18	Soviet Union
19	Uruguay
20	Israel
21	Austria
22	Puerto Rico
23	Eire
24	Poland
25	Italy
26	Hungary
27	South Africa
28	Argentina
29	Cyprus
30	Cuba
31	Surinam
32	Panama
33	Columbia
34	Rumania
35	British Guiana
36	Costa Rica
37	Malaya
38	British North Borneo
39	Yugoslavia
40	Hong Kong
41	Bulgaria
42	Turkey
43	Brazil
44	Spain
45	El Salvador
46	Japan
47	Dominican Republic
48	Ecuador
49	Portugal
50	Phillipines
51	Iraq
52	Mexico
53	Chile
54	Guatemala
55	Algeria
56	Morocco
57	Peru
58	Honduras
59	Ghana
60	Egypt
61	Tunisia
62	Indonesia
63	Ceylon
64	Syria
65	Paraguay
66	Taiwan
68a	Thailand
68b	Iran
68c	Sudan
70	Belgian Congo
71	Jordan
72	Haiti
73	India
74	Nigeria
75	Bolivia
76	French West Africa
77	French Equatorial Africa
78	China

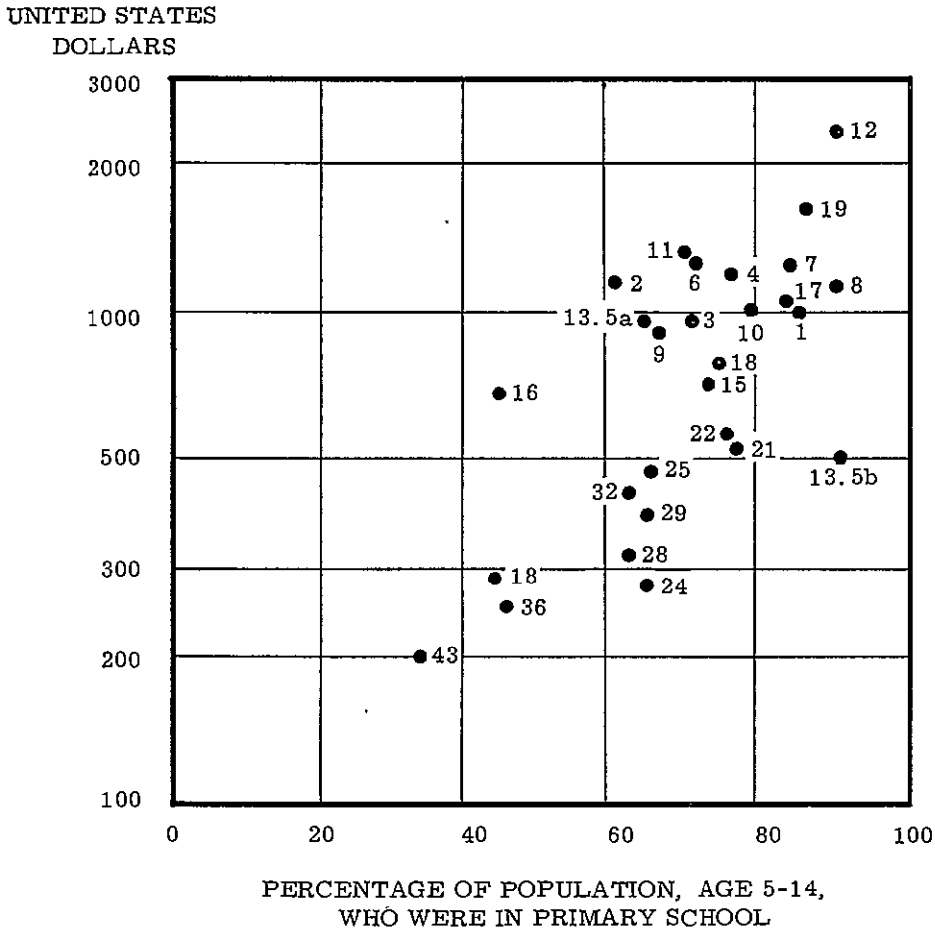
*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

**Source: UNESCO, World Survey of Education, Volume II, Primary Education, 1958

Chart IV

COUNTRIES OF EUROPE, THE UNITED STATES, CANADA, AUSTRALIA, AND NEW ZEALAND

GROSS NATIONAL PRODUCT PER CAPITA, 1955* (IN UNITED STATES DOLLARS) AND PERCENTAGE OF POPULATION, AGE 5-14, WHO WERE IN PRIMARY SCHOOL, 1930**



RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

1	United Kingdom	11	Switzerland	21	Austria
2	Sweden	12	United States	22	Israel
3	Norway	13.5a	Finland	24	Bulgaria
4	Luxembourg	13.5b	Eire	25	Poland
6	Australia	15	Netherlands	28	Rumania
7	New Zealand	16	Soviet Union	29	Hungary
8	Iceland	17	France	32	Italy
9	Denmark	18	West Germany	36	Spain
10	Belgium	19	Canada	43	Portugal

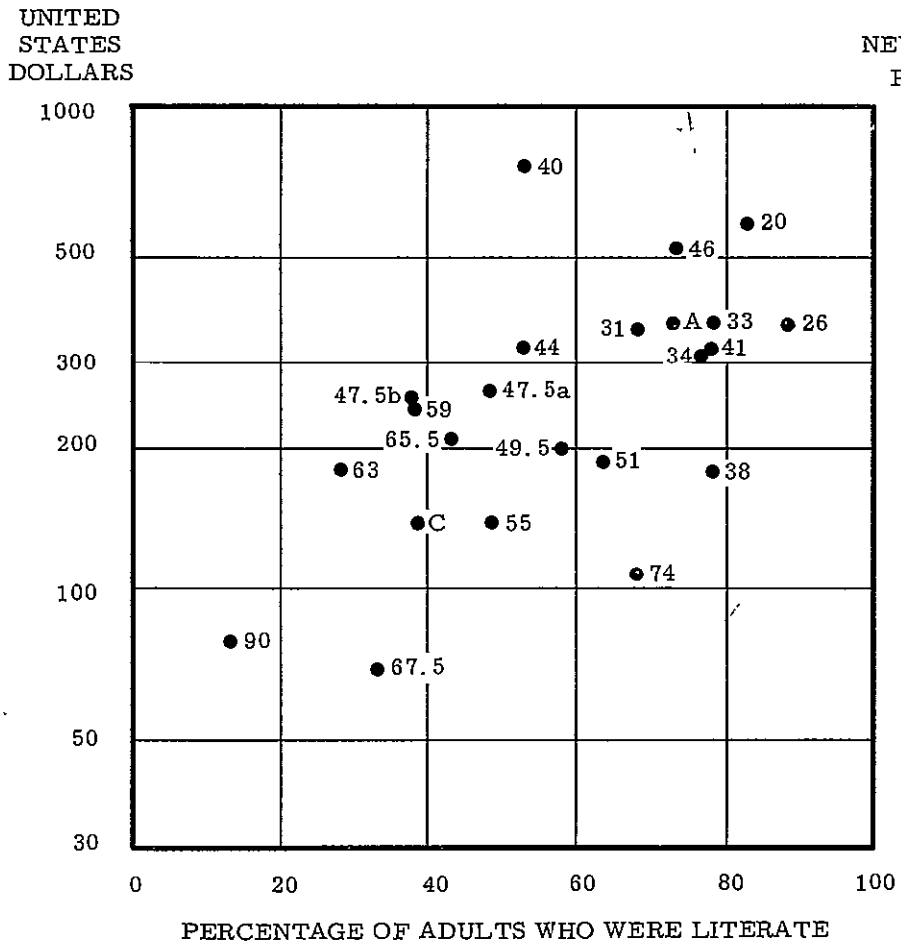
*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

**Source: UNESCO, World Survey of Education, Volume II, Primary Education, 1958

Chart V A

COUNTRIES OF SOUTH AND CENTRAL AMERICA GROSS NATIONAL PRODUCT PER CAPITA, 1955 (IN UNITED STATES DOLLARS) AND EDUCATION*

PERCENTAGE OF ADULTS WHO WERE LITERATE, 1950



RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

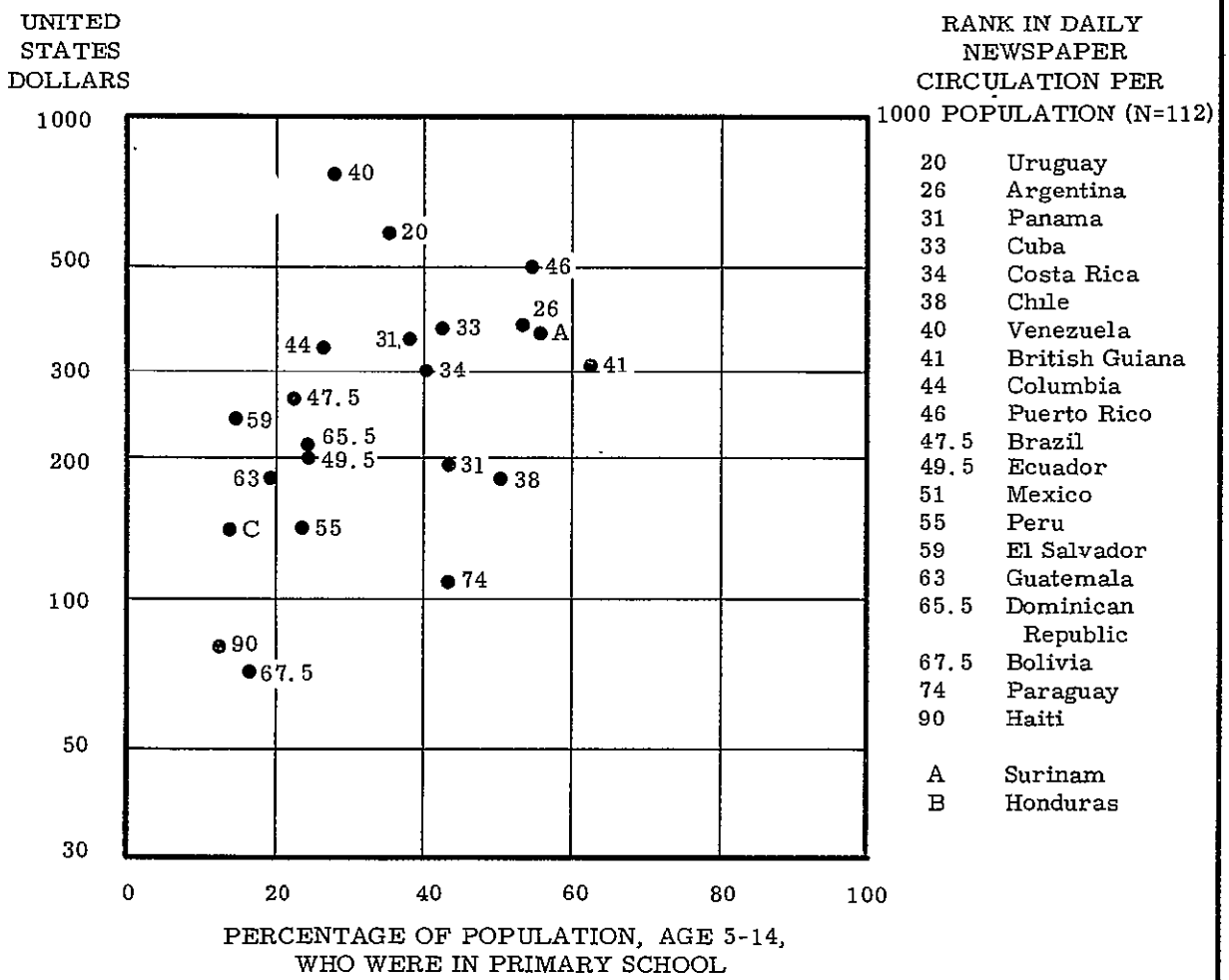
20	Uruguay
26	Argentina
31	Panama
33	Cuba
34	Costa Rica
38	Chile
40	Venezuela
41	British Guiana
44	Columbia
46	Puerto Rico
47.5a	Brazil
47.5b	Nicaragua
49.5	Ecuador
51	Mexico
55	Peru
59	El Salvador
63	Guatemala
65.5	Dominican Republic
67.5	Bolivia
74	Paraguay
90	Haiti
A	Surinam
C	Honduras

*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

Chart V B

COUNTRIES OF SOUTH AND CENTRAL AMERICA GROSS NATIONAL PRODUCT PER CAPITA, 1955* (IN UNITED STATES DOLLARS) AND EDUCATION

PERCENTAGE OF POPULATION, AGE 5-14, WHO WERE IN PRIMARY SCHOOL, 1930**



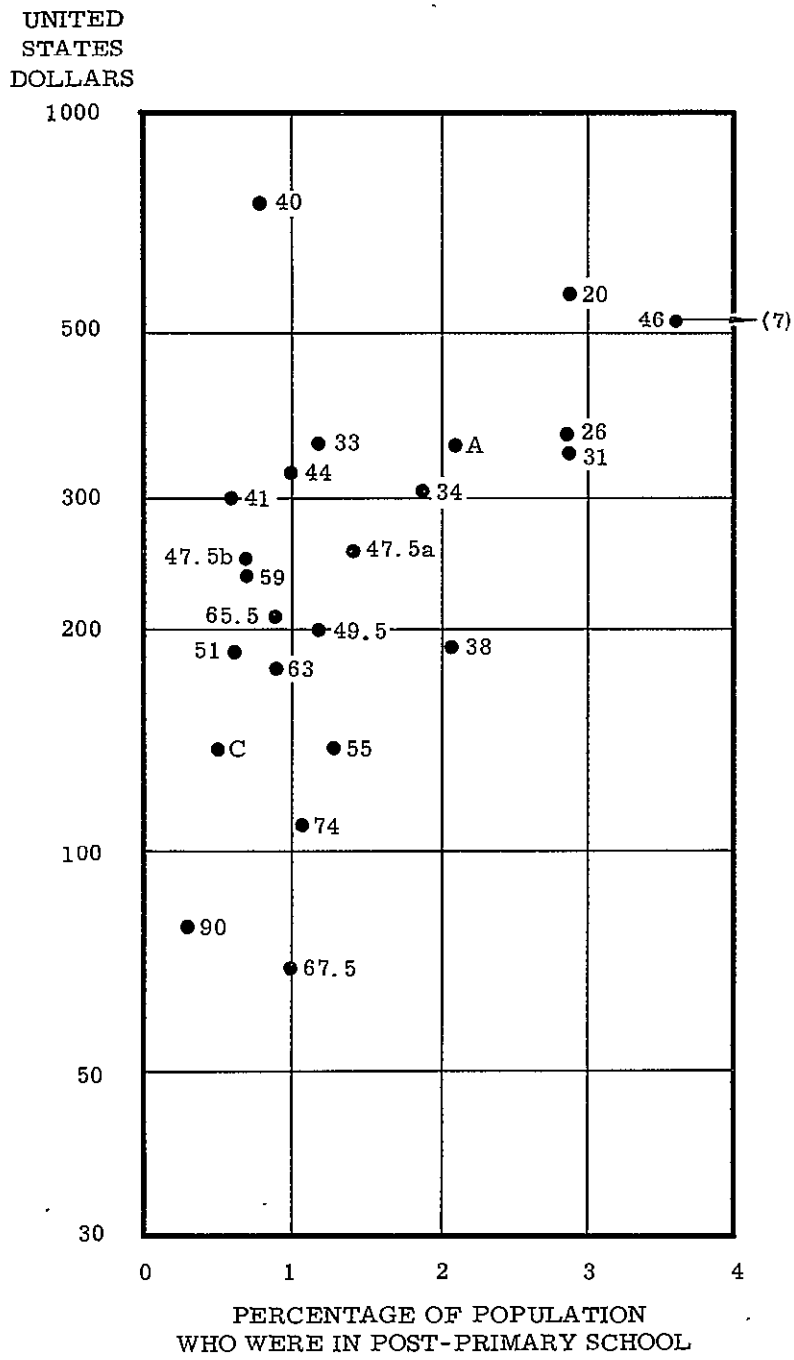
*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

*Source: UNESCO, World Survey of Education, Volume II, Primary Education, 1958

Chart V C

COUNTRIES OF SOUTH AND CENTRAL AMERICA GROSS NATIONAL PRODUCT PER CAPITA, 1955 (IN UNITED STATES DOLLARS) AND EDUCATION*

PERCENTAGE OF POPULATION WHO WERE IN POST-PRIMARY SCHOOL, 1950



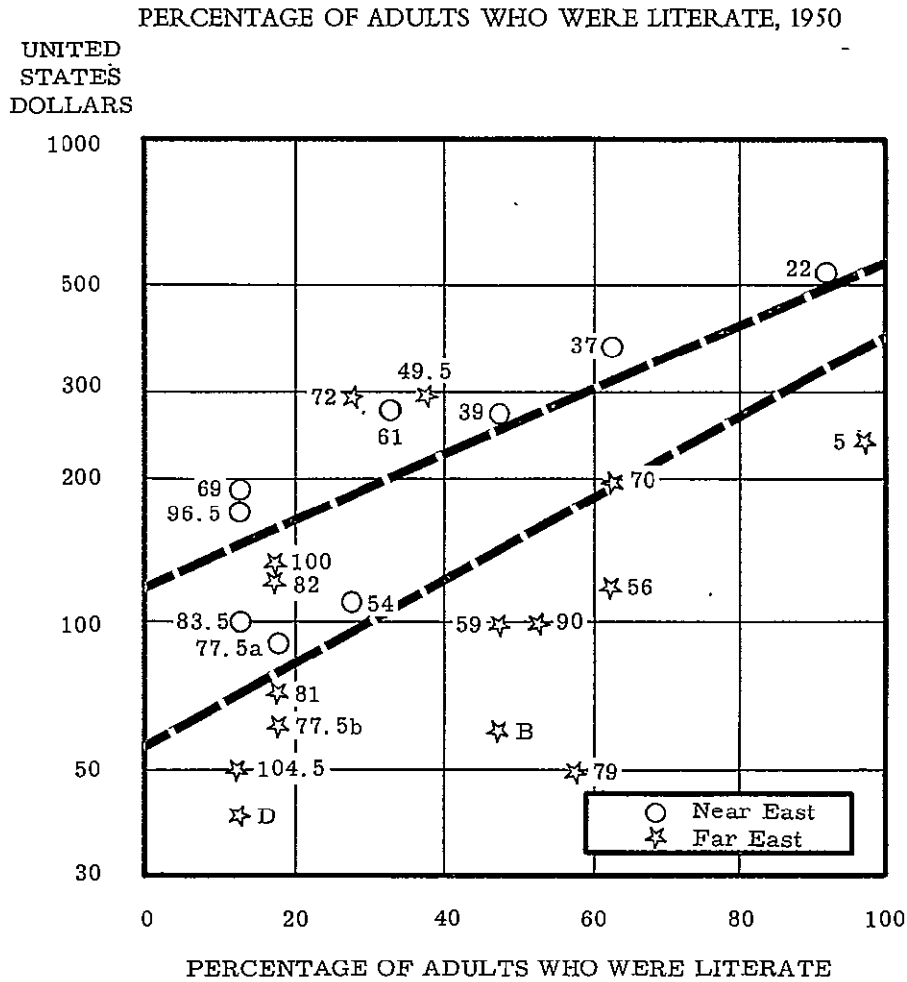
RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

20	Uruguay
26	Argentina
31	Panama
33	Cuba
34	Costa Rica
38	Chile
40	Venezuela
41	British Guiana
44	Columbia
46	Puerto Rico
47.5a	Brazil
47.5b	Nicaragua
49.5	Ecuador
51	Mexico
55	Peru
59	El Salvador
63	Guatemala
65.5	Dominican Republic
67.5	Bolivia
74	Paraguay
90	Haiti
A	Surinam
C	Honduras

*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

Chart VI A

ASIAN COUNTRIES
GROSS NATIONAL PRODUCT PER CAPITA, 1955
(IN UNITED STATES DOLLARS) AND EDUCATION*



RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

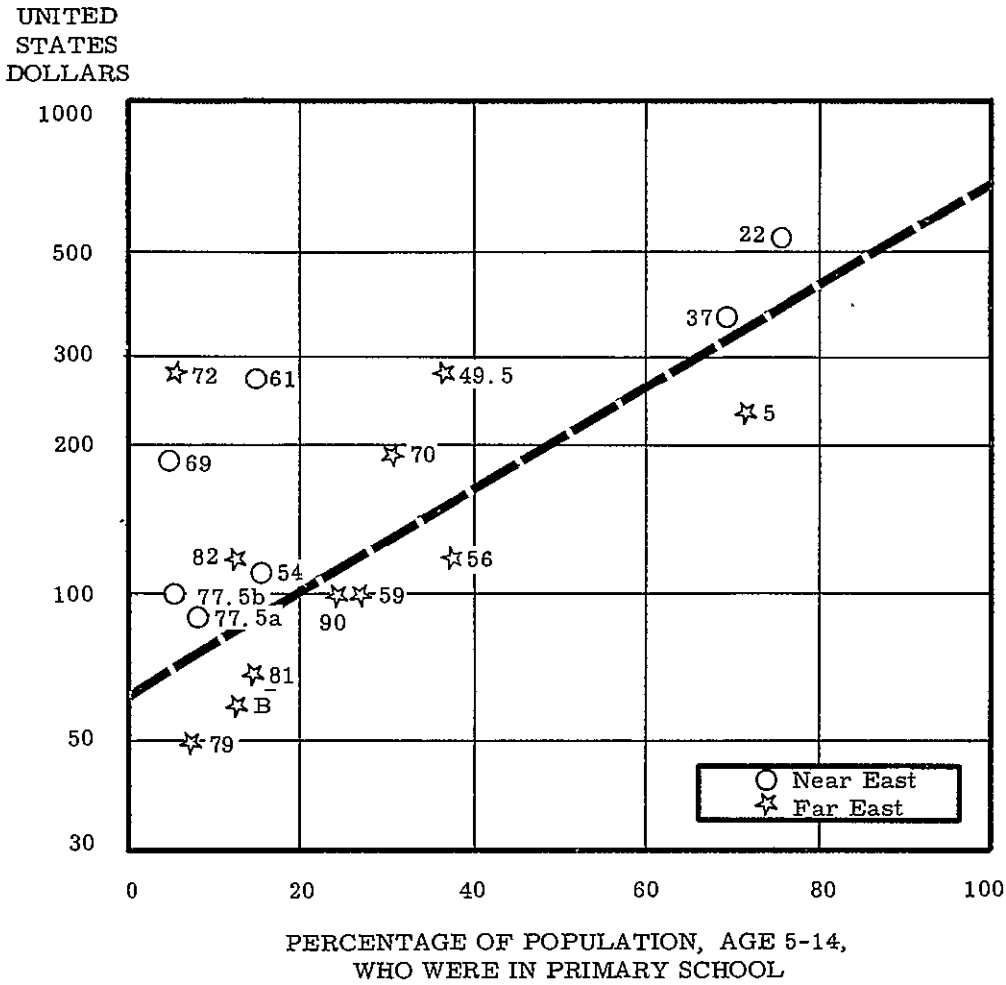
NEAR EAST		FAR EAST			
22	Israel	5	Japan	81	India
37	Cyprus	49.5	Malaya	82	Indonesia
39	Lebanon	56	Ceylon	90	Thailand
54	Syria	59	Taiwan	100	South Vietnam
61	Turkey	70	Phillipines	104.5	Afghanistan
69	Iraq	72	British North Borneo	B	China
77.5a	Jordan	77.5b	Pakistan	D	Nepal
83.5	Iran	79	Burma		
96.5	Saudi Arabia				

*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

Chart VI B

ASIAN COUNTRIES
GROSS NATIONAL PRODUCT PER CAPITA, 1955*
(IN UNITED STATES DOLLARS) AND EDUCATION

PERCENTAGE OF POPULATION, AGE 5-14, WHO WERE IN PRIMARY SCHOOL, 1930**



RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

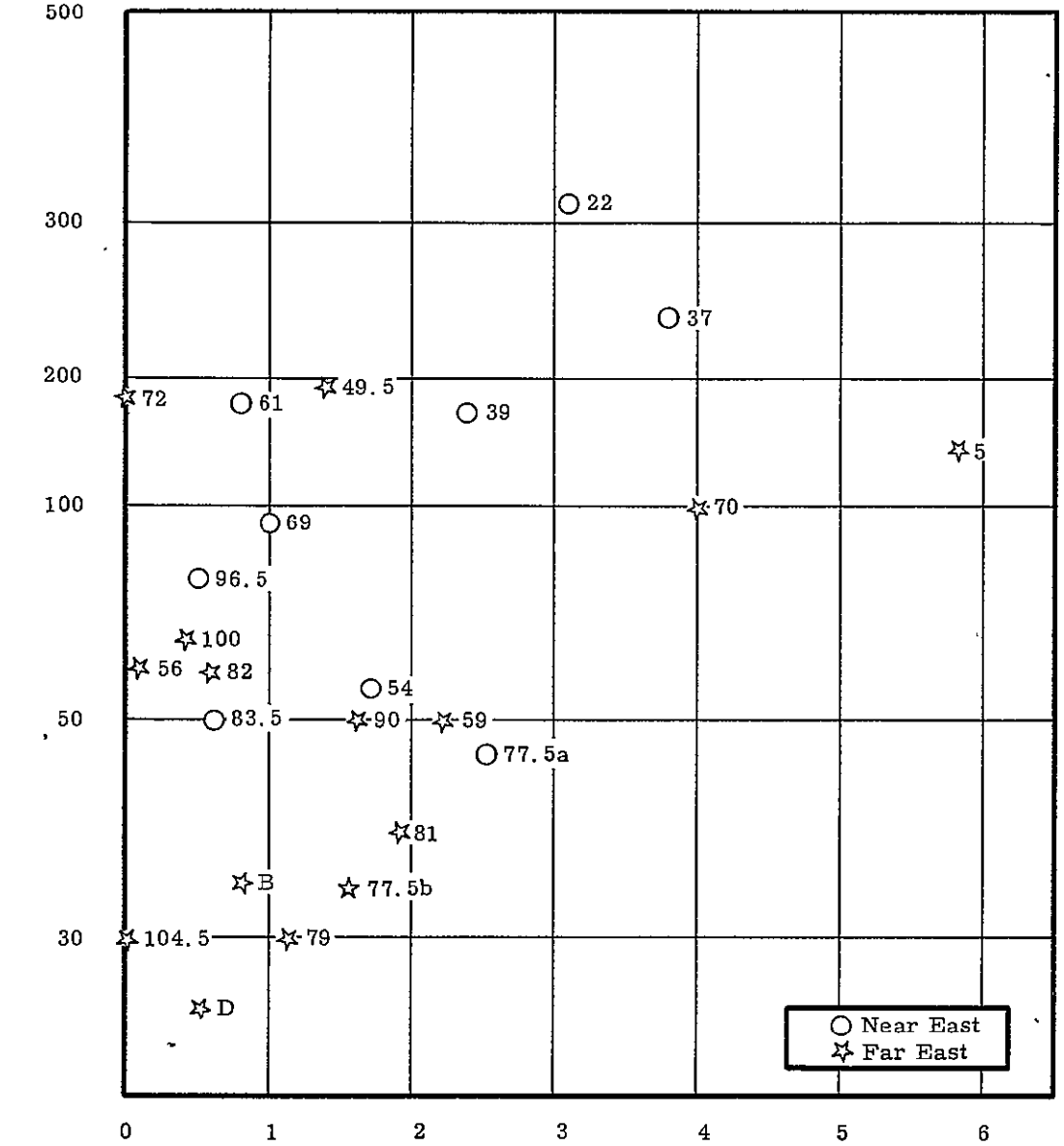
NEAR EAST		FAR EAST			
22	Israel	5	Japan	77.5b	Pakistan
37	Cyprus	49.5	Malaya	79	Burma
54	Syria	56	Ceylon	81	India
61	Turkey	59	Thailand	82	Indonesia
69	Iraq	70	Phillipines	90	Thailand
77.5a	Jordan	72	British North Borneo	B	China

**Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

*Source: UNESCO, World Survey of Education, Volume II, Primary Education, 1958

Chart VI C

ASIAN COUNTRIES
GROSS NATIONAL PRODUCT PER CAPITA 1955 (IN UNITED STATES DOLLARS) AND EDUCATION*
PERCENTAGE OF POPULATION WHO WERE IN POST-PRIMARY SCHOOL, 1950



PERCENTAGE OF POPULATION WHO WERE IN POST-PRIMARY SCHOOL

RANK IN DAILY NEWSPAPER CIRCULATION PER 1000 POPULATION (N=112)

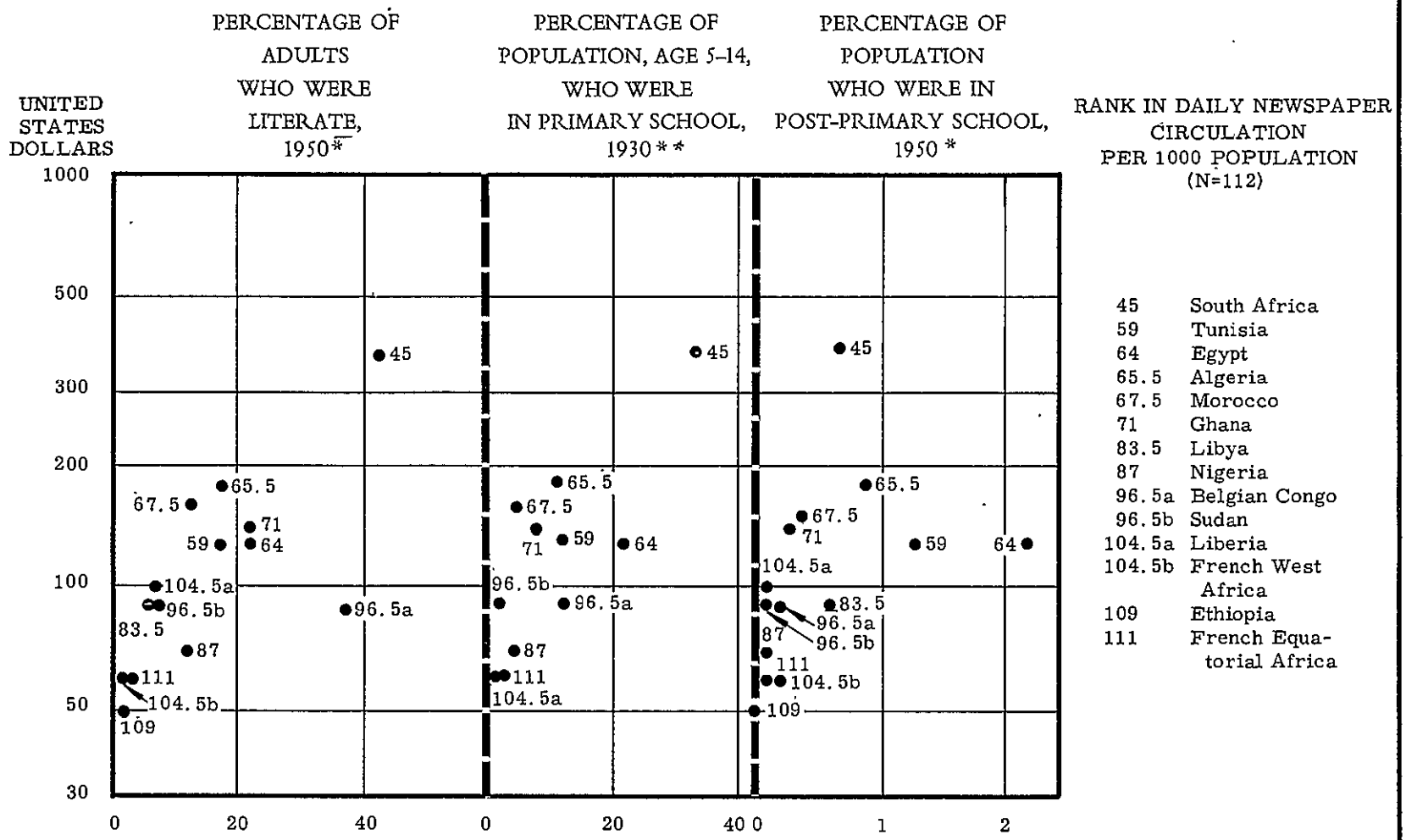
NEAR EAST		FAR EAST			
22	Israel	5	Japan	81	India
37	Cyprus	49.5	Malaya	82	Indonesia
39	Lebanon	56	Ceylon	90	Thailand
54	Syria	59	Taiwan	100	South Vietnam
61	Turkey	70	Phillipines		
69	Iraq	72	British North Borneo	104.5	Afghanistan
77.5a	Jordan				
83.5	Iran	77.5b	Pakistan	B	China
96.5	Saudi Arabia	79	Burma	D	Nepal

*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

Chart VII A, B, C

AFRICAN COUNTRIES

GROSS NATIONAL PRODUCT PER CAPITA, 1955* (IN UNITED STATES DOLLARS) AND EDUCATION



*Source: Norton Ginsburg and Brian Berry, Atlas of Economic Development, 1961

**Source: UNESCO, World Survey of Education, Volume II, Primary Education, 1958

MANPOWER PROBLEMS

E. L. Keenan
Deputy Assistant Director for Manpower
Office of Civil and Defense Mobilization

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INTRODUCTION

Human resource development is not a science--it is more nearly an art with a dash of science and a heavy interlarding of statesmanship and diplomacy. At best, manpower problems are not easily susceptible to the traditional scientific approach of investigating and experimenting with a known body of facts. In the developing countries particularly, the paucity of facts, coupled with a plethora of assumptions, have mitigated against the formulation of uniform principles in the human resource field which would serve as guideposts for foreign aid policy-makers and program administrators.

I am not certain that research in the traditional sense will yield too many significant answers. What I view as an overriding, current need is exchange of information and comparison of experience among the people who have been or will be engaged in manpower development work in the field. This interchange should result in gradual development of some common denominators and improved techniques for general application. So far as the emerging nations are concerned, the immediate need is for well-trained and hardheaded people who are willing to work under frustrating and frequently unpleasant conditions and who, using the best techniques gleaned from previous experiences, will pioneer in the development of human resources programs. If each developing country is thought of as a laboratory--as indeed it must be--then the work these men do is both research and the basis for research, for their findings can be analyzed and subjected to further experimentation and development. In this sense "research" is urgently needed.

A program to develop human resources takes root and grows only as other resources, too, are developed. It is one part--perhaps the most important part--of a "mix" of resources needed for economic development. This resource element, manpower, cannot be stockpiled, nor profitably processed by machine. It can be trained, educated, and motivated. The last process may well be the most difficult.

Although the manpower dimension of national planning has generally received too little recognition, during the past two years there has been an encouraging emphasis on the importance of human resource development as a key to sound economic and social progress in developing nations. The human resource factor is beginning to take its rightful place, along with capital formation and natural resources, as a lever to assist developing countries in raising their standard of living at an accelerated rate. Yet, we have developed no procedures and no guiding principles out of all our experience to insure a more efficient "mix", even to insure that all essential resource elements of a given program

have been identified. Such procedures and guiding principles are sorely needed.

There are certain factors basic to the manpower problems of developing countries. In some 200,000 years we have reached the present world population of almost three billion people. The best estimates are that by the year 2,000 there will be more than six billion people on the face of this earth. The most striking part of this expected growth is the rapid increase in population in the less developed areas. The rate of increase in the developed areas of the world will be much lower--in fact this rate will not be unlike that experienced during the past generation.

With the extremely low gross national product per capita in most of the underdeveloped countries, savings that can be derived from the annual increments in the gross national products of these countries will not be enough for real growth, although increased savings are certainly necessary. It has been stated that to provide a politically acceptable response to consumption demands, a combination in much greater degree than ever before of capital assistance, technical assistance, and consumption assistance is essential.[1/] As population increase alone in most developing countries will require greater utilization of many resources in order to maintain the status quo insofar as the standard of living is concerned, it is evident that an effort of major proportions is necessary if the developing countries are to grow and attain a higher degree of prosperity.

I. Relationship of Human Resource Development to Over-all Economic Development Plans

There is increasing evidence that a potent multiplier in economic development is the growth of skills, knowledge and technology. This multiplier can best be developed in harmony with an over-all economic plan. Consequently, it is important that there be such an over-all economic plan in each of the new countries. This must be the country's own plan, or one adopted by the nation after consideration of suggestions initiated elsewhere. It is futile to place reliance upon an outsider's plan which is accepted only to secure financial assistance. Manpower development should be included in this plan in such a way that the potential work force emerging five, ten, and fifteen years in the future will be educated and trained in fields in which needs can be foreseen and in occupations where the entire nation will benefit from such contributions. It is not enough to turn out hundreds or thousands of lawyers in countries where the lack of engineers and technicians is a bottleneck to progress. There is ample evidence that, in addition to the waste aspect, educated but unemployed and hence dissatisfied manpower is much more of a social and political problem than uneducated unemployed manpower.

One specific area where additional research is clearly indicated is the relationship between manpower development and economic development. For example, can a formula be devised to relate the dollars allocated for economic expansion to the needs ten or fifteen years hence for specific types of trained manpower? Such a device if possible would be a breakthrough.

Economic development must be a continuous, not a sporadic process. To reach maturity, investment in people requires a long period of time. Substantial dividends may not accrue for almost a generation. Despite the complexity and long range nature of human resource development, integrating this development with plans for over-all economic development more than justifies the efforts involved.

It is gratifying to note that new emphasis is now being given in Washington to the concept that free societies must be built from the ground up with priority being accorded to the development of human resources. There is a growing awareness that the most important resource in any country is not its farm lands, its factories, its mines, or its water resources - but its people.

II. Coordination Between Human Resources and Other Programs

The rate of over-all economic growth of the emerging countries is largely dependent upon the speed with which indigenous manpower is developed to carry on the multitude of tasks essential to social and economic growth. Demands throughout the world upon available resources for development assistance are so severe that waste in any degree should not be tolerated. 2/

The need for coordination of programming on many fronts has been evident for a long time. There is little indication that completely satisfactory solutions have been reached. Recently, the United Nations family arranged for a higher degree of coordination among its constituent and affiliated agencies. In January 1961, at an inter-organization meeting on education and training held at the International Labour Office headquarters in Geneva, recommendations were agreed upon for an integrated program for Africa in the field of manpower assessment. The International Labor Organization is the focal point within the U.N. for manpower assessment activities, including information on the labor force and the trends in labor supply and demand. The United Nations Educational, Scientific and Cultural Organization will assist by determining general education and scientific training needs, the World Health Organization will supply over-all target figures in the medical and public health fields including health personnel, and the Food and Agriculture Organization will develop requirements data for agriculture. The ILO

will maintain a library of information in the human resources field in Geneva for these multinational agencies, and presumably for reference use by others, and be the prime force in manpower assessment work. In this connection, the fact that recent publications of the ILO have been giving more attention to high-level manpower and management training is encouraging. UNESCO, WHO, FAO, and other organizations affiliated with the United Nations will no doubt become the focal points for information in their own fields of interest and cognizance. This development is logical and desirable, but it involves only the United Nations family.

In our bilateral aid programs, there has been more coordination between ICA and at least some private foundation efforts during the last two years than ever before; however, more remains to be done.

In another field, that of recruiting technicians and experts for short term missions abroad, effective coordination is not evident. Coordination in recruiting faculty members for one and two-year assignments in foreign universities, particularly in the developing countries, is an area where further effort appears practical. Studies to analyze existing practices, including the policies of American universities and colleges in granting leave, continuing retirement rights and fringe benefits, and to draw up workable recommendations for policy improvement should be undertaken as soon as possible. A technical assistance group from several countries meeting in Washington in February 1961 recommended that the Organization for Economic Cooperation and Development should assume primary responsibility in this area.

Multilateral organizations, including the United Nations and its affiliates, will undoubtedly play an expanding role in world economic affairs. Consequently the need for effective coordination becomes more important for the United States. Institutions such as the International Bank for Reconstruction and Development, and the International Monetary Fund, as well as the United Nations Special Fund, have a relationship to the Development Loan Fund, the Inter-American Development Bank and the Export-Import Bank. Likewise the Surplus Commodity Disposal Program, administered by the U. S. Department of Agriculture, is related to the activities of FAO. Problems here are broader than manpower, and the importance of coordinating activities among all organizations playing major roles in economic assistance deserves more and continuing attention. The need is not for new organizations, but rather for a more effective framework for coordinating the over-all effort of the United States.[3/]

The relating of human resources programs to over-all economic development plans and to other technical assistance programs, in the light of the fact that there are today "co-existing" multilateral and

bilateral activities in many areas of endeavor, is a complex undertaking. In the area of human resource problems, most nations do not now have the wisdom and experience to be certain of the right solutions; nor do they now possess all the trained manpower needed to work effectively with the emerging nations in getting the right start.

III. Manpower Assessment

In November 1960, a handbook entitled, "Manpower Programs and Planning in Economic Development," was published by the Office of Labor Affairs of the International Cooperation Administration written under contract by the Bureau of Employment Security of the U.S. Department of Labor. Part I, "Planning for Manpower and Economic Development," is designed to be translated into the language of an underdeveloped country and used for host country consumption. Part II deals with techniques, programs and organization.

The broad coverage of the handbook makes it of inestimable value to those undertaking human resource studies in developing countries, or those engaged in research in the field of labor market economics or the relationship of human resources to other aspects of a developing economy. This handbook includes in some detail the principal kinds of manpower information needed for both economic and manpower development.

In the determination of manpower supply, census material and vital statistics are very useful. Special surveys or reports on unemployment, labor force surveys on employment, and reports from educational and training institutions are directly in point. Industry and occupational labor market information, gathered through the public employment service, constitutes direct firsthand information. Supplementary kinds of manpower information may be gleaned from consumer price index reports, statistical reports on earnings and hours of employment, and reports on work stoppages and absenteeism. The difficulty, however, is that little of this kind of information is available in most developing countries, and practically none of it is available in some of them. Consequently, special surveys of employing establishments will be necessary in many countries; such surveys, plus whatever population statistics are available, may well constitute the initial data for evaluation of the manpower resources, available and potential. Where available, geographic and seasonal distribution and a pattern of occupation, experience, training, and demographic attributes are useful. However, a word of caution may be noted: crude aggregate figures may be relatively useless. The existence of supply in the form of unemployment may be the most significant aspect of available manpower, but there well may be no statistics available to measure this supply.

The securing of labor requirements is a more sophisticated process. If a country has an economic development plan, an analysis of such a plan will yield certain information in broad categories. Current employer requirements may be ascertained through the survey process. However, there is some question about the usefulness of current employer requirements as a factor for planning in a developing country. One possible approach is to associate employment data (actual and potential) with volume of production or scale of service performed so that unit employment requirements can be estimated, with some occupational breakdown. This method requires time for accomplishment with close collaboration required between the planning agencies and the central statistical agency (if one exists), but it is important that the nature of the requirement be clearly understood.

In certain fields, such as teaching and medicine, it is reasonable to project requirements by estimating the number of teachers and doctors presently available and by comparing this information with goals for five or ten years in the future, when, for example, the country may plan to have one doctor for every ten thousand inhabitants as contrasted with the one for every fifty thousand currently available. Similar projections may be made for primary and secondary school teachers on a projected teacher-youth population ratio over a certain number of years in the future.

Manpower assessment is actually a manpower supply-requirements analysis of all kinds of manpower, but it is considerably more than a statistical balance sheet. Both supply and demand information is apt to be limited due to the unavailability of reliable statistical information; therefore, assumptions and estimates often have to be made. Research to perfect the techniques of estimating labor supply could be useful. Another useful project would analyze wage structures and other incentives and motivations in relation to supply-requirements.

On the demand side, subjective determinations may be even more frequently necessary, at least when manpower assessment is first undertaken in a developing country. Though it is highly desirable to relate manpower requirements to economic development plans, most underdeveloped countries lack well-defined and realistic plans. Even if plans have been drawn up, there may be uncertainty regarding their timing and financing, and there is always the likelihood of a change in plans if there is a change in the government. In addition to those enterprises which may be listed as primary or secondary priority in an economic development plan, there are service and consumer industries, the growth of which may be assumed in certain developing countries but concerning which the rate of growth and the probable employment will be difficult to assess. Research on how best to estimate manpower requirements, both

in the short run and in the long run, could assist in improving the assessment of manpower.

Fundamentally, manpower assessment is not an end in itself but a calculation for the purpose of determining what should be done - such as providing education to produce qualified personnel for subsequent occupational openings - in order to achieve a balanced relationship between supply and demand.[4] Manpower assessment is a result of comparing manpower supply and potential supply with manpower requirements and potential requirements, broken down to the extent possible by areas of economic activity, broad occupational groupings, and geographical areas. While not a statistical operation per se, assessment is based on certain statistical data.

It may be well to point out that the assessment of human resources, however, must be practical in nature and in purpose. The aim should be to make an inventory of resources and needs as a basis for initiating immediate action as well as planning further action, particularly with respect to educational and training programs. Assessment is really the beginning of action.[5]

During the last two years, some evaluation of the manpower problem has been made in a number of developing countries through U. S. public and private efforts. Evaluations have been made in Iran, Turkey, Ethiopia, Nigeria, Kenya, Uganda, Tanganyika, Ghana, Tunisia, Libya, Mexico and Bolivia, among others. Some manpower activities were undertaken earlier, such as the Ford Foundation projects in India and the United Arab Republic. On a regional basis, the Organization for European Economic Co-operation assistance to six Mediterranean nations is under way. During this same time the ILO has made a number of manpower surveys and has given technical assistance in different phases of manpower administration in many developing countries. The Organization of American States and the Economic Commission on Latin America have programs under way in the southern hemisphere. In the majority of these countries, a complete manpower assessment has not as yet been undertaken, and plans for such assessment are in different stages of development. In the partial assessment and surveys made to date one common thread is apparent - the need for more trained people: skilled workers, managers, foremen, teachers and technical specialists. Another strand that shines through is the need for coordinating aid efforts in the field of human resource development.

If there should be the beginnings of a public employment service in a developing country, this organization may be strengthened to play a key role in manpower development. Analysis of supply, specific area labor market surveys, surveys that involve contacting employment

establishments and the development of related labor market information are illustrative of the many functions which may be undertaken by a government employment service. The ICA planning handbook lists placement, occupational analysis, industrial surveys, labor market information programs, and employment counseling as the five major functions of a national employment service, but few employment services existing today in developing countries are ready to assume such full-blown functions.

A national employment service even if fully developed, cannot be expected to do the entire manpower assessment job. It is seldom, if ever, equipped to handle complex and statistical information, and it is not in a position to develop all aspects of either manpower supply or manpower requirements data. The central statistical agency, the ministry of education, the economic development commission, the central bank, the ministry of industry or commerce (if they exist) - all have parts to play in a total program.

If manpower assessment is to be undertaken, and all evidence indicates it should be started early in the economic planning process, the administrative responsibility for the program must be fixed. Experience to date indicates that the ministry of planning or the ministry of coordination, if there is such an institution, is a logical agency to take prime responsibility. Otherwise, an economic development commission may be suitable, and if not, an office of manpower development may be established. As a part of the administrative machinery, an inter-departmental committee to assist in coordinating the functions carried out by the several departments in manpower planning is highly desirable.

At this point, it seems pertinent to review how manpower relates to economic planning in a country which has a program well under way. The United Arab Republic is an example.

A National Five-Year Plan for the Egyptian region of the UAR, covering the years 1960 to 1965, has been approved. The plan itself, which proposes to increase the national income by forty percent during the five-year period, is executed by the government ministries and by public and semi-public agencies which have been entrusted with specific projects in their respective fields of interest. There is a planning committee in each ministry and in each public agency, and a central planning office under the Minister of Planning, who incidentally is the senior Vice President of the UAR and has no specific executive responsibilities. The government has now established another piece of policy and administrative machinery, an independent Institute of National Planning. The task of the Institute is to study the problems confronting the government in the execution of the five-year plan, improve the efficiency and the experience of the executives and planners in the several ministries and public agencies, and

do the research and investigation necessary to improve the planning methods and techniques actually in use in the country today.

The Institute has available basic population information, production and income information, and the 1960-1965 investment program broken down into appropriate categories such as land reclamation, power, transportation, communications, etc. A rough manpower assessment has been made based on the plan, so the Institute also has before it the percentage distribution of the labor force for each sector of the economy as of 1960, and the proposed distribution by sector for 1965. The Institute is undertaking a massive training program for both experienced and relatively inexperienced government workers, managers and staff of employing establishments in the private sectors, and is spearheading diverse statistical and research operations. The Institute is in a position to begin an action program to influence training, education, and other phases of manpower development and to make a more detailed manpower analysis, designed to yield the type of skill and education needed to implement the five-year plan.[6]

In addition to analyzing labor supply and labor demand information, there is a related technical area in the manpower field which produces a useful tool to assist in determining training and educational needs. This is the development and refinement of occupational composition patterns which will shed light upon the types of occupations and the numbers of individuals needed in various new enterprises in the developing countries. Information on staffing patterns exists in the United States. The Bureau of Labor Statistics has developed such patterns for some 150 sectors of United States industry. ICA has done some work in relating this occupational matrix information to the staffing needs of related industries in developing countries. Occupational ratios followed in the United States are not directly transferable to countries where comparable conditions do not exist, so it would be useful to have such data for lands where the average size of the establishment and the methods of production would be different from those in the United States. Research which would compare occupational composition patterns for comparable establishments in several developing countries might yield information of real value to other developing countries contemplating the establishment of similar enterprises. Perhaps the ILO is the logical organization to be the focal point for this endeavor.

In conclusion, manpower assessment can and should be a vital part of over-all economic planning. After consideration of all essential factors bearing on human resources, the challenge is to establish a system of priorities, with respect to such fundamental processes as education, training, employment and health care, which will influence national activity and furnish direction consistent with the economic development of the nation.

IV. Productivity

Productivity in most parts of the developing world is low, usually for a variety of reasons. Some trace back to the customs and mores of the people. The tradition in many parts of the world that educated people are not supposed to get their hands dirty is an illustration in point. Religious taboos are an important influence in some parts of the world. The use of child labor contributes to both low productivity and low wages. In addition to cultural characteristics, key aspects of low productivity in developing nations include the scarcity of skilled workers and managers, the role of management, changes in national attitudes, repressive labor policies and laws, and the incidence of health and nutritional problems.

The scarcity of skilled workers and managers ranks high on the list of bottlenecks in developing nations. There is often a scarcity of competent persons seeking to become managers. In numerous developing nations, the limited class of people who heretofore could afford higher education has been traditionally unattracted by careers in business or industry.7/ The need for supervisors, from straw bosses to executive vice presidents, frequently retards commercial and industrial progress, the manufacture and distribution of capital and consumer goods, and productivity. It should be stated, parenthetically, that the training of managers and teaching in management techniques has been left to chance, even in industrially-advanced countries, until recently. Today, industrial management and business management are fields in which formal training is recognized as highly desirable. Colleges and universities, technical schools, and private organizations, as well as government, are active in this field now.8/

Productivity of labor in an industrializing society is clearly dependent upon management as well as upon the capital invested in machinery and processes. As a matter of fact, there is considerable evidence that at any given level of capital investment management is the principal determinant of the productivity of labor.9/

There is another aspect, pointed out by a well known U.S. labor leader in several speeches made in India three or four years ago. Indian employers, he said, by and large know of only three ways to increase profits: cut wages, increase prices, or reduce quality. In the absence of progressive management, he said it was up to labor to take the initiative in increasing productivity so that workers could get a larger slice of a larger pie. But the unions are new and have not done very much.10/ As the old gives way to the new, as industrialization progresses, attitudes toward productivity change. Here is an area where the practices of the highly industrialized and the highly competitive

United States economy cannot be made applicable to other nations whose orientation toward work and production is so very different from ours. But the new credo in many developing lands--that progress and advancement will come only through hard work and effort--will change productivity standards, and slowly but surely the industrial practices and work habits in new countries will more closely resemble those of industrialized nations.

There is another aspect of productivity which was mentioned in the recent United Nations Five-Year Perspective Report. With respect to the view, widely held today, that the long-range interests and welfare of the labor force depend not only on the size of the worker's share in the national product but also on the growth of that product, the report points out: "Economic development is thus a requirement for any substantial advance in labour welfare. The miserable wages or other income now received in the less developed countries would not be greatly improved if the total wealth were redistributed. There is a very real problem of maldistribution, it is true, with conspicuous poverty; but there is not enough total income to make redistribution, through wage policies, social security, etc., a sufficient answer to labour's problem. Accordingly, there is a growing interest in means by which labour can contribute to increased productivity; also a need to reconsider labour policies that may demonstrably operate against the growth of production." 11/

The labor laws in some of the developing countries need attention. Some legislation seems to act as a brake on productivity and does nothing to stimulate employment. The indemnification law in Brazil and similar legislation in other Latin American countries are examples. There are other examples of labor legislation which may be questionable. From a research viewpoint, a study of the labor codes of the developing nations would be worth while and could result in action by these countries which might lead to increased productivity and be of real value to workers and employers alike, and be in complete conformity with ILO labor standards.

Visits of worker delegations to the United States have been of great value. Contacts with our trade union leaders have helped to demonstrate the positive role of the free trade union movement and have given developing nations new and important information concerning productivity.

A dual health factor which has an effect on labor productivity is first, nutrition, and second, debilitating and energy-reducing diseases. In too many parts of the world workers have too little capacity for productive work due to the state of their health. The more highly developed nations and the multilateral organizations have done much to prolong life as well as to reduce infant mortality. The situation is one of securing balance between these efforts and other efforts to improve the nutrition

habits and general health and productivity of individuals in the work force. A quotation from a recent study is not too pleasant but illustrates a point: "Public health officials of one of the newer nations . . . were trying to decide how to allocate the limited funds at their disposal among the many areas of their activity . . . it would be years before the country had the funds and the forces to deal adequately with all phases of the nation's health problems; in the meantime, it was the responsibility of these officials to decide what to include and what to leave out . . . One official suggested that care of the newly born and the very old be under-emphasized because 'the very old will die soon anyhow, while the most economical time to have children die is at birth.' Although several people in the group recoiled at the idea, the majority agreed that the proposal should be adopted."12/

V. Training

Equally important to the developing countries as a type of investment is provision for trained manpower. Training must be geared to adults as well as youth. Private foundations and universities as well as other groups have embarked upon the training task. It has been estimated that almost 50,000 foreign students of all nationalities are now in American schools, most of them studying without American governmental support.13/

There are many facets of the educational training problem, not the least of which is how much of the training of individuals from developing countries should take place in the United States or in third countries, and how much should be done in the developing land itself. For the short run, fullest possible utilization of facilities in the United States would seem to be in order, with concurrent assistance to the developing countries to build and staff their own educational institutions. Quality as well as quantity must be stressed in this latter area.

The educational assistance required from developed nations must be on a scale few have hitherto contemplated. It has been asserted that only if the educational plant in a developing nation expands sufficiently to sustain an adequate rate of economic development will there be hope of political stability. The educational needs must be estimated and described so that best use may be made of the external resources available.14/

Consideration of the impact of training at the community level in developing countries leads to the observation that "the missing link in the totality of technical assistance programs is that between the central government and the operating level . . . . What is needed is the transmitter of information to the local transmitters; the trainer of the trainers; the developer of new techniques, new seed strains; the person to whom

the local 'developer' can turn for expert information."15/ The greatest single shortage at the local level in many developing countries appears to be trained foremen.

A new element soon to be available to help with training at the grass roots is the Peace Corps. One of the purposes of the Corps is to help fill the skilled manpower gap in developing countries over the next several years. Another is the training in essential skills of the nationals in the developing countries.

As the Peace Corps program gets under way, observers will watch closely for the types of projects that are most successful. Much has been written about the importance of selection in building this new corps. As the program materializes, studies of the selection techniques as compared with the performance of individuals once they are on the job will be a fruitful field for research.

Quite apart from Peace Corps activity there is one mechanism for accelerating training programs within developing countries applicable primarily to those nations that conscript young men for their armed forces. This is the intensification of training in the skills and trades during the two or three year period of military service, particularly in areas where the skills acquired will enable the individual to qualify for a semi-skilled or journeyman job upon his return to civilian life. The literacy training being given to conscriptees in Turkey has had considerable success. Stepped-up training in automobile and airplane mechanics, radio repair, electricity, welding and other fields of activity common to both military and civilian life could both improve skills for the purposes of the armed services and also equip the recruit so he could return to civil life a notch or two above his job status when inducted.

In any study of how best to assist in training both the eager (and the sometimes uneager) nationals in many parts of the world, the contribution made by private business abroad is worth careful consideration. Multinational corporations influence the export and import of institutions other than those directly related to their business. Such companies export not only the technology of the countries of their origins but also their concepts of social justice. In this respect their overseas personnel are teachers as well as producers. The multinational corporation which ignores the legitimate aspirations of the people who live in the country of operations may not last long. Conversely, the multinational corporation which works toward the ultimate ideal of management and operation by the people of the country concerned will presumably succeed the best.16/

The effect which international business activities have in motivating workers and at the same time in stimulating labor organization is worthy

of note. The use of foreign technicians and foreign skilled workers in developing countries has the inevitable result of disseminating knowledge and thereby promoting imitation of advanced labor practices.[17]

This raises the question of the role of organized labor in developing countries. The weight of evidence indicates that the force exerted by labor unions is positive and makes an important contribution to the economic, social, and political program of new industrializing societies.[18] The realistic and forward-looking position advocated by the labor movement in the United States assists in this regard. A review of the last few years also shows that the newly-born labor organizations in developing countries have proven to be fertile breeding grounds for leadership talent.

The impact of the multinational corporation, and the beginnings of labor organization, will be more noticeable and more significant as international partnership arrangements increase in scope and number. Is it possible and practicable to ask United States employers who are doing business abroad to carry an even larger responsibility? Would these corporations agree to three-month intensive language training courses for all their supervisors who will be stationed abroad for a period of two years or more? Would these corporations agree to employ local nationals to "interpret" work standards and work rules to national workers in an effort to avoid the multitudinous misunderstandings resulting from language difficulties and differences in background? What is the responsibility of subcontractors who are employed by United States employers and multinational corporations and who have the majority of contacts with nationals in many instances? Should these subcontractors be asked to assume a greater training responsibility than they have in the past? Can further studies in this area advance the contribution that employers can make?

While international industry and local employers slowly build their enterprises in many developing lands, these countries themselves, through their own efforts and through development assistance are embarking upon training and educational programs for skilled workers, foremen, technicians, and professionals. Over the years there has been considerable emphasis upon vocational and technical school training as a primary method of developing skilled manpower. During the past decade a significant number of these schools has been built in many countries in Latin America as well as in other parts of the world. Some of these schools function as technical institutes and work closely with management and labor to advantage, but in other instances the public vocational schools have evidenced shortcomings. The under-utilization of some of these educational facilities may be due to lack of instructors, or to lack of employment opportunities in the trades in which the schools were equipped to train, or in some cases to an actual absence of students.

It would be useful to analyze what has happened as a result of specific planning efforts and expenditures which have been made in building vocational and technical training schools in many parts of the world; conclusions should be weighed against alternative programs, such as on-the-job training. Other equally pertinent questions should be explored: How effective has been the combination vocational school and on-the-job training program? What are the pros and cons of a government-subsidized apprenticeship training program? If a developing country government were to furnish, for example, 20 per cent of the apprentices' wages for the first two years and in addition made arrangements for free lunches through surplus food programs, could more people be trained faster and more efficiently than would be possible by further expanding or building new vocational schools? Does the absence of an adequate program of agricultural development make local schools less relevant to the national welfare than their sponsors intended?[19]

The difference between training standards to which developed nations have become accustomed and the standards which may be most practical in a developing country must be recognized. In a country engaged in a program of economic development there may well be a vast outpouring of men who have received no more than one or two years of training to work in spheres where four or six years' training may be customary in developed countries; in an emerging country, economic development could be thwarted if the country were compelled to adopt the expensive standards of the more advanced countries.[20]

At the first ILO African Regional Conference held in Lagos, Nigeria, in December 1960, two resolutions relating to training were passed: the first, on international technical assistance, requested that priority be given to programs related to the training of supervisors and training staff covering industry, commerce, agriculture, and public services and also concerned itself with the training of instructors for vocational training centers, foremen, supervisory staff and co-operatives. The second resolution, on vocational and technical training, contained detailed policy recommendations on manpower assessment, prerequisites for effective training, the objectives of training policy, various aspects of training for industry and commerce, agriculture, small-scale industry, co-operatives, intermediate and higher level personnel, management development, labor administration, organization, collaboration of employers and workers and action by the ILO.[21] It is interesting to note the emphasis on supervisory and foreman training, the relationship indicated between these and manpower assessment, the recognition of agriculture, small-scale industry and co-operatives, and the mention of high level personnel and management development. There appear to be new trends in training in developing countries. Research is suggested to explore and define these trends; operating personnel could take advantage

of the results of such research, particularly as it might indicate new techniques and new approaches.

VI. Surplus Labor Supply and Unemployment

Many underdeveloped countries are faced with three problems which interact with one another: urban labor surpluses, low productivity, and deficit agricultural economies. This situation applies in varying degrees to the two major categories of underdeveloped countries: (1) those which have reached the threshold of "economic take-off," and are mainly concerned with the problem of adapting rapidly to modern industrial and agricultural techniques, and (2) those still in the transition stage who are wondering how to ensure that there will be enough food to eat so that their economically idle population may become productive.

Industrialization, in and of itself, is not likely to solve the surplus labor problem. In fact the move toward industrialization may complicate the problem by displacing unskilled workers from gainful employment and by attracting to urban areas workers from rural sections. Booming cities in many underdeveloped countries are ringed with favellos or shack towns.

One answer to relieving the labor surplus problem and stopping this rural exodus may be the development of rural industries coupled with intensified agricultural production. This suggests research on how socio-economic planners can effectively draw on under-utilized and unemployed unskilled labor to modernize and raise current agricultural production and promote its expansion into a mixed agriculture simultaneously with, and complementary to, the development of rural agricultural industries, food production and processing, and livestock breeding.

With regard to those countries in which industrial activity is practically nonexistent but where a variety of trades and crafts do exist in a relatively primitive environment, research is suggested to determine (1) the native talents and aptitudes of their respective populations, and (2) what rural industries, light consumer goods industries and services could utilize these talents and aptitudes, and while answering basic and pressing social needs, at the same time assist in the development process.

The direction and utilization of native talents and aptitudes in selected activities would gradually instill the new patterns of social behavior and work habits which are desirable elements for the success of industrialization. It may be that many of the skills thus developed could later be upgraded or adapted with a minimum amount of training to fill more advanced industrial needs.

In this connection, one of the problems is to make savings and investment felt in the villages and rural agricultural areas. Employment opportunities, whether in agricultural occupations or in service industries, are a major problem in many developing countries. Investments in small scale nonagricultural enterprises in these areas, such as small retail stores, barber shops, repair shops, etc., are lagging. A couple of years ago, the World Bank announced that it would try to make investments that reached down to the African people in a way that would influence their lives directly, but there is little evidence that loans have had any such result; and the support of large projects like electrical plants, new communications systems, and harbors and ports do not have much immediate impact on the average national in a developing country.22/

It is recognized that the major and probably most persistent manpower problem facing the emerging countries is to reduce the massive unemployment and underemployment found in non-urban areas. Solutions are beyond the scope of manpower development and educational measures alone. The creation of employment opportunities in rural areas is dependent on first creating the basic conditions for sustained growth of agricultural production and trade. This is a large area of research in itself, which embraces such considerations as establishing a stable price structure for agricultural products at remunerative levels to induce farmers to invest for expanded production, creating increased consumer demand and adequate market facilities, providing government assistance in kind and money, and developing systems of land tenure, cooperative farming, adequate access road systems from urban to rural areas, transportation and storage facilities, etc. Thus, the rural problem requires integrated programs which are beyond the scope of this paper.

One partial answer to the problem of extensive unemployment among unskilled populations is more labor-intensive projects, especially of the public works type. They could relieve rural unemployment and contribute materially to the creation of the long lead time social overhead needs for industrialization by building dams, irrigation projects and road systems.

The threefold problem of unemployment, low productivity and lack of sufficient food supplies must be attacked simultaneously. Because of lack of capital or a low rate of capital formation, scarcity of foreign exchange to buy needed material and equipment, and other shortages, the pace of progress will be slow. Large-scale measures of economic development, however, such as irrigation and flood control, reforestation, road building and land reclamation, are types of labor-intensive projects suited for both the massive employment of unskilled labor and partial financing through the use of surplus food grants in direct payment for labor or through the sale of surplus food for soft currency to be ploughed back in the recipient country to help finance its economic development effort, thus releasing capital and foreign exchange funds for other priority

purposes. A long term agreement, executed in May 1960 between the United States and India under Public Law 480, illustrates this approach.

However, little has been done to combine food payments under Public Law 480 with economic development projects financed by the Development Loan Fund. Effort and coordination in this area could produce spectacular results.[23] Basic changes now appear to be under way. The Tunisian food-for-work program has already been expanded to include six more countries. Consideration is being given to a Civilian Conservation Corps type of approach which would build on some of the techniques used in the workers' brigades in Ghana. The use of surplus Department of Defense equipment, surplus foods, and unemployed manpower could make CCC type programs of great practical value. Further studies of possible labor-intensive projects are in order to develop improved guidance for economic planners and foreign aid administrators, and to explore additional and the most feasible methods of integrating U.S. food resources and surplus equipment into worth-while projects.

In this area of labor-intensive projects and partial financing through grants of surplus foods other proposals for research are: (1) determination of the most effective use of surplus food grants to facilitate mass migration of native groups to effect rural resettlement to more productive lands or to land areas to be reclaimed or developed; (2) determination of the feasibility of utilizing the somewhat captive audience environment found on labor-intensive projects to conduct educational and applicable vocational training to form future cadres to operate and work on these projects after completion, or to furnish the working force for derived and newly-created rural industries.

In many underdeveloped countries the basic problems are the employment of labor and the production of more food. Suggested solutions often meet with opposition because the new countries desire to concentrate every effort on mechanization and heavy industry. In their impatience for industrialization, their leaders overlook the fact that modernization in agriculture and the development of light industries must be phased with other development goals, and that rapid mechanization may contribute to saving labor when their immediate problem may be one of absorbing labor. How balance and phased economic coordination may be attained might be answered on an individual country basis through appropriate research.

VII. The Key Role of Administration

The problem of public administration deserves special attention, particularly in those countries where previous colonial administrators

have left or are leaving. One facet of the problem is that technical assistance in this field by foreigners is especially likely to raise suspicions of political interference or to run into nationalistic objections. Another facet of the problem is the relatively low salary which characterizes public employment in numerous developing nations. Until such time as the men being trained abroad return home and secure employment commensurate with their training, the newly-formed governments of the world must operate with the manpower they have at hand. This means their own nationals, many relatively untrained, the foreign technicians and experts who will stay on, and other foreign "experts" who can be imported. Yet, "great development programs have been planned which are held back more by lack of men to direct them than by lack of capital ... Fundamentally, man is the key to our problems, not money."[24/] And one of the key men is the administrator.

A vigorous in-service training program is needed for the not too well trained nationals who are now available for administrative or technical positions. As an interim measure, an intensive training-within-government program modeled after the Training-Within-Industry program used in the United States during World War II is urged. Something like this is of utmost importance if some of the new countries are to hold together.

During the past few years, attention has been given to the training of public administrators of developing nations for the long pull. However, available evidence suggests that the efforts to date are only a beginning. The contribution which effective administration may make to national stability and, conversely, the vacuum created because of the lack of trained administrators is dramatically evident in many countries today. Witness the Congo.

In the past, various methods have been used to create and improve public administrators in developing nations. More must be done. Have there been enough nationals from developing countries sent to the United States to major in public administration at either the undergraduate or the graduate level? With respect to those who have been sent, have they been reasonably well selected? Would a cooperative program with developing countries to finance education in the United States for future public administrators on a basis of competitive tests be timely? Should the United States program in this area be designed to supplement the program of the United Nations which has been in existence for nearly a decade and should the primary United States effort be in postgraduate education in specific fields of public administration?

A fairly recent development is the growing trend among professional and technical organizations to take a more positive leadership role in the

international phases of public administration. The growth of chapters of professional organizations in developing countries, the participation of foreign students in organizations within the United States concerned with public administration and the nature of articles in professional society journals are hopeful signs.

At the same time that the upgrading of individuals now available for public service in the developing countries is emphasized, a program to give specialized training to those individuals who may become the senior public servants of developing lands in the years ahead, should be intensified. Further studies as to the best ways and means of perfecting methodology in this area should be part of a broad-gauged manpower development program. This is an area for intensified cooperation between government, universities and professional organizations in the United States and their counterparts in the developing countries.

VIII. Special Significance of High Talent Manpower

The development and importance of high-level manpower is one phase of the human resource problem that has been dealt with by others in considerable detail. In the opinion of a recognized authority in the field, the core of the manpower problem in the industrializing countries is the development of strategic, "seed-corn" resources. The upgrading of the masses into a skilled and productive labor force is dependent in large measure upon the effectiveness of managerial and professional personnel. If the "seed-corn" is of high quality, then the means can be found to build the proper kind of industrial labor force. But the generation of "seed-corn" talent is a time-consuming process; it calls for long-range forward planning. It calls, too, for methods to identify talent and for leadership training. In countries with limited resources, such consideration may require that priority be given to intensive training of a strategic minority even at the expense of partial or temporary postponement of general education of the masses.[25/]

While recognizing the need for quality development, popular education is a service which, once started, is politically difficult if not impossible to stop in the emerging countries. For example, in parts of the Arab world, Bedouin tribesmen are pitching their tents around newly-built public schools, for the nomadic women are insisting that their children receive some education.

For the present, it is most important that the relatively meager supply of high talent manpower in most developing countries be utilized in the most effective fashion. This is easier said than done for the few specialists available in these emerging lands may be known and acceptable in their own city or town but not known elsewhere. In some new nations a clearing

house among the professional societies may make a contribution. Another possibility is a modest national register of high talent manpower administered by either a government agency such as a planning commission or a university. Further study as to the best method to assure the fullest possible utilization of rare manpower talent might be practicable.

For the future, attention needs to be given to the introduction of programs which will supplant current "crash" utilization practices with programs for keeping educational capabilities realistically attuned to the manpower needs of a growing economy. Further study to find a way of making reasonable long-range projections of manpower requirements in newly developing countries, and to establish guideposts for determining patterns of investments in education (which are most appropriate for these countries) is being undertaken through an inter-university study in labor problems in economic development, supported by a grant from the Carnegie Corporation.26/

Everything cannot be done at once and the challenge is therefore one of achieving balance. The needs for higher education for doctors, for scientists, for engineers, for teachers, for agricultural technologists, for managers, and for many other specialists must be viewed against the urgent needs for at least primitive health measures, for education for the many millions of illiterates, and for training the artisans and skilled laborers without whom the standard of living cannot rise. Against these multiple, desperate needs, manpower programs must not be so out of focus that decades pass before the level of education and the standard of living will rise enough to make democracy viable.27/

CONCLUSION

In spite of all our improved communications, ease of travel, and other cross cultural influences, we still tend to classify people in two groups, ourselves and all others. Not only are there vast differences between us and the nations we are trying to help, but also among those nations themselves. The problems in Turkey or Egypt are much different from those in Southeast Asia, Africa south of the Sahara, or Latin America. All of our techniques must be subjected to the acid test of how they will work in cultures we can understand only with great difficulty.

In the process there will be strains--cultural shock if you will--which will affect both us and the nationals of the emerging countries. We must be prepared for practically intolerable health conditions, and for attitudes which will raise basic questions as to moral values as well as material and political values. We must realize that the peoples of these nations will find it difficult to understand many aspects of the modern world they are rushing to enter.

Recently a new steel mill was built in the United Arab Republic by financial and technical aid from West Germany. There had been some question about utilizing the full production of this mill but as a political symbol, the mill was a great success. "On the day it went into operation, an impressive ceremony took place, attended by Nasser, the German Ambassador, and other dignitaries. When the first plate went through the plate mill, several hundred Egyptian workers started a snake dance around the equipment. In the course of the dance, one young worker, swept away with emotion, jumped on the hot plate, where he lay sizzling. Two other workers leapt on it and pulled him off. The rescuers lost their feet; the first man was fried.

"Here was ritual sacrifice on the altar of the symbol of the twentieth century, the symbol of industry and autarchy, within a stone's throw of those other temples on whose altars other generations of Egyptians made their ritual sacrifices, with perhaps no less enthusiasm, to the symbols of other millennia."28/

I have attempted in this paper to address myself to problems in the manpower field where research can be of assistance to the program administrators and the policymakers. I have suggested twenty-odd projects where research could be fruitful. Certain projects, such as those dealing with the relationship of manpower assessment to economic planning and better ways of ascertaining requirements, loom as among the most immediately useful. However, in view of the diverse nature of the human resource problem in developing nations, it is difficult, if not impossible, to classify these projects on a priority basis. Whether they should be carried out by educational institutions, government or private organizations depends upon factors pertinent to the particular situation, such as amount of funds available, staff facilities and time allotted.

From our own standpoint here in the United States, there is a problem of relating manpower, which is both a resource and a service, to other resources utilized in economic expansion. Most programs require manpower; yet manpower officials do not make the ultimate decisions on the over-all programs. These decisions usually have implicit in them a substantial commitment of a number of resources, often over a considerable period of time. A hydro-electric project, for example, carries with it the need for training the manpower capable of applying the newly-available energy in productive ways, as well as manning the project itself. Manpower planning must go hand-in-hand with the development of plans in other resource areas. I should like to see more effort in coordination at the highest levels in determining country programs, particularly with respect to long-range projects and those having heavy social or resource impact.

Finally, we should remind ourselves that consciously planned manpower development programs are relatively new endeavors. We ourselves are in the learning stage. As a beginning I recommend that we pool all information available in this new area of manpower development so that the practitioners in the field will have the best techniques available to guide them. The pooling of such information is of particular importance in view of the inadequate supply of qualified practitioners. I also recommend further meaningful research at the same time that practitioners with training and ability go to work with the tools that we are now able to provide them and expend their vigor and energies in the field laboratories of new countries. We must give technical assistance in the development of human resources now, as the march of what we hope will be progress is under way in many lands, and it waits for no man.

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FOREIGN ASSISTANCE

AND

POLITICAL DEVELOPMENT

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FOREIGN ASSISTANCE AND POLITICAL DEVELOPMENT

Howard Wriggins

I - INTRODUCTION

A. Statement of the Problem

American foreign policy for decades will be confronted by two interacting problems. The first is the challenge to Western influence and values by the Sino-Soviet bloc and the second is the disintegration of the Asian and African colonial order with the proliferation of newly independent states. The second is greatly complicated by the determination of the Sino-Soviet bloc to use the weakness of the new states to forward its design of communist domination.

This paper approaches certain aspects of the second problem. It explores the question of how American assistance policy can encourage the growth of political practices and institutions so as to ease the fundamental political problems of the new countries.[1/]

It assumes that it is in the United States interest to assist these new states to become capable of (a) orderly political growth and change at home and (b) warding off threats to their independence from abroad. Our Sino-Soviet opponents are themselves dynamically interventionist on principle, in intent and organization. By contrast, we have long held to the principle of nonintervention in others' political affairs. Our inhibition is often, though by no means always, communist opportunity. On the other hand, our assistance programs, in some instances, already have an important impact on domestic politics, even though we may often incorrectly gauge the political results because we are insufficiently alert to the multiple consequences of what we do or fail to do.

No two political societies deal with their problems in the same fashion. Each political society is different from every other. History in the making is filled with unexpected yet often critical contingencies, leaving the student or operator with a sense of intellectual and policy helplessness. The new nations, particularly, seem destined to experience rapid, abrupt and unpredictable political changes. The critical role of individuals and the unpredictability of change appear to make forward thought on our part concerning political growth nearly impossible.

1/ The multiple contingencies presented by the foreign policy situation of any particular country are not considered. Nor does the paper analyze the relevance to United States policy of a particular country's foreign policy toward ourselves, neutrals, or the Sino-Soviet bloc. These are necessary parts of a full analysis of American policy toward any one or group of countries, but they are not examined here.

Yet there are certain necessities which underlie all political societies. Every government must concentrate sufficient power to give thrust and direction to government activities while maintaining or generating a base of political support sufficient to insure governmental effectiveness. At the same time, the political system must be able to accommodate social, political and economic changes. Political development means the growth of institutions and practices which allow a political system to deal with its own fundamental problems with greater effectiveness for the short run while working toward a greater responsiveness of the regime to popular demands for the longer run. The classic opposite evils of tyranny and anarchy must be avoided, and every country must find its own appropriate combination of authority and inhibition of power appropriate to its tradition and to its people's and government's needs and aspirations.

Effective government is indispensable if most governmental functions are to be performed. But effective government is not merely a matter of good administration. It is an acutely political problem. It calls for awakening popular support, enlisting a following, prodding and cajoling and winning at least the acquiescence and at best, the ready cooperation of officials in the administration, opinion and group leaders, and the populace. This requires the art of leadership, institutions for defining objectives and projecting a vision of public purpose, as well as a certain responsiveness to the needs of those outside the entourage if coercion is to be held to a minimum. And this requires a readiness to accommodate important changes in the political system, drawing new groups into participation, turning the machine of government in new directions when domestic and foreign political circumstances require it.

Success in achieving the objectives of orderly political growth and change at home and defense from encroachment from abroad requires a government with a capability in many fields. Among the necessary functions the following nine can be distinguished. A government must:

(1) provide a minimum of public order;
(2) provide those public services considered essential;
(3) provide for the common defense and for dealing with other governments;
(4) have means for resolving conflicts over public purposes;
(5) provide for the expression and channeling of public demands and discontent without political disintegration;
(6) provide orderly means for replacing those who rule, in ways which bestow legitimacy on their successors;
(7) meld diversities so as to consolidate national unity without provoking further centrifugal forces;
(8) provide a sense of being recognized in the world, of pride in the merits of their own ways;
(9) assure that savings are accumulated and resources allocated so that more of the world's goods will be available tomorrow without unduly depriving the men and women of today.

This list of necessary functions should be sufficient to suggest that our basic political objective requires development in more than (1), (2), (3) and (9) although our technical, economic and military aid programs have been largely addressed to these four functions of government.

One ultimate political objective of the United States is to see that more countries eventually adopt democratic ways of government. But it is not imperative for our short or middle run purposes that all non-bloc countries adopt democratic values and processes. Indeed, a premature adoption of competitive party politics, or the unduly rapid development of autonomous organizations such as trade unions, for example, in the name of greater representation of popular demands, may only induce political disruption. Conversely, an undue preoccupation with providing adequate public order may only result in mounting popular resentments against an unresponsive government. Each government must find its own appropriate combination of order and responsiveness. Perhaps we can help more than we have in shifting practice in the direction of responsiveness, but we must be aware of the limitations in the way of pushing too fast in the direction of our preferences.

While recognizing these limitations, however, we should be clear about our own values. And there may be opportunities to help harrassed and often hard-pressed political leaders to develop for themselves a clearer conception of their own political values and the direction in which their political system should preferably move.

B. <u>The Marginality of American Influence</u>

In certain countries at moments of crisis a decisive American action may be of great importance to the course of events. South Vietnam, South Korea, Iran, Greece, and Turkey are examples. In such countries, the outcome might have been very different if bold American action had not been taken. Yet for many countries most of the time, American influence on the course of domestic political development will be marginal. We have serious enough difficulties in inducing social adjustments and political change in certain areas of our own country. For us to espouse institutional changes or appear to support a particular foreign leader may call down upon both the kiss of death. Outside efforts to affect events often provoke the very opposite results, as the Russians have discovered in Egypt or Iraq.

Foreign aid as an instrument of foreign policy or as a means of assisting in political development also has inherent limitations. In our growing concern for the problems of political development, we should be wary of overburdening assistance programs with too broad or detailed a spectrum of political ends to achieve, however basic to our purposes political development is in fact. In most instances, we can expect to do no more than encourage and strengthen the hand of those individuals and groups which are moving in a direction we believe is in the interests of their country and ours.

Precisely because of these many limitations, it is important to ensure that whatever influence is open to us is in fact exerted, and in directions that are desirable. It is necessary to be more alert than we have been to the unintended consequences of what we do.

C. Insufficient Knowledge

Neither policy makers, nor scholars have produced a doctrine of political development, a relatively sophisticated and flexible set of propositions which would give us a yardstick for evaluating the consequences of particular events or guidance on how to act in a given situation. Until a workable doctrine is elaborated and confirmed, each government operator must use his own judgment on an ad hoc basis, guessing rather than judging the consequences of events or of our own actions.

Western political studies have usually focused on the governmental structure, the way in which individuals gain and hold governmental power and use it for the ends they set. Yet comprehending changes in governmental forms, political practices and the public purposes for which government power is used, particularly in emerging countries, requires broadening the intellectual field to include insights drawn from sociology, social psychology, economics, history, etc. This is particularly true in transitional societies which are experiencing social and technological changes even more rapidly than they are absorbing political changes. Thus, to examine political development embraces a spectrum of the social sciences as they apply to exotic environments which western social science has not yet studied in detail, except for the work of the anthropologists who have rarely been concerned with the problems of organizing political power.

Although the organization and distribution of political power is at the center of this paper's concern, the succeeding section will suggest the inter-disciplinary breadth of perspectives which must be brought to bear upon the problem of political growth.

II - A PRELIMINARY RESEARCH AGENDA ON FOREIGN ASSISTANCE AS AN INSTRUMENT TO PROMOTE POLITICAL GROWTH

In considering the problems of political growth, we shall discuss the nine functions of government identified above one by one. For each of these functions, a different set of questions and hypotheses concerning the relation of foreign assistance to political development will be raised. As is obvious, these functions of government are not presented in their order of priority. Each political system will have its own primary weaknesses to be corrected and therefore its own set of priorities. These nine functions of government are interwoven in fact; their separation is artificial for purposes of analysis.

The discussion will be in the form of propositions put forward as hypotheses or questions raised to be explored. They should suggest the direction of research that might be undertaken. They are by no means exhaustive, but are illustrative of the range of inquiry that remains to be undertaken.

(1) The Provision of a Minimum of Public Order

Where public order is taken for granted, as in most developed countries, it is like the air we breathe. We are aware of its importance only when we are deprived of it. Where order is in jeopardy, men fear one another, the ordinary business of government and of private life cannot proceed, any future plans are overshadowed by the uncertainty of incipient violence and the stakes of participating in politics rise sharply. Awareness of the importance of public order has been one of our profounder motivations for seeking to promote "stability" in many areas of the world.

Foreign assistance can encourage public order by improving police mobility and techniques

The police and military establishments are the principal instruments of "public order." The implicit intimidation which comes from the presence of effective police and/or military forces will prevent many disorders and challenges to a regime which otherwise might be faced with serious rebellions. Here police power and military power are closely interlinked in function.

Ironically, however, where the police power becomes too highly developed, overbalancing the other elements of government, there is also unpredictability and fear, as the police become beyond the law. They may also become the instruments of a ruling elite seeking to perpetuate itself by police intimidation.

Since military and police resources are indispensable for the survival of nearly every political system, and since these are the elements of power most easily misused by outside powers to forward their own purposes, are there ways of utilizing international or regional organizations to maximize internal security capabilities while insulating the recipient country from Great Power pressures?

There are, of course, many other elements to adequate public order than mere police power, however important this may be in crisis situations or where organized infiltration and rebellion are supported from neighboring territories. Excluding these extreme though real contingencies, if there is a broad consensus on public policy and agreement on who has the legitimate right to rule, if there are accepted channels for the expression of group and mass demands and acknowledged ways of reaching decisions concerning public policy, there will be less need for police power than if these ingredients are missing. The thrust toward disorder may also be calmed by more extensive public services which are widely desired. Accordingly, there may be circumstances in which an effort to encourage any of these other aspects of a viable political society will contribute much more to public order than dealing with it by the more direct route of augmenting police power.

Manifest American efforts to improve police power may be to our political advantage or disadvantage, depending upon our own stake in the survival of a particular regime in the short run and on how that regime uses police power and other elements of government to develop its longer run position. United States prestige may be damaged in many countries by the misuse of police powers developed with our assistance in one country.

What have been American experiences with assisting the development of police facilities in new countries? Have American techniques been readily transferable? Can police technicians from abroad provide stiffening to local police forces which make them instruments of even-handed, law-enforcement? Do not police forces often become almost exclusively the instruments of the ruling elite in suppressing opposition voices?

Do our police assistance programs seek to separate police activities from politics? Do they take account of the probable political setting in which the police we train will have to function? How do we help them deal with this nontechnical but fundamental element in the application of police power?

(2) The Provision of a Minimum of Essential Public Services

The level of discontent will be an important factor in determining the acceptance of or resistance to a particular regime. The level of discontent will vary with the adequacy or inadequacy of public services as measured by local expectations, and with the way political opponents use or misuse these inadequacies. What are considered indispensable public services will be very different in Vientiane, Calcutta, or New York. Postal service may count for much in London but little in Rangoon; sewage services are indispensable in New York but appear less important in Calcutta. In some countries government may be held responsible for flood control or food supplies in emergencies; in others these are outside the province of government.

By expanding some public services, assistance policy may help a regime to reduce discontent and thus strengthen its base of intermediary and mass support.

Can American or other outside assistance make it possible for a regime to meet elite or mass demands more readily? Do improved train or bus services, purer water supplies, or less costly arrangements for food distribution affect the level of discontent and ease the pressures on a particular regime? Have we seen instances where such improvements have eased a regime's problems or where deterioration of services has induced greater political instability?

Providing food supplies to governments may help them to make available a higher standard of consumption than their people could otherwise afford. Indeed, if investment rates for economic development are high, food supplies from abroad may be necessary to prevent a short run real decline in living standards. Once started, however, such programs are very difficult to diminish or end without serious political consequences. This increases the government's dependence on assured foreign sources of supply. One consequence is that the United States and a particular regime become linked in close interdependence. This may or may not be to our advantage. Examples worthy of analysis are the 1952 food crisis in Ceylon and the price of rice as a political issue since then; and the growing political

importance of levels of food supply in many other countries. A regime's response to internal crises like famine, epidemics or sudden depression may have much to do with the level of discontent.

Do programs of improved public services and government-sponsored food distribution in fact win popular approval among different elites and masses? Do they undermine traditional sources of support for the government? Do they limit alternatives for the next government or for ourselves? Do they identify us with a regime which is repugnant to competing elites and the people?

Such service functions as these are usually performed by the public administration, although in certain countries the police, the army, cooperatives, elected district councils, and private groups such as churches assisted by the state, may also perform important public services.

Strengthening the internal rigor and operative effectiveness of the public administration is likely to have certain consequences:

(a) - the hand of the central government is likely to be strengthened in dealing with dissident provinces, tribal or linguistic minority areas.

(b) - government programs will be carried out with greater efficiency, and practice will be nearer to policy, reducing discontent directed against the government.

(c) - the public service may be used less often as a source of sinecures and reward for political friends of the governing elite; corruption should therefore decline, fewer resources be "wasted" and public antagonism therefore reduced.

(d) - the public services (and police and army) may become a channel for opportunity for those less privileged but endowed with energy and talent, opening to those not already in the elite new ways to become identified with the problems and activities of government.

There are qualifications, however, to each of these propositions, quite apart from the important question of whether or not principles of public administration developed in the United States can be transferred to other cultures and political systems.

(a) A rapid conquest of the "area of insolence" by police and public administration may be indispensable for consolidating national unity. On the other hand, if the pace is too rapid, long standing tribal, ethnic or regional loyalties may resist such intrusions and counter-active hostility to the impatient central regime may weaken the central government's stance in the long run. This depends to an important extent on the way the police and administration go about their task and the degree to which new opportunities within the total national setting are available to the ambitious young men within these minorities.

(b) This proposition assumes that the promised government programs are those desired by the populace but are impeded by bureaucratic inadequacy or by political intermediaries between the government and the people, such as landlords, village notables, small businessmen, and members of the political entourage of the regime. If, however, the proposed measures are considered harmful by the populace, a more effective administration may only accentuate popular hostility, thus weakening the central government. Effective police power may become all the more necessary to repress hostility for some time, but will prove to be an insufficient base of long run political support.

(c) The role of sinecures and corruption in many new governments is of great importance. American urban politics of the 19th century provide a suggestive analogy. It was precisely by corruption, kickbacks and the distribution of jobs that American urban bosses drew together large numbers of diverse ethnic, religious and nationality groups into one political coalition of support. The distribution of "pork" to the known leaders of these diverse groups was an important method of aligning them all behind the one political boss. To find the right balance between indispensable and outrageous corruption is difficult, and some regimes are obviously being weakened by an over-addiction to manifest corruption. Others may be undermined because there are not sufficient resources to buy off leaders of groups that may defect from the regime unless they are given concrete inducements to win the support of their own political lieutenants.

(d) One of the almost universal characteristics of emerging countries is the cultural and opportunity gap between the privileged, well-born few and the many. The police, public administration, and the army may provide opportunities for the less well-born but well-endowed to overcome their birthmark. Le Rouge et Le Noir has its counterpart in many developing countries. The openness of these channels depends upon the educational requirements that are necessary for entry into the service and to the higher grades, and the accessibility of these educational prerequisites prior to entry. The public administration is less likely than the police and army to provide careers open to the talents available, since for the public services a higher level of education is usually required prior to entry or advancement.

But if these institutions are in fact open to the ambitious, and opportunities for advancement are available within them, they can be of great importance in reducing vocal discontent by absorbing those young men who otherwise would have no opportunities to identify with the problems of government.

An important difficulty is that the public service may become such a coveted career that the orientation of the whole educational system and the ambitions of all the educated are directed toward it. These services may drain off the best talent which is then not available for other crucial political or economic functions. And large numbers of young men who do not pass the entrance examination or for other reasons are not accepted into

the services will not be fitted for much else by the education they have received. They become the articulate educated unemployed, a by-product of the educational system's orientation toward public service careers.

Do our public administration training centers deal with the political consequences of changes in administrative practices and institutions?

How can we contribute to raising the prestige and attractiveness of careers in politics in competition with the administration, police, and army in order that more highly qualified men will be drawn into responsible political activity? In some other countries, where there is already a surfeit of politicians, careers in technical, administrative and productions lines may be more urgently required.

American private organizations, like the Rockefeller Foundation, have been notably successful at assisting in the improvement of medical services. Missionary societies have often assisted in the development of medical and educational services. Are there other roles in the public services field for American nongovernmental organizations?

International organizations have made some beginnings in the field of improving public services. Could these be usefully expanded? In which services would there be the greatest increment or advantage over national or private assistance programs?

Further observations on public services and "bringing the government closer to the people" are to be found under (7) below.

(3) Provide for the Common Defense and for Dealings with Other Governments

American assistance concerned with providing for the common defense has been the province of military assistance. This is outside the scope of ICA programs, and only one aspect will be noted here.

(a) Military measures and domestic politics

In the short run, military and police programs have assisted regimes to survive urgent external and internal crises. But the transition beyond the crisis to a broadened base of public support has been more difficult to achieve.

It is obvious that military forms of power are often required if a political order is to be established, particularly following invasion or other gross challenge to the civil order. But there are very real political problems inherent in the transition to an orderly, civilian, popularly-supported, political society.

Under crisis circumstances, when public order is near the point of breakdown or a regime must be constructed from a war torn country, the military and police functions are indispensable. However, it would appear as if the regimes so established are protected from coming to terms with the growing demands of their own people by the very strength of the police and military instruments which have been developed to meet the emergency. The officer corps is often as privileged as the regime. It may be more concerned with modernizing the country than was the ruling oligarchy, but quite as often it is just as preoccupied with its own status and perquisites as were the civilian oligarchies. A revolt of young Turks in the military establishment may bring about a temporary "clean up." The Ataturk model is tempting, and much may be accomplished by the regime established by military take over.

On the other hand, once the web of legitimacy is torn by a coup d'état, it proves extraordinarily difficult to return to legitimate government, one which is capable of weathering temporary set-backs in part because it is widely believed to be the legitimate government. Without the aura of legitimacy, such a regime is always threatened by the next pretender. The succession of army leaders in Syria after Zaim's coup in 1948 was a classic example of this problem.

How have regimes that were established with strong military components in the midst of crisis been able to broaden the base of their political support? Where no coup d'état has occurred, what role have the military forces played in consolidating the regime? To what extent has genuine public discontent been ignored because the military forms of power were so firmly established? How have "young Turks" been able to accomplish the transition back to orderly, legitimate government after their coups d'état? In what ways have United States assistance programs contributed to any of these developments?

There may be other important by-products of military assistance programs. Young men may gain their first awareness of the nation in the army; they may learn mechanical or elementary reading and writing skills; the army may undertake public investment activities or public services. Foreign military training may bring in new conceptions of the military's role in nation-building and its proper stance toward politics, and most likely of all, military training may develop in the younger officers an impatience with the halting, often fumbling steps of the more traditionalist civilian leaders or higher officers in modernizing their countries. These have important long run developmental and sometimes dramatic short run political consequences. There are also severe limitations on military assistance as a means of institution building. Here is a field for objective research as yet virtually untouched.

(b) Assistance policy and skills of diplomacy

In dealing with other governments, the new states have difficulties in developing their own foreign services and evolving a view of their place in the state system which will provide them with maximum advantage without

encroaching on their neighbors' legitimate rights. Foreign policy-making in some new states tends to be highly emotional, often more concerned to exorcise the humiliations of the past than to grapple effectively with the problems of today and tomorrow. Slogans from the struggle for independence are carried forward as the only common political coin and limit the range of maneuver open to heads of state in foreign policy matters. Domestic political imperatives may seem to require xenophobic attacks on economic and administrative enterprises of foreigners which are desperately needed for economic and administrative development.

How has United States policy faced this problem?

Have the limited in-service training programs in the State Department for beginning foreign diplomats been the best we could do? British experience in providing apprenticeships in the Commonwealth service is probably not relevant to our circumstances. And new nations are particularly sensitive to the implied infringement of their sovereignty which might come from efforts to provide technical assistance in the ways of diplomacy. American private ventures therefore may be peculiarly important here.

Could there be a program of in-service training in the more developed new countries such as India for those such as Nigeria who have come more recently to independence? Would they be likely to be helpful? Could we do more along the lines of the Johns Hopkins seminar program for young diplomats in Washington or the Fletcher School's training for Pakistani and other diplomatic students? Could there be an evaluation of what diplomatic training we have already undertaken? Might an international organization develop a training or apprenticeship program in the skills and practice of diplomacy and foreign policy-making?

(4) Have Means for Resolving Conflicts Over Public Purposes

All political societies have conflicts over the purposes of government, the programs the government shall undertake, the ways in which scarce resources will be allocated. One of the characteristics of an emerging country is divergence of opinion concerning the ideal form of government and the underlying political values appropriate to that society. Views range from proponents of Jeffersonism to Leninism. Resolution of conflicts over public purposes is handled in many different ways. Narrow oligarchies need only reach truces among the oligarchs; two-party democracies resolve many, though by no means all, problems of public purposes through elections. Some regimes use liquidation of those protagonists whose views lose out in behind-the-scenes struggles for influence; others carry on interminable and heated debates which are never, in the end, settled one way or the other.

Our foreign assistance programs may be able to affect this process, depending upon the type of regime in question, the size of the aid mission and its resources, whether its contacts are largely at the ministerial level or more broadly based, whether mass communications are activated on behalf of the programs we sponsor, and whether the present leadership is under serious challenge by a political alternative.

The possible lines of influence can run to at least four distinguishable groups--to government officials, leading political figures, individuals who are intermediaries between the largely urban political system and the urban and rural masses, and, finally, the urban and rural masses. A few examples will suggest this line of inquiry.

(a) Government officials:

Aid missions can affect the relative importance government officials attach to different governmental activities.

For example, do the aid mission's activities induce a greater interest in agricultural development and a lesser concern with heavy industrialization on the part of government officials? Do they affect those officials' view of the approximate balance between state enterprise and independent economic activity?

Can it be demonstrated that a foreign assistance mission can induce greater interest in official performance and less in official status than may have been the case before the aid mission?

Are officials more ready to seek out the wants of the people than before? Are they less responsive to the calls of family obligation and more rigorous in the application of governmental standards?

Are officials more insistent on leading a life in the style set by their American counterparts than before the aid mission, and does this encourage corruption in order to keep up with the standards set by the aid mission personnel?

(b) Political leaders:

Assistance missions may have an influence on the issues that political leaders use in their political competition with one another.

The skills that are brought in, the economic resources made available, or the policies that are promoted through the presence of the aid mission may bring to the fore issues that had not been part of political debate before. Indeed, we ourselves and the policies we advocate are likely to become issues in the debate.

It may be important for the sake of economic development that economic issues be clarified in public debate, so long as this is based on a serious examination of alternative ways of dealing with local economic problems and is not merely an exchange of ideological slogans. This may speed the development of realistic policies and therefore contribute to a viable economy in the long run even if it may temporarily draw us into the controversy.

United States assistance policies may have an influence on the priorities politicians set for themselves and hold up before their country.

Governments can set for themselves a broad range of purposes, stressing any one of the nine different purposes identified. One government may emphasize the external military threat and internal police powers; another may be more concerned with the politics of ethnic or regional groups; another with raising the GNP. Each will set these purposes in a different order of priority.

Have United States aid missions had an effect on the priorities politicians have set themselves? It has been argued that our concern over military security has encouraged some political leaders to give greater stress to their military problems than they might otherwise have done. Conversely, this may have diminished their concern for other aspects of their internal political or economic development. Defense support may have contributed in fact more to economic growth than to the defense purposes it was alleged to serve. In countries where our economic assistance has been substantial, it seems probable that we have had considerable influence on development priorities. Since we have generally eschewed serious consideration of political forms and political practices, looking upon these as the internal affairs of recipient countries, one would expect that we had had little effect on these matters.

Are such generalizations correct in fact? How have we affected the politicians' scheme of priorities?

Have there been examples where the United States has had influence on the range of public debate? What have been the results, both locally and for United States policy?

Foreign aid missions may influence the manner in which political leaders deal with opponents and minorities.

Can an aid mission affect the conception political leaders have of the appropriate attitude of their government toward popular demands as expressed by articulate interest groups?

It is conceivable that a government which knows it has outside support may be more ready to entertain demands from certain local groups than if it had to face them unassisted by outsiders. On the other hand, a government may also feel strengthened sufficiently by outside help to resist the importunings of certain other groups it might otherwise have to adjust to if an aid mission were not backing it.

What examples have we seen of either trend and what have been the longer run consequences of either effort on our part? Here, as in all these examples, the peculiar political context of each instance should be of great importance, and generalizations drawn from several places and times might not apply anywhere else without careful refinement.

(c) To intermediaries between the urban political system and the rural masses

The next decades are likely to be marked by increasing political activity on the part of urban masses and the rural population. It will therefore become increasingly important for American assistance policy to be in effective relationship with the political intermediaries between the educated, usually wealthy urban politicians and these mass groups. Identification of the "intermediaries" is not always easy. In many instances they will be local, land-based notables, tribal or religious leaders who still retain their following on the basis of traditional values. In others they will be semi-professionals like school teachers, local doctors, elected or appointed village or town officials, or agricultural union leaders. In some, a growing group of small businessmen play an increasingly active role. In any one country, each of these groups may be affected differently by American technical and economic assistance.

Foreign assistance directed through central government ministries is likely to have little effect upon the intermediaries between the largely urban political system and the rural masses. However, assistance involving local field operations may open greater opportunities.

A basic hypothesis would be that very few programs are designed with an eye to the impact they will have on the values and concerns of intermediary groups and what these will induce them to do politically. The influences would vary, depending upon the types of programs being carried out, the political context of the program, the political and institutional setting in the specific country, whether or not central government policy is compatible with our field activities, and whether we are, in fact, working counter to central government activities.

Officials and political figures are usually based in cosmopolitan, urban centers and are so far away from the cultural, social and economic reality of the rural areas that their grasp of rural political problems is often rudimentary. Urban groups--such as labor unions--outside the bureaucratic environment are almost as likely to be ignored. With notable exceptions, there may be few American representatives with the patience and the opportunity to grasp the subtle network of rural influences that have much to do with the political behavior of the rural masses. Even those who do gain such an understanding find that the central governments we must deal with are not themselves sensitive to these observations.

How do the intermediaries perceive our activities? How do our programs affect their interests, their sense of growing or narrowing opportunities, and their fears? How do our own people relate themselves to these different intermediary strata? Are we agents of desired or distrusted change, creatures of a disliked central government, collaborators with the central government in an admired common enterprise, or allies of the intermediaries against an oppressive distant regime?

(d) The urban and rural masses.

Similar questions could be raised concerning United States activities vis-à-vis the masses. On the other hand, in most emerging countries, as in developed countries, too, mass opinions are of less political relevance than the views of opinion leaders, organizational leaders and the intermediaries. United States activities directed toward mass opinion, particularly extensive information programs, are likely to become hortatory and to awaken appetites rather than to induce fruitful local activity.

(5) Provide for the Expression of Public Demands and Discontent without Political Disintegration

This area of exploration concerns the relation between assistance policy and the ways in which public needs are voiced and political pressure on their behalf is organized. Research would focus on the political parties and interest groups which are the dynamic elements of politics in most countries--their relative and changing positions or power, their modes of organization, their political practices and their policy demands. Does assistance policy as presently carried out affect these essentially political elements of a country's life?

Foreign assistance, hitherto, has had little impact on the nature of political parties and their organization.

Political parties are fundamental to dealing with the problem of concentrating enough political power to give direction to government while broadening the base of political support to ensure governmental effectiveness and to accommodate change. Probably there have been instances where American assistance policy has sought to strengthen the position of a particular party or a particular set of leaders. Where crisis is imminent, military and police assistance may have had this end in view. But we have generally avoided concern over the organization and practices of political parties.

Can any connections be discerned between American assistance activities and the ways a party organizes a following or broadens its base of support? the issues which political parties attempt to use? or the ways in which they reach internal decisions? deal with dissidence? with recruitment to the parties? or their mode of campaigning?

Since parties play such a crucial role in organizing political power for accomplishing the country's indispensable purposes, and in guiding the country's foreign policy, they deserve a good deal of careful attention from assistance personnel.

There are, of course, inescapable inhibitions in the way of providing political parties with the type of manifest technical or financial assistance one can give to a public administration, for example, or even to military personnel. Too close association with outsiders can be used by opponents to make a party appear as a tool of foreigners. Organizing political power is an art peculiarly dependent on a close knowledge of the temperament, aspirations, traditional style and ways of the people being gathered together in the party.

Nevertheless, there are classic problems that all parties face--they must organize a following, they must be financed, they must have criteria for membership and must have ways of dealing with policy or personal differences that develop within the party. There must be ways of relating leaders to followers, of combining generalized principles and broad appeals to as large

numbers as possible with specific and often very tangible rewards to the faithful or temporarily faithful, if a following is to be built sufficient to accomplish necessary policy objectives. Very often, new, nonauthoritarian parties lack stable organization in depth. Political leaders rarely have a ward and precinct type of political organization developing a hard core of support which can be counted upon. Where such organization is lacking, political leaders may have to resort to rhetoric and slogans of highly emotional kind to enlist support from individuals who cannot otherwise identify with the political leaders because they are often culturally alienated, of a different ethnic group, from a different region, and often speaking a different language. Rhetorical politics keeps the level of excitement high but is unlikely to direct public energies toward necessary constructive activities. Trade union membership is often shifting and unreliable. This is a factor contributing to trade union extremism as competing union leaders appeal to drifting members by outbidding one another.

> Can assistance policy improve the ability and willingness of political parties and interest groups to enlist support for the government's endeavors?

In many types of political circumstances, the institutions for voicing and organizing political demands are the same as those required to insure governmental effectiveness. Political parties, trade unions, ethnic groups and many other organized elements in the society are the channels by which popular desires are voiced. They are also essential means to the government's end of enlisting popular support for its programs, many of which may require effort and sacrifice. Economic development, defense, even the moderation of communal antagonism in the name of national unity or the finding of satisfaction in the degree of respect already accorded to their own country--all these essential elements of a viable political order can be promoted or undermined by the organized groups in that society. More effective organization can give a leader some assurance that he can retain his following without having to pander to the most narrow feelings or urgent demands of his organizational constituents. The goals of the leaders of these parties and groups are important if they are to be responsible and constructive rather than merely critical and demanding.

How can assistance policy help to improve the organization of parties and interest groups? How can it encourage responsibility among their leaders?

What efforts have been made to share experiences of successful representative parties in one country with leaders or organizers of similar parties in another country? What kinds of training programs, seminars in third countries, in-service training in successful parties such as the Congress Party in India and the PRI in Mexico, might be established? The political inventions in Colombia of an agreed transfer of power between parties or the limits on succession of Brazilian mayors may have wider application. Could anything applicable to our own programs be learned from the experience of Communist Parties? How could private organization or international agencies be of assistance?

Questions to be examined in regard to the encouragement and development of political parties are legion. A comparison of the financing of the UNP in Ceylon with the Congress Party in India would be illuminating of the advantage of the Congress Party's methods. How has the PRI, as a single party, been able to accommodate such a broad spectrum of interests and adjust to the changing needs of Mexico for so many years? How could others follow a similar path? How do these or other parties resist the political fragmentation on personalist grounds which split so many parties in emerging countries? Does organization or do issues figure as central to the success of different parties?

In assessing the political results of leadership grants, it is as important to judge the career consequences of the grant as it is to discover whether the attitudes of grantees become more or less favorable to the United States as a result of their visit. Perhaps the grants have made little discernible difference in terms of their political futures, but they may have changed their opinions. For a rounded evaluation, we should also attempt to explore the political consequences of inviting some leaders when, perforce, we will not be able to invite all. What of the attitudes and political success of those who are not invited? Are mixed parliamentary or political leader delegation group visits better than individual grants? Could the shared experience of a combined visit to the United States or to third countries help to reduce inter-party frictions based on personal rivalries? or do the strains of traveling together only sharpen personal antagonisms?

Assistance to professional or interest groups (doctors, teachers, small business men, trade unions, etc.) encourages the development of semiautonomous groups based on common professional or economic interests.

Leadership grants, technical assistance to provide local facilities used by major groups, training programs designed to raise the level of skill in these activities--all such programs induce a greater desire for independence from traditional modes of organization. Kinship and ethnic exclusiveness are likely to decline as loyalties based on the new activities grow. Recognition by outsiders of the legitimacy and importance of this activity may be as important as the actual resources made available. Private and international organizations may have an important role to play.

The assumption that the national government alone is the source of all initiative is likely to decline if such groups as these gain some ability to take initiative on their own to meet their own problems--and those of the community of which they are a part. Each country is likely to set its own balance wheel on this. If association of any one of these groups with outsiders is too close, they may become the victims of xenophobia and thus their real political influence will be reduced. If they come to gain so much autonomy that they are entirely free of governmental influence, there will be a serious political effort to limit this autonomy. Groups that developed quasi-autonomous status under the colonial regime will have that status progressively modified until they are more nearly equal to those groups which started recently.

United States assistance programs are likely to encourage greater membership participation within these organizations and to diminish the quasi-authoritarian practices of traditional modes of organization.

Close association with specialists from the United States in any of these fields may diminish the role of kinship and traditional status; is likely to encourage those with initiative regardless of their origins; and may make issues of policy rather than of personality more important in internal decision-making. The political consequence may be that more groups would be willing and capable of challenging traditionalist authority and seeking a substitute mode of deciding major political issues. Would they also be more likely to resist authoritarian pretension from the extreme left as well?

It would be useful to compare the development of such professional interest groups in, say, India and Pakistan, and in Ghana and Nigeria. The connections between these internal developments in interest group structure and process and their political environment might be of both theoretical and policy importance.

The mass media are likely to be affected by foreign assistance, because aid missions are likely to encourage more expectations than can be fulfilled. Aid missions have been less successful at encouraging responsible criticism and detailed, empirical reporting of government or private development efforts or other constructive activities and programs.

Almost inevitably, assistance missions are more likely to articulate the promise of a better future than they are to fulfill the promises their efforts and their words imply. Their demonstrations of new methods, the equipment that comes to some and not to others, the goad of American or international agency opposite numbers are all bound to raise the level of impatience and are likely to accelerate and expand the revolution of rising expectations. Our impulse to turn to the mass media to dramatize the hope we wish the people to see in us may so affect the content of the mass media as to increase political demands.

In many emerging countries, particularly in former British areas, the newspapers began as a relatively high level press for the resident westerners and the small, educated indigenous population. As circulations have grown, the quality of reporting and accuracy has declined, and a greater appeal is made to mass emotions. Reporters and rewrite men are grossly underpaid. Where the press is not rigorously controlled, destructive criticism is more common then responsible criticism. Reporting of foreign news is often vividly colored by gross oversimplifications. Highly doctrinaire solutions to local problems are often proposed on the basis of ideas learned abroad without a close understanding of the real and peculiar circumstances in their own country.

Has there been an analysis of the content of mass media to see what sort of images, simplifications and themes are used in discussion of public

policy issues? What sorts of exchange, seminar, study programs, and efforts to assist in the reorganization of the newspapers and mass media might be encouraged to ensure both the autonomy and responsibility of the press? Non-governmental and international agency activities may be of especial utility.

(6) Provide Orderly Means for Replacing those Who Rule in Ways Which Bestow Legitimacy upon Successors:

Apart from accumulating power for governmental effectiveness, including awakening sufficient intermediary and popular support to ease the implementation of policy, perhaps the most difficult part of government is the orderly transition from one set of rulers to another.

There are many factors which condition whether a transfer of power shall be easy or stormy, such as cultural and political traditions, attitudes toward authority and government responsibility, the opportunities for satisfying lives open to those who must step down, the presence or absence of institutions which provide ways of making orderly decisions about this without resort to gunfire, a certain core of fundamental continuity which persists despite changes in personnel of government.

Under what circumstances has American policy sought to ease transitions, and when have we sought to retard transitions? When protests seem to be rising sharply, and a reasonably tolerable "next government" seems on the horizon, how have we reacted? In some instances we appear to have made it plain that we would welcome a change; in others we appear to have backed the regime in power. How have we decided that a potential "next government" deserved our quiet support? Has there been policy consistency in this vital matter, or have we been responding in an ad hoc fashion to each situation according to the views of those on the spot? If so, by what criteria did they decide upon the advice they gave to Washington? And by what criteria has Washington replied? These reflections call for a comparative study of transitions of power in those new countries where orderly procedures for transitions are lacking.

Have we ever tried to encourage the establishment of institutions which would smooth this unavoidable political problem? Are there devices which we might explore other than our own form of elections?

Has the United Nations experienced in the Saar, Korean elections, the Congo, etc., any lessons as to the possible role of international organizations in aiding political transition?

(7) Meld Diversities so as to Consolidate National Unity Without Provoking Additional Centrifugal Forces

Most emerging countries are divided by two fissures running in different directions. A horizontal division separates the few highly educated, relatively highly privileged, often culturally alienated elite from the illiterate, poverty-ridden, indigenous masses. If there is a middle class, it is usually so small and hard pressed that it plays only a minor role in mitigating conflict and encouraging moderate politics of compromise. A vertical fissure

divides one ethnic or linguistic community from another in the "plural" society. The business, cultural, religious, and social life of members of each group rarely touch intimately upon those in the other groups. If there is a middle class, its members are often the most acutely conscious of cultural or ethnic differences.

Can foreign assistance policy contribute to an increased national unity?

As noted earlier, improved public administration may imperceptibly draw diverse groups into one common network of activity. Enhanced military and police capability may weaken attachment to local notables who traditionally provided security in return for absolute loyalty, but these intrusions may provoke profound hostilities. An educational system may draw the youth into a common universe of discourse and experience. But experience in Eastern Europe showed that efforts to force national assimilation do not work. Improved roads and other means of communication and a shift to cash bring isolated people into closer touch with one another. Conscious efforts to combine diverse ethnic groups in one single work project, dam site, training program may help to break down hostile stereotypes. Shared military experience or public administration service may meld at least one segment of the populace into a sense of common awareness, although jealousies over advancement and responsibilities are a constant invitation to antagonism along traditional lines.

If national unity is an urgent necessity in a fragmented, plural society that has not yet developed an overarching sense of national identity, foreign policy issues may be the most convenient way a leader can consolidate his country. Foreign policy issues, often anti-American or anti-Western in character, may be domestically essential if the nation's unity is to be consolidated. A dose of xenophobia may be indispensable to the development of a national sense. Are there examples of such a development? How have we responded?

More generally, foreign assistance resources channeled through national governments strengthen the central government in its relations to regional and parochial interests.

Is it correct that in India, for example, the national Congress Party has been strengthened in its efforts to deal with the centrifugal pulls of Indian diversity by the center's ability to grant or withhold scarce economic resources from the states? Has this been similarly true for the rulers of Iran, South Vietnam, or Turkey, to take but three examples? In what ways? What have been the specific linkages in this process?

Does national economic planning carried out on presumably economic criteria independent of political judgments impede the central government from punishing those local leaders who press parochial demands and from rewarding those who work toward national unity? If the answer is yes, does planning not weaken the center's ability to allocate technical assistance and foreign aid in order to help it fulfill the fundamental political necessity of inducing national unity?

Are there examples where the national government's hand has been strengthened when large investment in areas of possible defection encourages leaders of these areas to cooperate with the national government? This is in some ways politically analogous to the Rivers and Harbors ploy in American politics.

> Foreign assistance can contribute to diminishing the dramatic social, cultural and psychological gap between those who man the institutions of national government and the rest of the population in transitional societies.

Can it be demonstrated that foreign assistance programs in fact have the result of "bringing the government closer to the people," as is often alleged? Where governments undertake social service programs like improved medical care, food subsidies, land distribution, etc., all of which may be facilitated with assistance from the United States, one would expect the gap between ruler and ruled to be diminished and the rulers to be commensurately consolidated in their position.

The political consequences of any of these measures should be investigated. There are many other variables that may be as decisive as whether or not the program is undertaken. It is possible that opposition voices are sufficiently critical and well-organized so that no matter what is done is felt by the masses to be only half enough. The actual technical assistance undertaken may whet appetites faster than it assuages them. In order to achieve the economic and production changes the technicians see as necessary, new wants may be so rapidly awakened as to raise the amount of frustration directed against the government rather than to diminish it.

Community development programs in India are perhaps the most impressive example of a device designed to "bring the government to the people." For research purposes they have the virtue of being widely scattered in a country where there are good data on voting behavior, where there has been a series of free elections, and where relatively good data on social, religious, ethnic and other variables also exist. An extensive research design could be devised which would compare electoral results in areas where there had been community development programs as compared to areas where there was no such project. It might also be possible to compare voting behavior between districts where a large investment, such as a dam, had been introduced and where, by contrast, a more "balanced" program of community development had been carried out.1/

Community development may produce a sense that the government now cares for the lot of the people as it never did before. If so, such programs

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1/ I am indebted to Myron Weiner for this suggestion.

diminish the gap between ruler and ruled. But community development may also induce a more rapid awakening of political consciousness and an awareness of unmet needs which will produce more political dissatisfaction than existed before. Whether this redounds to the advantage or disadvantage of the central government will depend perhaps as much on the political alternatives that seem available as on the nature of the community development program itself.

Have land reforms encouraged by American assistance been successful in winning mass rural support even though they may have alienated other centers of power in the entourage of a particular regime? Have the political consequences been helpful to the regime? Iran or Taiwan may be cases in point.

Road building may open areas hitherto inaccessible to markets and to contact with the outside. They may win approval of local leaders and bring city and country more closely together. Have road-building programs in fact strengthened the political following of a regime or contributed more to a disruption of the traditional relationships in the countryside on which a regime had previously depended for its assured support?

Promoting a network of private associations may help overcome national disunity. National unity may be more effectively encouraged if there develops a network of overlapping 'voluntary' organizations which transcend in their membership and impact the limits of the particularistic communities or group structures of the traditional, plural society. These may deal with specific, relatively non-controversial and non-political problems of interest to large numbers of people. Women's associations, health clinics and societies, sports clubs, Red Cross or similar welfare societies, as well as the type of professional organization mentioned under (5) are all examples. American and European private organizations, including professional bodies, cooperatives, trade unions, etc., could be helpful here.

We should be aware, however, that our tradition of pluralism, reflected in such a proliferation of autonomous and competing organizations, may in fact produce unity only where there is a broad consensus already. Where differences are as deep as in many emerging countries, such development may only serve to define additional lines of division. To work toward unity, therefore, such autonomous groups must cut across traditional differentiations, bring individuals from hitherto separated groups into working cooperation.

Although such voluntary associations are a fundamental part of our Anglo-Saxon tradition, they are very alien to the tradition of most emerging countries where colonial government or traditional social groups hitherto have provided the principal initiative for organization and activity. There have been some important developments, however, and case studies of the life history of such societies in different cultural settings are urgently required. There is now considerable experience from among missionaries, foundations, and professional or business groups on which to draw for data.

(8) Provide to the Elite and Prospective Elite a Sense of Being Recognized in the World, of Pride in the Merits of Their Own Ways

A regime which is incapable of providing a sense of recognition and pride will not meet the subjective necessities of its elite, its intermediaries, and masses. Men do not live by bread or political order alone. Although these are vital, they are not sufficient. Particularly in new states that were previously colonies, the search for recognition and pride is profoundly important.

Can American assistance policy contribute to this ingredient of a viable political system? This is often a matter of style as much as of substance.

Invitations to Latin American or Indian intellectuals to lecture in American universities about their own traditions, a sensitive reception to foreign visitors here, the way our diplomats or assistance personnel deal with local leaders and technicians, the style of our lives abroad, the interest we feel in foreign tradition, art or other creative expressions are all parts of this political imperative. The importance of the United Nations to political leaders in new countries is in part explicable by this imperative to prove to oneself that now, at last, "they"--the westerners, particularly, and not infrequently annoying neighbors--will pay attention to what "we" have to say. Here diplomacy in international organizations and assistance policy are closely linked in their role of inducing political viability.

Unfortunately, often our other activities produce little in the way of local pride and reassurance. Military aid programs designed to meet military contingencies or to contribute to local authority of the government may weaken pride of all but the military elite. Sometimes, however, the transfer of military equipment may have its principal use in bolstering pride, although other by-products may be less desirable.

Technical or economic assistance may be provided under such stringent conditions in order to meet audit or other domestic requirements within the United States that they are sources of friction and humiliation in the recipient country. Policy may seek so to publicize the American contribution to development programs that we seem to claim the credit rather than allowing full credit to reside where it will do the local regime--and perhaps ourselves--the most good.

Providing what they ask for, perhaps even stadia or large scale "impact" projects, may heighten local pride, or the dreams of glory of the leaders, but not contribute to real economic growth. How have we balanced off these two contradictory criteria in practice?

In what ways can we enhance pride and a sense of respect in the new countries? What have been the results in this respect in a variety of sample countries and programs? When conflict among criteria arises--as it is bound to--how do we deal with this matter of recognition and pride?

(9) The Accumulation of Savings and Allocation of Resources to Increase Availability of Worldly Goods

There is a widespread assumption that an increase in standards of living will bring with it a political stability favorable to our interests. This is by no means assured.

On the contrary, one can posit that rapid economic development will accelerate the social, psychological and organizational changes which were necessary before economic development could get under way. This acceleration in itself will be disruptive, and these dislocations are bound to bring political disorder in varying degrees. The converse is also true, that if there is not economic change along lines desired by those who are either presently politically influential or are ready to grasp power should the present regimes falter, there will also be political disruption.

It is because there is bound to be rapid political change, generally disruptive, whether there is economic development or not, that the matter of political development is of such importance. Economic development in itself does not create a public order nor a viable political system.

A Note on Education

The educational system is of great importance for developing values and practices of political behavior. It can contribute significantly to the conception political leaders and masses have of the good society, of where they themselves are moving and how best to reach their goal. The political values taught in the classrooms, the political convictions or argumentation of the teachers, the effect of the mode of teaching on the personalities of the children and their attitudes toward authority and dissent, and the practice provided in the schools and universities for experimenting with responsibility and the management of small controversies in a serious manner--all these and more elements in the educational experience are of importance to the socialization of young people into the modes and values of political life.

These aspects of the educational system go far beyond the technical education we have tended to strengthen by our assistance programs, although our efforts to teach inventiveness and innovation in the technological line probably affect attitudes of students toward dealing with other aspects of life as well. Indeed, the more technological specialization, the more likely are students to become impatient with traditional social ways, but this in itself will not provide political skills or judgment for constructively changing these ways.

Research in the application of educational knowledge to political development should take the growing body of data in the United States on the correlation between personality and political attitudes on the one hand and types of educational experiences on the other and seek to apply these findings to cultures like India, Iran, Morocco or Nigeria. Those with field experience in these educational systems should participate closely to bring a sense of

the intractable educational traditions already firmly established. American and international organizational influence on education, as elsewhere in these countries, remains on the margins of the system we seek to influence. Moreover, a more modern education will only further alienate an elite from its followers.

Nevertheless, there may be many ways in which we can, with tact and understanding, assist in curricular instruction and extra-curricular activities. Our aim should be to bring the educational system closer to the needs of the country; provide the type of skills which give young people real opportunities to exercise their talents in improving their own societies when they leave school or college; and encourage those values which lead to a sharing of power and responsibility, increased empathy toward other groups, broader participation in taking decisions, and easier collaboration with peers.

Comparative case studies of the effects of their experience on the political skills and values of students at the American University of Beirut, the Jaffna College in Ceylon, the Forman Christian College, Lahore or other such colleges elsewhere, would be helpful. Comparison of personality and value development and opportunities open to students in technological and "liberal arts" curricula would give insight on the influences of different educational programs.

III - SOME OBSERVATIONS ON THE LITERATURE ALREADY AVAILABLE

Thus far, students of politics have devoted relatively little systematic attention to the problems of emerging political societies. There are a variety of monographs on specific countries in which many useful insights can be discerned if they are analyzed with care. Many are more useful as provokers of hypotheses than as sources of data on questions relevant to American foreign policy or the development of viable political societies. This is because very few have approached the political problems of the country they have analyzed from the point of view of American foreign policy interests and the ways in which outside influences could usefully be brought to bear. Indeed, many describe with considerable acuity the impact of the colonial era on specific countries, but they tend to assume that with independence, such influences will be minimal. Alternatively, there is an assumption that the forces of world-wide modernization and industrialization will proceed virtually independent of human choice. The intervention of conscious policy in this process, particularly to favor or discourage alternative political consequences of this spontaneous process, is rarely considered.

Sample country monographs are those by James S. Coleman, Nigeria, Background to Nationalism (Los Angeles, 1958), David Apter, The Gold Coast in Transition (Princeton, 1955), George Kahin, Nationalism and Revolution in Indonesia (Ithaca, 1952), Howard Wriggins, Ceylon: Dilemmas of a New Nation (Princeton, 1960). One directed particularly at the problems of minority

political parties in India is Myron Weiner's, Political Parties in India (Princeton, 1957). His forthcoming study of The Politics of Scarcity should be of considerable interest since he attempts to sketch a political strategy for the Indian Government in dealing with the political pressures that are bound to rise. Hoselitz and Weiner have also speculated systematically on the political pressures that are mounting in India as a result of economic and social development. Selig Harrison's study of Indian national disunity, India--The Most Dangerous Decades (Princeton, 1960) stresses the centrifugal pulls within India and the political difficulties of dealing with them. Lucian Pye examined the intractable problem of Communist guerilla tactics in his Guerilla Communism in Malaya (Princeton, 1956).

Daniel Lerner in The Passing of Traditional Society (Glencoe, Illinois, 1958) stresses changes in the mass communication system in examining social and technological changes in the Middle East as they come to affect politics. Dankwart Rustow's essay on Politics and Westernization in the Near East (1956), explored new ground on the effects of westernization on political ways.

In a pioneering effort to design a systematic structure for purposes of comparative political analysis in new countries, Gabriel Almond, James Coleman and their collaborators have elaborated a scheme of political functions that encompasses more data than is ordinarily considered when examining western political institutions. As with all such schemes at first, terminological hurdles impede communication and there is some doubt whether the scheme is sufficiently dynamic to point up changing patterns and developmental trends rather than focusing on a very sophisticated analysis of political reality at any given moment. But the work of Almond and Coleman and their collaborators in The Politics of the Developing Areas (Princeton, 1960) is an ambitious comparative analysis in depth of the political process in emerging countries, spanning Latin America, Africa and non-Communist Asia. It is not directed toward an analysis of United States foreign policy problems. Edward Shils also undertook to present a systematic analysis of "Political Development in the New States" (available in Comparative Studies in Society and History, The Hague, II, nos. 3 and 4) identifying types of regimes and sketching the dynamic developments of each type.

The studies prepared for the Senate Foreign Relations Committee by the Center for International Studies, M.I.T. on Economic, Social and Political Change in the Underdeveloped Countries and Its Implications for United States Policy and by the Maxwell Graduate School of Syracuse University entitled The Operational Aspects of United States Foreign Policy are helpful contributions to different aspects of the problems raised here.

George Liska's pioneering study on the use of foreign assistance as an instrument of foreign policy is by far the most sophisticated analysis of this problem publicly available. He deals with some of these issues of political growth and stability. His work assumes a rather completely machiavellian state system and rationalistic statesmen of the enlightenment model. Foreign assistance is seen as fundamentally the search for control

by the donor over the recipient. He may underemphasize the marginality of influence obtainable by foreign assistance and the depth of political analysis necessary to fully understand the political process in emerging countries. But his book The New Statecraft (University of Chicago, 1960) stands out above all others in the field.

Another important work is Charles Wolf, Jr., on Foreign Aid: Theory and Practice in Southern Asia (Princeton, 1960). This empirical study by a member of the staff of the Rand Corporation analyses in great detail the complicated and subtle choices underlying our assistance allocations over a period of years in South and Southeast Asia. His study is full of insights and identifies a multitude of the factors we have in fact attempted to take into account. His political assumptions, however, are overly simple, as he would be the first to admit.

Another type of literature concerns studies of political elites. These are peculiarly useful in emerging countries since the elites are narrow yet much more influential to the course of events than in more established, broadly based political systems. Edward Shils has done brilliant work on the Indian intelligentsia. Guy Pauker has studied the military elites of Southeast Asia. Lucian Pye has been exploring personality and other characteristics of Communist and non-Communist elites in Burma and other parts of Southeast Asia. Monroe Berger has written on the administrative and military elite in Egypt and John Johnson has sought to delineate the characteristics of the increasingly important "middle sectors" in Latin America.

There is thus a growing body of literature from a variety of disciplines attempting to analyze significant aspects of the political development of emerging countries. Too little yet is directed toward answering the question: how can American foreign policy fruitfully assist in the process of political development?

IV - SOME THOUGHTS ON RESEARCH PROCEDURE

(1) Research should be promoted in a variety of ways.

(a) Individual research scholars on leave from universities could be encouraged by Foundation grants to undertake studies of specific aspects of this inclusive problem. The advantage would be their detachment from commitment to past policies; the serious liability would be that they are insufficiently attuned to the problems and limitations of policy.

(b) Experienced research institutions like RAND, the Brookings Institution, the Center of International Studies at MIT, area centers such as Northwestern University, the University of Chicago or institutions like the Institute for Defense Analyses (IDA) could more easily bring their guidance to bear upon individual scholars working with them. This would make it more likely that the research undertaken would focus on United States policy and political development.

Liska's study suggests that detailed empirical data from classified sources is not necessary for creative thought on this question. Highly qualified scholars with both policy experience and theoretical skill might be encouraged to concentrate on this problem in an environment such as RAND, IDA or the Brookings Institution.

(c) Within the United States government, useful research might also be undertaken, similar to ICA's current Study of Technical Assistance. Debriefings of returning administrators might lay greater stress on the political context of assistance programs and their political consequences. A group of experienced individuals, returned from countries where we have had extensive assistance missions, might be freed from administrative responsibilities for six months to examine their experience with skilled research personnel to guide the inquiry. The ICA training center at the Johns Hopkins School for Advanced International Studies might provide an ideal setting for such research. The post mortems would not seek to reflect upon the man's operational skill but to use the benefit of his experience to enlighten a small research staff which would be seeking assumptions and generalizations drawn from experience.

(2) If specific programs are to be examined, the following considerations might be helpful.

(a) The assistance programs to be examined should have been operating for a considerable period of years.

(b) Area specialists unconcerned with United States policy should be asked to define their conception of the secular trends within the society that bear on the aspects of assistance policy to be examined.

(c) Program specialists should be interviewed in efforts to obtain their estimates of the political effects of their work.

(d) Newspaper and official reporting from the field should provide a good deal of material.

(e) The work of area specialists and program specialists (b) and (c) above should be compared to identify similarities, differences and contradictions in the way trends and changes are perceived and explained.

(f) Only then would field research be advisable to explore specific questions and hypotheses as they applied to specific countries.

(g) Countries of particular interest would be Turkey, Iran, Pakistan, India, Vietnam, South Korea, Taiwan, Bolivia, Brazil and Guatemala. Speculative projections of developments in Nigeria, Ghana and Guinea based on similar variables would be of interest.

IN CONCLUSION, ...

Robert E. Asher

Brookings Institution
Washington, D. C.

August, 1961

In Conclusion, ...

Robert E. Asher

Everyone concerned with development programs, I conclude, has to be a highly exceptional person. He must be cultured and cross-cultured. He must be disciplined and inter-disciplined. He must be well stocked with empathy and anti-freeze. He must shake off his parochial shackles and be capable of changing parameters in midstream. He should be a model himself, and he should know about model-building, institution-building, stadium-building and body-building.

He should strive for results that are well-structured or require only a minimum of re-structuring. He must view them in technicolor, for one of the first lessons learned by the would-be developer is that nothing is all black, or all white. Amidst population explosions, revolutions of rising expectations, and incipient imbalances of every kind, he must remain serene and balanced, perennially poised for the long run that follows every short run.

Alas, even in the long run, we may not succeed in creating the best of all possible worlds but--to borrow a felicitous phrase from an earlier version of an essay in this collection--"we must maximize the opportunities for an optimal transformation."

Having now illustrated my familiarity with, if not my mastery of the jargon of development, I can turn to more important issues.

The foregoing essays, it seems to me, may be considered from three points of view: their contributions to a better understanding of the process of development, their advice to the managers of foreign aid programs, and their proposals for further research in their respective fields. Taken together, the collection does not add up to a rounded analysis of the problems of economic, social, and political development, and was not intended to do so. "Country programming" is a different kettle of fish from "the role of education in development" or "facilitating technological change."

The essays were not solicited with a view to providing a logical progression from one topic to another or a full catalog of research needs. The objective was a more modest one: to consider a few problems that will demand serious attention from American policy-makers during the 1960's--problems on which additional research might be especially opportune or fruitful. Broad areas such as natural resources development, the improvement of health, and the strengthening of public administration, were deliberately omitted despite their obvious importance, on the theory that research needs and research priorities in these fields were, by and large, better known than in the fields that were chosen.

Among the topics included, there is considerable overlap. Some of this is due to the fact that development problems simply do not lend themselves to treatment in watertight compartments. Some of the overlap can be eliminated in a final editing. Some of it is inevitable in an era in which declarations of interdependence abound and the leading economists have become preoccupied with non-economic factors in economic growth, while the lawyers and scientists devise policies to promote productivity, personal savings, and higher rates of capital formation.

Each of the essays offers some important new insights into the development process. It would be presumptuous of me to attempt to catalog these insights. The most that I dare do here is to recall a few points that I found interesting and significant.

Everyone now seems acutely aware of the pulls and cross-pulls among economic, social, and political forces, and of the difficulty of separating cause from effect. The breakdown of traditional attitudes and of the established social structure, we have learned, is not only a consequence of economic development, but also a necessary forerunner of economic growth. Modernization promotes urbanization, but urbanization also promotes modernization. Planning must proceed both from the top down and from the bottom up. The skills necessary to expedite agricultural development are chiefly those of farmers, but the solution of some of the most critical rural problems depends on administrators, politicians, and editors in the cities. Education is a consumer as well as a producer good--higher incomes lead to greater expenditures on education, and greater expenditures on education lead to higher incomes. In this wonderful world of feed-back effects and circular causation, the cart looks just like the horse and must also be flogged if progress is to be made.

However, if cause and effect interact as vigorously as the experts tell us, must the conditions for more effective use of investment funds be established first, or will larger investments also speed the establishment of conditions for their effective use? Seven or eight years ago, it was widely recognized that the underdeveloped countries suffered from many ailments. But it was also fashionable to believe that sizable foreign grants and loans could help to mitigate at least some of these ailments. The public listened to the experts but remained unconvinced. Now, just as the public in the more developed countries is becoming prepared to bear the necessary financial burden, the experts consider it crude, boorish, and naive to stress the capital requirements of the less developed nations. Have the lubricating effects of a generous injection of funds been downgraded unnecessarily in our search for more sophisticated prescriptions?

For the most part, the additional sophistication is a clear gain. I found myself fascinated by Everett Hagen's description of the attitudes within individuals in all walks of life which constrain their own actions, make the activities necessary for economic change uninteresting or repugnant to them, or limit their creativity. This is not the first time that Mr. Hagen has stressed the role of the innovator in economic development and the shortage of creativity in traditional societies, but he has now thrown the whole problem into sharper focus than ever before.

Albert Hirschman's brilliant comments suggest some strategies for getting around alleged obstacles to development or finding new sequences for surmounting them. His catalog of the undulations and fluctuations in previous diagnoses of barriers to development, and his cautions against the wholesale swallowing of current clichés, deserve careful reading. His remarks are disconcerting, however, to those of us in quest of clearer criteria to govern eligibility for foreign aid. They would seem to lead to American involvement with the sinners and the unregenerated in the hope that, unwittingly, they will reform and with the righteous because, wittingly, they have reformed.

The Colm-Geiger paper outlines the process of planning and programming development more lucidly than has yet been done. The authors advocate pragmatic planning that recognizes both the limits of mathematical methods and the role that qualitative judgment--and trial and error--must play. The proposed plan, they maintain, should be subjected to the democratic process of debate and final political action before it becomes official.

Arthur Mosher admittedly owes a great debt to his letter-writing legions, but the hand of the master is plainly apparent in the rich catalog of research undertakings that he has assembled. I am especially impressed by his emphasis on research as something "much more than a staff activity preparatory to agricultural development or preliminary to developmental assistance." Inasmuch as technical advisors and local counterparts come from different cultures, he says, "the field experience of engaging together in systematic examination of local conditions and in joint searches for locally valid improved practices may be one of the easiest ways of establishing meaningful communication."

The same point is stressed by other contributors to this volume and by participants at the conference at which earlier versions of these essays were discussed. By first selecting research projects that are likely to be successful, a stimulus will be provided for further research and action. Gradually, respect for analytical methods may grow. The contributions of unencumbered emotionalism to the formulation of public policy should decline as research becomes respectable in the developing countries.

The rural problems of the less developed areas have received a great deal of attention, but urbanization problems have too often been thought of as peculiar to the industrialized, high-income countries. And in such countries, they have been studied more by sociologists than by economists. It is therefore good to have Lampard, an economic historian, join with Schnore, a sociologist, in telling us that further research on urbanization is vitally needed in both high-income and low-income countries, because economic and social policies are being promulgated in a vacuum of knowledge concerning urbanization. Their statement appears to be directed more to the student of urbanization than to the student of development or the administrator of foreign assistance programs, but it contains a number of comments and asks a number of questions that are of interest to all three groups.

One of their most important observations is in the field of urban-rural relations. "If we wish to identify social and economic changes connected with sustained urbanization," say the authors, "we should look first at the non-urban, or rural sector." "The study of urbanization is a study of changes in country as well as town and...any divorce of the two, even for analytical purposes, may lead to a serious misunderstanding of the process itself." Some degree of urbanization, I gather, is essential to real modernization, but we do not yet know how much, and the social costs of excessive or too rapid urbanization are very high.

In his discussion of technological change, Richard Eckaus addresses himself with admirable directness and consistency to the subject assigned to him. He analyzes what we know and do not know about the business of facilitating technological change--of finding new production methods suited to the resources and conditions in the emerging countries and introducing them into those areas. He suggests how we might go about learning some of the things we need to know. He tries to indicate an order of priorities and to offer some guidelines for a division of labor between the universities and the government. He reports that the major deficiency today is the lack of integration of the rules of choice among technologies into an overall programming framework. In the present state of knowledge, he says, the choice issue is usually analyzed for projects as if they could be considered separately from each other and independently of the overall growth pattern of a country.

Bowman and Anderson provide us with a timely reminder that there is no magic in investment in human as against physical capital that guarantees its productivity irrespective of the kind of human capital created. They then seek to identify the critical factors that determine how far educational investments should be carried, and what kinds of educational investment promise high, low, or negative returns in given situations.

Manpower problems cut across every other area and embarrass us by their very breadth and ubiquity. Edward Keenan foregoes the chance to present a new theory of human resources development. He appears to counsel instead a more sensitive, larger-scale application of techniques already being tried out in certain places to help build labor forces better adapted to the needs of societies undergoing rapid change.

The special service that Howard Wriggins performs, it seems to me, is to provide a more orderly framework for thinking about political development in the emerging countries. He assumes that it is in the United States interest to assist newly-independent states to become capable of orderly political growth and change at home, and capable of warding off threats to their independence from abroad. He singles out nine functions that governments must perform to exhibit and develop the necessary capabilities. He discusses these with perspicacity and awareness of the complex relationships among them. He cautions against overburdening assistance programs with too heavy a freight in political objectives.

I hope I have by now made clear my own conviction that each essay in this symposium contains some insights that should prove useful to both specialists and generalists. Most of them also contain handy hints of an operational nature--advice about the kinds of people needed to run an aid program and the tactics and devices they can employ.

One cannot escape the conclusion, however, that our present understanding of the economics, politics, sociology, and psychology of development is fragmentary and grossly inadequate. If broadening and deepening existing knowledge--knitting the scattered fragments into a meaningful whole--is important for the survival and well-being of the free world, how should we organize ourselves to expand more rapidly the extent of our knowledge? The new Agency for International Development (AID) is expected to have authority and some funds to stimulate, and to conduct, and to contract for, both basic and applied research.

The problem of getting on with the research that is needed may be approached from several directions:

(1) The establishment of functional and geographic requirements and priorities--in other words, the consolidation and ranking of research projects previously segregated in separate categories as rural problems, urban problems, educational problems, health problems, and so forth;

(2) The development of organizational arrangements designed to give the necessary status, prestige, leadership, and sense of urgency to research intended to improve development programs and operations;

(3) The mobilization of manpower for a more concerted attack on priority problems;

(4) The financing of research.

Priorities, of course, can never be absolute. The fact that virtually every underdeveloped country has enormous agricultural problems, that most of them have serious transportation difficulties, and that relatively few have coal-mining or tin-mining problems does not mean that agricultural research as a functional category deserves a blanket priority. The first X% of research in some other field is likely to be more important than the last Y% of the agricultural projects. Moreover, the value of research depends as much on who does it as on the topic selected. There is no need to belabor these points, but it may be useful to have them in the record.

It is also obvious that research needs and research priorities differ among geographic regions and among countries. There might be some real advantage in trying to look at requirements regionally--for Africa, for Asia, for Latin America, etc.--instead of globally as we have tended to do in this volume, with frequent bows to the desirability of localized case studies.

Discussions of organizational arrangements are tiresome to some, but peculiarly fascinating to a multitude of others. Whether tedious or titillating, they should not be dismissed as irrelevant. They do have some effect on substance. The possibilities include the establishment of totally new institutions, the strengthening of existing centers, and the building of firmer links among established centers, public and private.

President Kennedy in his address of May 17 to the Canadian Parliament proposed that the Organization for European Cooperation and Development "establish a Development Center, where citizens and officials, and students and professional men of the Atlantic area and the less-developed world can meet to study in common the problems of economic development." The creation of an adequately-endowed, National Center for Research on the Problems of Emerging Areas might similarly serve not only to dramatize the Government's interest in such problems, but to advance significantly its understanding of those problems. The National Center could be a cooperative venture among a number of universities, comparable to the Institute for Defense Analyses, or an entity on the model of the RAND Corporation. The national center might embrace a group of institutes. One can also envisage a series of independent institutes.

Arthur Mosher has suggested the establishment of an independent Institute of Agricultural Development to promote, finance, and conduct agricultural research. If the proposal is feasible with respect to agriculture, it is probably feasible also with respect to health research. Could an Institute of Technological Research help redress the imbalance to which Mr. Eckaus calls attention? He notes that the amount of technological research directed specifically toward the problems of underdeveloped countries is negligible by comparison with the amount devoted to improving the lead already enjoyed by the more highly industrialized countries.

Is the real problem the lack of properly-oriented, adequately-financed institutes à la RAND Corporation, or National Institutes of Health, or is it an absolute shortage of manpower qualified to undertake the research that is needed? Does the institute arrangement increase the availability of manpower by freeing trained personnel from teaching and administrative responsibilities and by attracting a supporting cast who learn by association with outstanding experts? Or is it just as likely to reduce the future supply of experts by separating some of our best teachers from fruitful, classroom contacts with a rising generation of potential specialists?

Instead of, or in addition to, launching new centers, it is surely desirable to strengthen existing centers. More and more of the leading universities in the United States and abroad have established centers for the study of African, Asian, Middle Eastern, or Latin American problems, or for the study of problems common to several of these areas. This raises the question of the need, if any, for closer links among such institutions, for links between such institutions and the Federal Government, and links between the research centers and research firms here at home with those abroad. The object would be to enable all centers to keep better informed about research conducted elsewhere, to advise them of the current requirements of policy-makers, and to provide financial support for needed studies that particular centers are qualified to undertake but would not otherwise tackle.

I am unable to muster much enthusiasm of my own for coordinating committees and grand panjandrums to guide us in doing what come naturally. On the other hand, if an Office of Development Research and Assistance is established as contemplated in AID, and if greater public financing of research in the field of international development is to be a feature of the 1960's, it is probably important that the government have the advice of a representative group of nongovernmental experts. A National Advisory Committee on Developmental Research, with adequate representation from the social as well as the physical sciences, could build on the foundations already laid by the Development Assistance Panel of the President's Science Advisory Committee. It could keep abreast of what is going on, initiate periodic appraisals thereof, and advise the government on procedural as well as substantive problems.

Those of us in touch with universities and private consulting firms operating under contracts with the International Cooperation Administration hear an unending, and at times unfair, series of complaints about the present system. With the help of a National Advisory Committee on Developmental Research, the successor to the ICA might become more flexible than the ICA has been, without in any way abdicating its responsibility for ensuring that public funds are spent only for legitimate public purposes.

Committees beget subcommittees, which beget working parties, which beget smaller subsidiaries, and so on--ad infinitum. It is easy to over-organize. Some may feel that, by and large, social scientists with training and ideas are not being starved for funds or facilities and are attracting promising new recruits to their respective fields in sufficient numbers. Adherents to this view may prefer the status quo, allowing the situation to evolve in its own decentralized, uncoordinated, groping way.

Whatever the auspices may be, further research--basic and applied--must be undertaken to provide new, much-needed insights into the development process. The proposals for new research included in the preceding essays vary in relevance, specificity, and urgency. It is clear to me that the placement of a question mark at the end of a sentence indicates that what has preceded the question mark is not a simple declaration of fact. It is by no means equally clear to me that the mere posing of a question proves that research is required, or is feasible, in order to answer the question. I recognize, though, that asking the right questions is a necessary first step in the identification of research needs. Most of the right questions have now been asked by the authors.

It is evident that one of the biggest voids is systematic analysis and evaluation of aid projects and aid experience accumulated during the postwar period. This immense reservoir of practical knowledge remains virtually untapped as yet and can be tapped only if the United States Government itself participates in a professional way in the research process. Much of the work must be done abroad, but the feed-back of results to research centers here and in third countries should be systematized and expedited. Each author bemoans the absence of accessible information on why specific undertakings are believed to have succeeded or failed. Some ingenious proposals are put forward for clearing-house services, for case studies, and for handbooks.

The accumulation of studies in depth, from which more valid generalizations about economic, social, and political development can be made, is an obvious necessity. It would be dangerous, however, to oversell research as a way out of our difficulties. The development process is incredibly complex and we cannot hope to close in short order the more serious gaps in our understanding. Meanwhile, operations must continue--indeed, must be stepped up--and improvements must be introduced as rapidly as the state of our knowledge and the skill of our practitioners permit.