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A Report to the
Office of Technical Cooperation and Research
U. S. Agency for International Development

by

Henry F. Dobyns
Allan R. Holmberg
Morris E. Opler
Lauriston Sharp

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Comparative Studies of Cultural Change
DEPARTMENT OF ANTHROPOLOGY
CORNELL UNIVERSITY
ITHACA, NEW YORK
1966

RECOMMENDATIONS FOR FUTURE RESEARCH ON THE PROCESSES OF CULTURAL CHANGE

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Office of Technical Cooperation and Research
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Comparative Studies of Cultural Change
Department of Anthropology
Cornell University
Ithaca, New York
1966

The recommendations made herein are those of the authors and do not purport to represent the views of the Agency for International Development. The material contained in this report is the property of the U. S. Government and may be reproduced in whole or in part with acknowledgement of source.

FOREWORD

This report has been prepared and written under Contract AID-csd-296 between Cornell University and the Office of Technical Cooperation and Research of the Agency for International Development.

Allan R. Holmberg, who died on October 13, 1966, was unable to participate in the preparation of the final draft of this report, which is dedicated to his memory.

Other reports in this series include:

a. Report on the principles of social and cultural change

This report will treat of individual physiological and psychological processes involved in cultural transfer with consideration of the importance of biological drives. It will discuss: stages of the cultural change process as it affects individuals, analyze social processes of cultural transfer, factors involved in cultural transfer between social systems in terms of the contract situation and antecedent characteristics of donors and recipients, demographic trends and social structures. This report will also treat of various techniques for cultural transfer, analyzing temporal and technological dimensions of the process.

b. Handbook of the practical applications for AID of the principles of social and cultural change

This report, written for the non-professional reader, will give special emphasis to the applications of the research findings to the problems confronting AID personnel at many levels. Using the framework of the principles of social and cultural change, specific examples will be given concerning foreign assistance and the outcomes of attempts to bring about change.

c. Report on factors in strategic intervention in community life

This report will deal with the problems relative to planned change. Examples will be given of programs in which innovations were attempted in formal educational systems, in the health and medical field, in agriculture projects, in local civic mechanisms, and in small industrial complexes, as these have an impact on the developmental process. Cross-cultural comparisons will be drawn to the extent available data permit.

d. Report on methods of analyzing change

This report will deal primarily with the methodological problems in studying the process of change, and techniques for promoting it. A brief exposition of the variety of approaches used in this and other studies will be given. Focus will be given to the particular methods of analysis found most successful in analyzing change. The questions raised in analysis of change according to value systems, and the kind of problems met in dealing with comparative rates of change will also be discussed.

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I. INTRODUCTION

In 1963, the Department of Anthropology at Cornell University undertook a program of comparative social studies for the Office of Technical Cooperation and Research of the Agency for International Development of the United States. One of the reports that the Department of Anthropology agreed to furnish the Agency was a set of recommendations concerning future research.

The present report sets forth the recommendations for future social research made by the staff of the Comparative Studies of Cultural Change. These recommendations are in one sense general, in that they include recommendations for types of social science investigation that may be outside the interest of the Agency for International Development, more appropriately sponsored by one or another organization, or simply beyond the capacity of the Agency. These recommendations are in another sense specific, in that they emphasize future lines of research in world areas relatively well known to the members of the staff of the Comparative Studies of Cultural Change. No attempt has been made in drawing up these recommendations to present a balanced recipe for Agency for International Development support of social science research all over the world. The staff of the Comparative Studies of Cultural Change does not include social scientists competent to prescribe the most productive frontiers of research in all parts of the world. These recommendations are, therefore, limited to world areas where Comparative Studies of Cultural Change staff members possess professional competence to identify research of potential value.

In drawing up these recommendations, we have attempted to keep in mind the special research interests of the Agency for International Development, and to indicate the lines of research we think to be most likely to contribute quickly and directly to increasing the efficiency of allocation of United States foreign aid. We have also sought to indicate those types of research that would best be sponsored by other agencies because of special sensitivities or other factors in the research situation.

To infer that a particular research activity that we recommend for Agency for International Development sponsorship is, therefore, "applied social science," and that activities that we discuss without such a designation are "basic research" would be to make an erroneous inference. For the line between basic social science research and applied social science research is tenuous at best, since so-called

"applied" research frequently yields significant theoretical advances, and so-called "basic" research often proves theoretically sterile.

As we have drawn up these recommendations, furthermore, it has appeared to us that the rather uneven state of social science research in the parts of the world with which we are most familiar results in instances of what social scientists would typically consider "basic" research from a professional point of view becoming eminently "applied" research in terms of the informational needs of the Agency for International Development and similar organizations providing foreign assistance.

In any event, we heartily second the recommendation made to the Agency by the Hon. John W. Gardner (1964:19): "The Agency should not hesitate to support research that does not have immediate, visible utility. Basic research on social processes may provide the quickest path to new insights into the development process."

II. LIMITATIONS OF COMMUNITY STUDIES

One of the main currents of anthropological research conducted by United States anthropologists during the past 35 years consists of community studies. There are several good reasons for concentrating on community studies. As a movement away from the sometimes vague generalities of earlier tribal studies, the studies of specific settlements have constituted a productive scientific corrective. They have, moreover, opened new vistas on the cultural change process, both in general terms and in the specific problem of the special characteristics of peasantries.

Scientific reasons for studying communities have been reinforced by practical considerations as well. A single community, if its population be small enough, can be studied by a single anthropologist within one calendar year. Institutions in the United States that provide research funds, and particularly funds for doctoral dissertation field research, have tended to grant funds for calendar year periods. Thus, the community has become a convenient unit of study for anthropologists trained in the United States.

Anthropologists who join the ranks of university professors after earning the Ph.D. degree tend to be caught up in university committee assignments, teaching commitments, and personal affairs. These activities enmesh the social scientist to such an extent that the time he spends in field research after the doctoral research usually is sharply limited. Thus, one community study constitutes the primary scientific contribution of numerous anthropologists recruited for teaching positions.

Those anthropologists who have spent appreciable amounts of time carrying out field research after the doctoral research typically work for non-academic institutions with a research mission during the period of active field work. The Institute of Social Anthropology of the Smithsonian Institution kept several anthropologists in the field for several years during its existence (Brand 1951; Foster 1948; Kelly and Palerm 1952; Gillin 1947; Tschopik 1947; Pierson 1951.) The Smithsonian Institution itself tends to capitalize upon the scientific training of its staff anthropologists during a much longer portion of their professional careers than do academic institutions employing anthropologists with equal initial training.

When the anthropologist remains active in field research with a non-academic or academic institution, he frequently carries out studies of additional communities, in attempting

to solve specific research problems or in an effort to expand the sample of community studies available for comparative analysis (Bunzel 1940, 1959; Beals 1946, 1952; Doughty 1963a, b; Doughty and Negron 1964; Foster 1942, 1948; Gillin 1947, 1951; La Farge 1947; La Farge and Byers 1931; Parsons 1925, 1930, 1936a, b, 1945; Redfield and Villa 1934; Villa 1945; Redfield 1930, 1941, 1950; Spicer 1940, 1954; Martinez y Verburg 1964; Verburg, Arceituno and de Guevara 1962; Wagley 1941, 1949, 1953; Willems 1952, 1961).

Community Sample Characteristics: The Latin American Case

The result of these circumstances has been to make the community study one of the mainstays of anthropological analysis. This is the principal type of social science protocol available for analyzing the peasant populations of Latin America, and other regions of the world. Far more anthropological research has been carried out on tribal Indians in the New World, proportionate to their population, than on the peasants and city dwellers. A great body of fundamental anthropological theory is firmly grounded upon tribal studies, and the wide range of cultural variation among tribal peoples continues to attract the theoretician. At the same time, few sociologists have yet devoted sustained research attention to Latin America. Thus, the anthropological community study constitutes the most important class of modern social science data available from many sectors of the Western Hemisphere (e.g., Mexico: Aguirre 1958; Bailey 1958; Fuente 1949; Hendry 1957; Holmes 1952; Leslie 1960; Lewis 1951; Madsen 1960; Owen 1959; Pozas 1959; Ritzenthaler 1956; Taylor 1960; Taylor 1933; or Guatemala: Grollig 1959; McBryde 1933; Nash 1958; Oakes 1951; Paul 1950; Reina 1960; Saler 1960; besides works already cited).

For this reason, it is important to consider the present limitations of the community study literature as well as its scientific advantages.

The effective beginning of accumulation of community studies by U. S. anthropologists was 1930, when Robert Redfield's Tepoztlan was published, although the pioneer Mexican study appeared eight years earlier (Gamio *et al* 1922). The consequent accumulation of studies of Latin American communities has reached a point permitting some first attempts toward generalization about Latin America.

Many Countries Not Represented. One analysis of community social institutional differentiation theoretically related to development was able to find 54 community studies

sufficiently detailed to provide the data required for secondary analysis. These 54 studies came from only 12 countries, however, and 39% of them from Mexico alone, 19% from Guatemala, and 11% each from Brazil and Peru, with no other country represented by more than 4% of the sample. (Young and Fujimoto 1965:345).

Another analysis of patterns of utilization of alcoholic beverages in Latin America was able to locate 105 studies with pertinent data. The geographic distribution of these studies is indicated in Table 1.

TABLE 1. ACCUMULATION OF COMMUNITY STUDIES OF LATIN AMERICAN SETTLEMENTS IN DIFFERENT COUNTRIES FROM 1930 TO 1965.

Nation	Number of Studies	Percentage of total	Number of Communities Studied	Percentage of total
Peru	33	29.2	32	31.1
Mexico	37	32.7	30	29.1
Guatemala	15	13.3	11	10.7
Colombia[1]	6	5.3	10	9.7
Brazil[2]	6	5.3	6	5.8
Ecuador[3]	3	2.6	3	2.9
Bolivia[4]	5	4.4	5	4.9
Venezuela	2	1.8	1	0.9
El Salvador[5]	1	0.9	1	0.9
Paraguay[6]	1	0.9	1	0.9
Cuba[7]	1	0.9	1	0.9
Costa Rica[9]	1	0.9	1	0.9
Uruguay[10]	1	0.9	1	0.9
Colombia and Mexico	1	0.9		
13 nations	113		103	

Besides works already cited:

1. Fals-Borda 1955; Reichel-Dolmatoff 1961
2. Hutchinson 1957; Maria de Jesus 1962; Simao & Goldman 1958
3. Rubio Orbe 1956
4. Arratia & Jijon 1965; Perez 1962
5. Marroquin 1959
6. Service & Service 1954
7. Stabler 1958
9. Loomis et al 1953
10. Pi & Wettstein 1955

One limitation on the utility of presently available community studies as an adequate sample of all Latin America is immediately visible in this table. Only 13 of the Latin American nations are represented in the sample at all. No community study was found to represent Honduras, Nicaragua, Panama, the Dominican Republic, or, astonishingly, Chile, or Argentina! This situation suggests one order of priorities in future anthropological research in Latin America: the prompt study of representative communities in those nations where none has yet been studied.

Uneven Temporal Distribution. The temporal rate of accumulation of anthropological community studies since 1930 is indicated in Table 2, by periods of five years. Over half the available studies were published during the decade from 1951 through 1960, with the 1955-60 period the most productive to date. As a matter of fact, the rate of accumulation of community studies appears to have fallen off somewhat during the 1960's, a trend with potentially serious consequences.

TABLE 2. ACCUMULATION OF STUDIES OF INDIAN, MESTIZO, AND MIXED COMMUNITIES IN LATIN AMERICA FROM 1922 TO 1965

5-year periods	Type of Population Studied (% of studies in 5-year period)			Total Number	Percentage of Studies in each 5-year period
	Indian	Mestizo	Mixed		
1961-65	16 (48.5)	5 (15.2)	12 (36.4)	33	28.9
1956-60	12 (34.3)	6 (17.1)	17 (48.6)	35	30.7
1951-55	12 (54.5)	2 (9.1)	8 (36.4)	22	19.3
1946-50	6 (60.0)	0	4 (40.0)	10	8.8
1941-45	5 (83.3)	0	1 (16.7)	6	5.3
1936-40	2(100.0)	0	0	2	1.8
1931-35	2 (50.0)	1 (25.0)	1 (25.0)	4	3.5
1930	1(100.0)	0	0	1	0.9
1922	1(100.0)	0	0	1	0.9
Totals	57	14	45	114	100.0

High Proportion of Indian Communities. Another limitation upon the presently available sample of community studies is indicated in Table 2. This is the high proportion of Indian communities studied relative to the proportion of non-Indian communities, particularly in view of the relative size of the Indian and non-Indian populations of the Hemisphere. The long-term scientific concentration of anthropologists on tribal societies is clearly reflected in the proportions in Table 2. The rising number of non-Indian communities studied in each five year period until the 1961-65 epoch suggested that anthropologists were increasingly coming to grips with the scientific task of defining the basic characteristics of non-Indian as well as Indian society in Latin America. The drop in number and proportion of non-Indian communities reported upon in the 1961-65 period indicates that anthropological study of non-Indian communities needs to be re-emphasized.

Many Studies Incomplete in Scope. Another limitation on the present store of social science studies of communities lies in their scope. This factor affects the specific sample of studies that turns out to be of utility in any given secondary analysis. Some monographic or book-length studies will not contain any data relevant to a particular secondary analysis because their authors focused on completely different problems in reporting or in their original field studies. These gaps can to some extent be remedied by utilizing shorter studies specialized to the topic of secondary analytical interest. Thus, the analysis of patterns of consumption of alcoholic beverages in Latin America can rely on several specialized studies of basic importance for this subject where full-scale community studies are lacking or scanty (especially Bunzel 1940; Heath 1958; Sayres 1956; and Viqueira and Palerm 1954; supplemented by Bushnell 1958; Metzger and Williams 1963; Nader 1964, 1965; Pardo R. 1957; and Sanjinés U. 1965).

Most Communities Studied are Rural. Another serious limitation on the extant Latin American community study data is that the settlements studied are rural, so that valid generalization is limited almost entirely to the rural sectors of even those countries where numerous communities have been studied. While internal migration has drawn some scientific attention, the structure and functioning of the city have been the subjects of little social science research outside the United States (Sjoberg 1959:338, 356-359). Anthropologists have written a good deal about urbanization in sub-Saharan Africa, and French social scientists have studied North African cities. In Europe, of course, much information is available on urban history, ecology, and social structure.

Comparatively little information exists on Latin American cities (Sjoberg 1959:336).

The Agency for International Development carries on foreign assistance programs in Latin American countries for which no community studies are available, and in countries whose non-Indian populations have been little studied relative to their Indian populations, and in countries whose urban populations have been little studied relative to their rural populations. Perhaps one of its major research initiatives should lie in sponsoring community studies that would fill in these principal gaps in the scientific data record. The Agency for International Development occupies a strategic position for generating community studies to fill in existing gaps, and not only in the Latin American sample, but in other regions as well where data samples are similarly biased. It can take the initiative with social scientists, by seeking individuals or groups of researchers capable of and willing to carry out such studies.

In sponsoring community studies to fill in data gaps, both rural and urban, the Agency for International Development would sponsor basic and applied scientific research at one and the same time. Community studies in the areas indicated above would constitute basic scientific studies from the point of view of the social science community because they provided information on areas and populations now unknown or little known. At the same time, such community studies would be applied scientific research from the point of view of officials of the Agency for International Development and of the countries concerned, since they would provide data of greater precision than any now available that would be useful for guiding decisions about development efforts.

Relations Between Community and Nation

At the same time that there is pressing scientific and practical need for additional community studies in particular areas and of particular populations, there is an equally pressing need for studies of a different order. These are studies of the social structures articulating local communities into regions and ultimately into nation states, the social structures through which new or additional transactions, and thus innovations and cultural change, occur.

It seems to us that the description and analysis of social structures linking the community and the nation constitute the most neglected aspects of contemporary studies of countries, and are a most important task confronting social scientists today. There is at least the foundation of understanding of how communities function, although there is

a pronounced tendency for anthropologists to treat specific settlements analytically as functioning in a completely artificial isolation from supra-community social organizations. There is at least the beginning of characterization of national characteristics, even though none of the national populations involved in current development efforts has ever been tested for personality traits with "adequate" psychological instruments nor on an "adequate" sampling basis (Inkeles 1959:267-268).

Studies of Intermediate Level Social Structures. What is woefully lacking is even the beginnings of data collection, much less analysis, of the social structures between the local community and the national level of abstraction.

Convinced as we are of the acute need for studies of intermediate level social structures, much of what we say about future research in the chapters that follow departs from this fundamental conclusion. That the available samples of community studies are inadequate and need augmenting is clear. At the same time, the choice of communities to be studied should be guided by increasing knowledge of the position and place of particular settlements in regions and nations, so that the choice of problems to be analyzed in a particular community context may become decreasingly random and increasingly productive scientifically. Scientific advancement depends to a significant degree upon discovering particular bodies of facts (Merton 1959:xiv), which then permit the precise formulation of scientific problems for further investigation. Much of the social science research sorely needed at the present time is simply the gathering of particular facts about intermediate level social structures.

One promising technique for defining significant social structures at the intermediate level, and for identifying those which are actually producing cultural change in the rural population, is the comparison of socio-economic characteristics at a minimum of two points in time. An example of the baseline component for such a comparison aimed toward discovering dynamics of change already financed by the Agency for International Development is a survey of agricultural development factors in Kenya (Ashcroft and Naylor 1965).

III. RECOMMENDED REGIONAL STUDIES IN INDIA

Indian Village Community Studies

For a long time it was assumed by social scientists interested in India that the Indian village community was the ideal unit for study and analysis. The great majority of people live in the rural regions of India, and most of them reside in settlements or house clusters rather than on scattered homesteads. The people who live together are associated with a definite amount of land, which normally includes their house sites, the surrounding fields they cultivate, and perhaps, in addition, some common lands and orchards for grazing, community use, and gatherings. The extent of the village lands was well known, and the boundaries were usually marked. The village bore a name, and its inhabitants were identified with that name. It had a recognized corporate existence; it was subject to a specified tax; an official map recording its boundaries and divisions was kept in the land records office; it had a petty official assigned to it who was supposed to report all births, deaths, serious crimes, and epidemics which occurred within its borders; it had a headman, to whose home officials and visitors were directed. Most villages even had their own individual protective godlings.

An added advantage for research purposes was that one village looked a good deal like another of the same area. The rhythm of life in these communities seemed quite uniform; the methods of cultivation and the tools employed were very similar. Identical major ritual and social events were observed and were carried on in much the same way and often at the same time. The units appeared to be almost interchangeable, and it was anticipated that the study of a relatively few well-chosen examples would tell us most of what we wanted to know about Indian life and thought.

Not only was the Indian village a convenient unit for study and analysis, but it was considered the strategic and necessary social segment to know thoroughly if change and development were to be induced. The village was considered stagnant and bound to tradition. If the nation were to be able to feed itself and to accumulate a surplus that would permit investment and development, the village would have to be stimulated to greater effort, efficiency, and productivity. When programs to achieve these aims were inaugurated, their effects would have to be noted and measured. It looked as though the village study in India would be a basic avenue of research for some time to come. This view of the importance of the village was supported by the Gandhian outlook, which saw in the small, intimate, uncomplicated social body the ideal environment for the useful and ethical life.

In one sense the studies of the Indian village community have verified the concept of its importance and central place, for new evidence of the solidarity of its residents and its unity has come to light (Singh 1956; Freed and Freed 1966; Freed 1963). It has also become apparent that any investigation must go far beyond the study of individual villages in isolation. A number of research interests that might profitably be pursued and their pertinence to problems of development will be discussed briefly.

Classification of Village Types. One of the essential research tasks for the immediate future is a classification of village types. Some villages are inhabited by members of one caste only. They are Brahman villages or Rajput villages or Jat villages, for example. This may affect the settlement pattern, for where there is no caste obstacle to social intercourse, the people may live more compactly and satellite hamlets are less likely to appear. The status and caste work of the sole resident caste will to a large extent regulate movement to and from the village for economic purposes. If it is a high-caste employer group that occupies the village, the movement of workers will be primarily into the village to perform the required services. If it is an artisan, service, or worker caste, its members will continually fan out into the villages of the vicinity to carry out their tasks. Though friction and factionalism are by no means absent in all single-caste villages, their leaders normally have less difficulty keeping animosities under control than is the case in multicaste villages.

Multicaste villages with a dominant caste pose somewhat different problems. Usually a caste is "dominant" by virtue of status, wealth, and numbers (Srinivas 1959). In dealing with a community of this type, the difficulty is to obtain the cooperation of the local leaders and yet to carry forward programs which benefit members of minority castes.

Villages may differ significantly because of their past histories. In communities where the land was owned by absentee landlords and the possibility for the local population to shape its destiny was small, participation in village affairs may be little developed, and more effort to encourage leadership may be required. Past history may account for patterns in village size, as well. In western Uttar Pradesh, where continual political and military turbulence had driven people together for safety, larger and more compact villages are more likely to be encountered than in the eastern part of the state.

Religion is another factor [illegible]ferentiating villages. The great majority of the people a[illegible], but there are also a great many all-Muslim villag[illegible] India. The inhabi-

tants of these villages not only differ from their Hindu neighbors in ritual life, but their work and food habits contrast in some respects. More important, as long as the trouble with Pakistan over Kashmir persists, these Muslims will be apprehensive over their future in India and will find it difficult to throw their full energies into development efforts.

In any typology regional differences have to be considered. It is well known that nucleated settlement patterns are characteristic of some parts of India and that scattered home sites are more common in others. Such variations must be taken into account in connection with land reform and land consolidation measures. Regional deviations also extend to less visible features of village life; for instance, contrasts in social organization have been charted (Karve 1953). Since inheritance and the economic exchanges and ties growing out of marriage are related to the social arrangements of the area, it may be helpful in planning to know them.

Individual villages can doubtless be classified into types on the basis of these and other criteria, and the recognition of these types may prove quite useful in development work. In fact, the recognition of a type, or some feature of a type, has often emerged out of development efforts or problems. Yet the village is only to a limited degree an isolate. Its extensions or involvements with the outside must not be minimized. Some of this is due to village exogamy or the custom of arranging the marriage of a girl of a village to a youth of another village. The elaborate rules that govern these marriage arrangements and the networks that arise from them are only now being carefully studied (Mahar 1966; Cpler 1956; Rowe 1960).

The Village Cluster. Another inquiry which promises to throw light on village extensions and interrelations is the study of the village cluster. It is becoming more and more apparent that on the basis of traditions of origin or on the basis of the division of work within a region, villages are grouped into clusters. Thus, in an area with which the writer is familiar, a group of villages will have a tradition of a common founder who conquered or pacified the area and who was responsible for its settlement. Many of the villages will trace their origin to one of the founder's descendants who made his home at the site. Villages of boatmen along the Ganges belong to clusters which cooperate to control the river traffic of the vicinity. Competition is regulated, inter-village disputes are adjudicated, and enterprises such as the support of a religious shrine are jointly undertaken. The villages in such clusters have enough in common so that they are capable of cooperation at various levels. The writer

has evidence that one cluster acted more than once in the past to defend its boundaries by military action. More recently it has sponsored a small industries complex (Opler n.d.). The study of such clusters and the manner in which they can be drawn into cooperative ventures and development work is just beginning and promises to be significant.

The Town

Because the Indian states, with the assistance of the central government, are the most active agents of development and change today, the town (which is the headquarters of the subdistrict of the state and is the government center closest to the local level and the people) has assumed a good deal more importance than in the past. Village representatives go there much more frequently now on legal business and on official errands, and the government seed and improved implements store, land records office, etc., are ordinarily housed there. Government dispensaries and schools above the primary level are usually to be found there as well. Since the villagers come to the town in greater numbers because of their increased involvement with government, the traders and businessmen seek to take advantage of their presence. As a result, most subdistrict headquarters have become more important market towns and trading centers than they were in the past. One of the directions research might well take is to explore the expanded role of the subdistrict headquarters and its relation to the rural area it serves.

The Rural Development Block

In the course of its work the Community Development Program and the National Extension Service of the Indian Government have divided rural India into blocks, or groups of villages numbering from 100 to 300 each. These blocks are now becoming the basis for administrative structure as well as development efforts (Mosher 1966). A few studies of the programs launched in these blocks are now available (Dube 1958; Hitchcock and Minturn 1963). Many more are needed.

Land Consolidation Movement

One of the most ambitious land reform programs ever attempted in India is now under way. This is the land consolidation movement. The traditional inheritance practice in India has been to divide property equally among the sons at the death of the father. Of course, if brothers lived and worked together as a joint family, the land was not actually divided, though each of the male heirs owned his "share" of

it. Eventually, however, separation of family units took place, and the land was fragmented. As a result, the agricultural lands of a village may be broken up into literally thousands of plots, some of them ridiculously small. An individual farmer or his family may own a large number of such plots, scattered all over the village area. This situation does not invite efficiency. Precious land is lost in creating paths and retaining walls around individually owned pieces of land. Since the tools have to be carried from place to place, only light-weight equipment is utilized, regardless of efficiency. The small, scattered plots offer little inducement to the purchase of large, powerful draft animals. It is almost impossible for an owner to protect growing crops in such scattered fields from human or animal marauders, and, as a matter of fact, it is not uncommon in village India for someone to take revenge on an enemy by damaging his growing crop in some isolated field with impunity and without fear of detection.

The land consolidation movement, which seeks to overcome these difficulties, is a national effort, but each state is implementing it in its own way. The central tendency is to work out a system of equitable exchanges so that a farmer concentrates his landholdings in one place, with his largest present parcel of land as a nucleus.

The land consolidation movement is being coupled with the requirement that landholdings which are now, or which after consolidation will be, at least a certain minimum size (6-1/4 acres is the stipulated size in one state) may not be divided below this point. Since the inheritance laws have been made more elastic than ever before and permit daughters as well as sons to inherit family property, it is going to be extremely difficult to make a fair and acceptable distribution of family assets without a division of what is most valuable and prized, the land. Studies are needed, not only of the mechanics of land consolidation, but also of the degree to which its fruits can be preserved through the years in the face of the pressures for fragmentation that are certain to mount again.

The incessant fragmentation of the land into smaller and smaller plots has led landowners to a desperate attempt to hold and augment what is left. Consequently, boundaries are often uneven or in dispute, and lanes and public lands are constantly invaded by cultivators trying to extend their fields. As land consolidation proceeds, boundaries are being squared off, and paths and roads of standard width are being built through villages and between villages. It is hoped that these improved communications will encourage trade and better marketing practices and that they will act as highways for new ideas and new contacts, as well as for produce.

There are those who expect that land consolidation will lead to new settlement patterns in large areas of India. The usual pattern, especially in the North, has been for the people to live in compact settlements surrounded by the village farmlands. This arrangement offered some safety during the long periods of warfare between Hindus and Muslims and between contending princes in the past, and it also has been considered a means of saving arable land. Because a family's landholdings were scattered all over the area, there was little reason for establishing the family home on any one parcel. After consolidation, so that the land can be better guarded and more easily worked and supervised, there will be a real inducement, it is felt, to establish the family home on the land. There will be contrary pulls as well. Indian women, particularly of the wealthier, land-owning families, are, for the most part, restricted by social convention to the vicinity of their homes. At the present time they find a social outlet in visiting women of their own caste who live in adjoining houses or in the same quarter of the village. They would not take kindly to the increased isolation which would attend the establishment of separated homesteads.

It has been predicted that after the successful conclusion of land consolidation a much greater use of heavy farm machinery can be expected. Those whose landholdings are large enough are likely, after consolidation, to purchase such heavy equipment as tractors. Those who have substantial holdings but who cannot afford by themselves to buy expensive farm machinery will, it is thought, work out cooperative understandings with neighbors who are in a similar position. Whether the incentives, resources, and technical knowledge exist to make this feasible in the immediate future needs to be explored.

Obviously, a good deal of effort is going into the land consolidation movement, and there is high anticipation concerning the results that can be expected. The forces that dictated the program are complex, and there are many pitfalls that will have to be surmounted if it is to accomplish all that is intended in the way of rationalization of agricultural methods and enhancement of agricultural productivity. Undoubtedly adjustments, both legal and practical, will have to be made as experience is gained. Thus it will be important to inaugurate research very quickly into the consequences of land consolidation and the degree to which its promise is being realized, so that its future course can be guided by the best information and insight available.

Migration to the City

The scarcity of arable land, the increase of population in the rural regions, technological improvements in farming practices, better communications with the outside world, higher educational standards and the related enhanced aspirations have stimulated migration to the city by young men from the countryside seeking employment. A few pilot studies of this movement have been made (Eames 1954; Hopper 1955; Lambert 1963; Rowe 1960b; Simon 1966), but its magnitude and significance require much more attention. We need to know the numbers involved, the proportion of the migrants who take their families with them, the percentage of the workers who remit earnings to their rural relatives, the effect of this on the rural economy, the percentage of these migrants who find steady and desirable employment and who make a permanent break with the village, the consequences for the social fabric of the village of the departure of so many of its youths, the effect of this influx on urban centers, the conditions of life for the new arrivals in the city, and the trends and prospects that seem to be in the making. It is reasonable to believe that the planning of metropolitan areas which is now in progress would be considerably helped by additional information about what can be expected in the way of further migration and what additions are likely to be made to the permanent urban industrial labor force. Many issues such as those dealing with labor union strength, slum clearance, and public health can be greatly illuminated by such studies.

The amount of urban migration that has been going on and the augmented problems of the swollen centers of population which have resulted have given new meaning and urgency to efforts, through the creation of small industries centers, to keep population dispersed and yet employed and productive. These are enterprises of the middle range, which draw from the labor supply of a prevailingly rural area and which offer the region opportunities for investment, employment, processed goods, and technical education. Every Indian state now has some department or unit to encourage such undertakings. A sufficient number of these efforts is now in existence to warrant comparative analyses of them. The writer has recently made a preliminary study of a small industries pilot project in eastern Uttar Pradesh and feels that there is a need for many more inquiries along similar lines. These can be designed to tell more about what is required in the way of local resources, skills, capital, etc., to launch such an undertaking. The degree of state aid and direction that is desirable, the possible use of cooperatives in organization and direction, and the relation to communications networks and markets are other lines of investigation that may prove useful.

Social Effects of Hydroelectric Projects

Hydroelectric projects which were inaugurated after independence in 1947 are now coming into operation and are beginning to supply power. The manner in which this power is being used is a subject of great importance. A good deal of national wealth has gone into the massive dams and installations that now furnish the power, and it is crucial to the future growth of the nation that the benefits be used for the most productive purposes. There is some indication that this may not always be the case. A recent survey by a team of Indians and Americans, organized by the General Electric Company and Stanford Research Institute, revealed that a great deal of the new power supplied was being used for illumination rather than for industry (General Engineering Laboratory 1962). On the other hand, it is sometimes very difficult for an industrial enterprise to obtain a reliable and ample supply of power for its operation (Opler n.d.). Studies would very likely yield some useful suggestions concerning the planning, timing, and technical and financial resources necessary for the best utilization of the power that is increasingly becoming available.

Family Planning

Figures have just been released, based on the 1961 census and studies which have been made since then, which estimate India's present population at approximately 490,000,000 people. This would suggest that the increased expenditures on behalf of family planning and the educational program to popularize birth control practices have as yet had little, if any, effect. Most of the studies carried out so far to help with birth control problems in India have either been demographic surveys of family size, mortality, and morbidity or have been attempts to measure the amount of interest in and sentiment for limitation of family size among a sample of Indians. Usually the material is gathered by means of questionnaires or structured interviews.

Such information is, of course, important, and studies of this kind should not be abandoned, particularly because we need to be aware of any significant shift in sentiment relating to the subject. Statements of concern, however, unless they are backed by the power to act, will bring few practical results. The expression of interest in limiting family size on the part of a woman who is barred by convention from seriously discussing the matter with her husband or with family elders and who dares not act on her own initiative is only a misleading statistic. Not long ago the writer tried to sum up some of the realities of the relations between the sexes and within the family in one part of India in an effort to illustrate the conditions and forces which any family

limitation campaign must take into consideration (Opler 1964). Studies of this kind from many parts of India could do much to direct efforts more strategically and, it is to be hoped, more successfully.

Restudy of Villages

As a final recommendation for research, the writer would emphasize the possibilities inherent in the restudy of villages or localities previously investigated (Basu 1962; Mandal and Sengupta 1962). Interest was centered on India by the events leading to Independence, by its stormy aftermath, and by the massive aid, rehabilitation, and development plans which came into being through both internal and external initiative. Western scholars and their Indian counterparts were soon engaged in making a fairly large number of studies of the social, economic, and religious life of local Indian populations. Some of these studies are now nearly twenty years old. Important national programs in political life, education, land ownership and use, taxation, inheritance, relations between the sexes, and community development have been launched since then. The baseline reports we have invite a restudy of the settlements described that will give some indication of the direction and pace of the changes that have taken place, of their relation to the planned efforts, of the degree of success achieved, and of the nature of the programs that have lagged. A pioneer attempt at a restudy of the economic life of an Indian village which was recently concluded (Simon 1966) shows the possibility, not only of furnishing interesting comparative material at two cross-sections of time, but also of pointing to the factors which have been most important in the changes that have taken place. Needless to say, such an understanding of response and process can be most useful in interpreting trends and in drawing up plans for the future.

IV. RECOMMENDED TYPES OF STUDIES IN THAILAND

Our natural tendency on first meeting a foreign cultural system is to read into the signals or communications we receive from its members interpretations based on our own cultural experience. This is particularly true in a congenial country such as Thailand which is notably tolerant of curious foreigners and which traditionally prescribes that a pleasant politeness should obtain in public social relations between host and guest or superior and inferior. To Americans, whom they genuinely like and respect, many urban Thai seem hardly foreign, and especially the urban elite with their education, western manners, and adequate or better English, the Thai whom most Americans know best. The rural Thai farmer, on the other hand, with his archaic technology and apparent satisfaction with an incredibly low cash income, seems pitifully strange, difficult, and problematic.

Misinterpretation and ignorance of many Thai cultural behavior patterns still hagride official Thai-American relations, and will until our knowledge of all Thai culture is improved. The American advisor may come to feel that he knows well those Thai with whom he has to deal; but he may fail to realize how little such Thai know of their own peasant countrymen, constituting over eighty-five per cent of the population, with whom the American may thus ultimately be most concerned. Many Thai officials in Bangkok have been brought up in one region and may never have traveled beyond it except to the capital city. Concerning farmers of the rural central plain, the khon muang of the north, the northeastern Thai-Lao of Isan, or the Thai-Malay of the peninsula, they will typically know little or nothing beyond the stereotypes of school texts and city dwellers.

No foreign technical advisor would think of devising development plans for provincial or rural Thai without some on the spot investigation. Nonetheless, alone or accompanied by a westernized urban Thai counterpart, the questions he asks of an affable peasant may be more relevant to the situation of a Yorkshire or Iowa farmer than to that of a Thai worker in his paddy-field. If the advisor is assigned to continue working in the countryside he comes up constantly against the realities of the local peasant world and is eventually forced in some degree to come to terms with that world. At this point he must realize and remember that the real world of a particular peasant or of the peasant's village is not the whole Thai world, however much Buddhism, Singer sewing machines, the King's portrait, and the general iconography of a unified, centralized state may produce an appearance of national homogeneity.

The foreign advisor cannot possibly deal with the realities of all rural Thailand, with some fifty thousand hamlets or mu ban. He may reach most of these villages with some printed message passed down through the administrative organization or some broadcast advice sent out over the national radio network of the country; but there is no feed back to him, even if he is assigned to a provincial headquarters. Any planning he does must inevitably to some extent be on a macroscopic scale, removed from the realities of many variant villages to a higher level of abstraction. In this situation he almost inevitably slips back into his western idiom, his questions are framed with relevance to western problems, and his solutions may be more appropriate to a modern western state than to Thailand. And his views will be supported by his educated Thai associates.

Limitations on Thai Development Planning

Much of the planning for the development of Thailand which has been done so far has been of this standard conventional kind, done essentially in the abstract from a western orientation at a distance and with concessions only to the most obvious particularities of the general Thai way of life. For some problems this way of planning does not matter; mosquitoes are mosquitoes, in Thailand as elsewhere, and DDT will suppress them. An all-weather road, planned solely on an engineering cost-efficiency basis without regard to its potential cultural effects, will nonetheless stimulate the formation of tributary cart tracks, change elephant caravan itineraries, and support the establishment and development of informal markets. The results of foreign and domestic investment in the planning and implementation of developmental projects made on the basis of conventional western standards can be evaluated by western criteria, even in Thailand, and found to be good, or at least not harmful. Thus past programs of building up a national infrastructure of capital equipment have seemed sensible as they have given Thailand improved railways, waterways, and highways; flood control, irrigation, and hydroelectric power; better strains of rice and cattle; better means of mineral or forest resource exploitation; and more persons trained to some greater degree in administrative and management skills.

It is known, of course, that after nearly two decades of such developmental programs the economy of Thailand today is not badly off by any standards. Its currency is sound, its foreign exchange credits are large and continue to build up rapidly, indices of economic activity show a seven per cent annual gain, and no one is starving.

Several questions, however, remain unanswered. There has been economic development, but is there economic growth? Has Thailand passed the Rostowian point of "take off" from the pad of poverty and reached a point of "self-sustaining" ascent or effortless flight supported by a benign atmospheric environment? What, indeed, is the current environment of economic development in Thailand? Unfortunately, the economists cannot tell us whether a high rate of capital investment brings about a high rate of economic growth, or whether it is a high rate of growth that brings about a high rate of capital investment. Nor can the economist tell us in any measurable or exact way the extent to which foreign aid input has actually contributed to the present general state of the Thai economy; nor even, given an improvement in the usual indices, whether this actually means an overall improvement in general material welfare, whether all Thai peasants are actually better off, whether they enjoy a real expansion in their range of economic choice, or even whether they have lost their "verdammte Bedürfnislosigkeit".

From the point of view of American government contributions to programs of aid to Thai development, it must be admitted in all honesty that the really pertinent questions apply less to the clearly viable Thai economy than to the Thai polity. For our government aid to the development of the Thai economy is based on the quite unproven underlying assumption that an economically better off peasant is a happier peasant, that he is less likely to join a Communist cadre or take part in any other revolutionary action but rather is more likely to support a regime approved by the United States. But the political scientists can hardly tell us the extent to which American technical aid programs to Thailand have contributed to peasant content with things as they are going, whether they have enhanced "the structure of hope" for the common man, or even whether our efforts to improve manpower resources through training programs have actually increased efficiency of operations in the Thai polity and society.

In this situation after almost two decades of activity it would seem appropriate for the Agency for International Development to try to discover the extent to which it is dealing with economic and social realities in Thailand as over against the possibility that it is basing its operations on conventional Western categories of economic and social analysis which may not be wholly relevant to the Thai situation or may not be producing desired results which are potentially possible of achievement. We know that Thailand is doing well. But whether Thailand and the Agency for International Development are doing as well as they might, we do not know.

In designing and implementing its wide range of programs in Thailand, the Agency for International Development and its predecessor organizations have been highly rational in the use of available research data, studies, and recommendations. If we claim that western trained Thai scientists and the relatively short term Operations Mission personnel who have devised and supervised the American aided projects have tended to view the Thai scene through western tinted glasses and have used for the solution of Thai problems only western categories of analysis, we must also note that no other means have been available for dealing with the situation. Indeed, the paucity of solid information of any kind on Thai society and its habitat must be recognized and stressed, which simply means that scholars trained to provide such information have been in short supply.

When American aid programs began in Thailand after the Pacific War, social data were inadequate or non-existent, social analysis was homespun, and original social research by either Thai or foreigners was hardly encouraged. Only a handful of foreign and Thai social scientists capable of doing research in Thailand were available; the vast majority of Thai given advanced training at home or sent to study abroad before the war worked in the technologies or natural sciences with the bulk of the remainder in law or education. In the intervening two decades a whole corpus of information has been built up. In the past few years over one hundred and fifty foreign social scientists have been conducting research in Thailand, supplementing the research of an unknown but not large number of Thai trained in the behavioral science disciplines. The Agency for International Development has itself helped provide advanced education in the social sciences for young Thai, as in the program in public administration at Thammasat University which in the training process contributed important studies of local and national government carried out by Thai and Americans. And in a farsighted move in 1965 a unique Research Division was established in the United States Operations Mission in Bangkok, staffed by an economist, political scientist, and anthropologist who work closely with Thai social scientists.

Models of Thai Cultural System Inadequate

In the accumulation of data which will help us understand the organization and operation of the Thai cultural system as a whole and in its several sectors we have at last reached a stage in which a fairly complete model of main features can be provided. Such a picture of Thailand is indeed given in recent volumes, for example, the handbooks compiled by the Human Relations Area Files of New Haven or by

the United States Army through contracts with American University. These compilations, which attempt to summarize what is known about all aspects of modern Thai life, well illustrate the difficulties facing those responsible for determining and carrying out policies for national development in Thailand who seek to use available information as a guide. Much of the information is "thin" both in regional coverage and in depth for any given topic; this simply represents the poverty of accomplished research noted above, which would doubtless be recognized by anyone responsible for formulating developmental policy relating to the area or subject in question. But even were the information adequate, the model of Thai society presented in such volumes is disjointed and fails to show the interrelationship of the various parts of the system or even to indicate what the systemic elements are. This failure to deal with the dynamic aspects of Thai society is the characteristic of these handbooks which has been most severely criticized, and is one of the things which makes them of little practical value to the foreign assistance policy maker or administrator. Finally, such handbooks are organized according to categories of information which are supposed to be universally useful, that is, the data are classified as they would be for any society in the world and without regard to the particular cultural character or configuration of the society being described. It is this quality which makes such handbook models of their country almost unrecognizable to the thoughtful and knowledgeable Thai, who may not be able to improve on the model whatever the excellence of his training or skills, but who nonetheless knows very positively that the pictures provided by the book have been created from "outside" and will hardly bear close scrutiny as lifelike likenesses.

We can by no means claim that modern, organized research can provide the Agency for International Development or its Operations Mission in Bangkok with an "inside" picture of the Thai cultural system. Indeed, in 1956 knowledgeable members of the staff of the Cornell Thailand Project contributed much of the material that went into the first edition of the Human Relations Area Files handbook, but they were only too well aware at the time of how little was really known about the structure or functioning of Thai society. Today, too, we are aware of the still existing lacunae in our useful information about Thailand, for while the amount of social science research carried out in that country has greatly increased during the past ten years, compared with what has been done in the Andean region or in India it is still inadequate, and its quantity as well as its range and scope hardly provide us with the data or theoretical basis needed for the construction of useful models on any scale.

It would accordingly be possible for the staff of the Comparative Studies of Cultural Change to recommend to the Agency for International Development an almost limitless number of research projects related to the future development of Thailand which should be accorded high priority for sponsorship by the Agency or its Bangkok Mission or which other institutions should be encouraged to carry out. However, to the degree that such research suggestions were derived from the conventional cultural categories of analysis used by most westerners and by Thai trained in the western traditions of social science, they could be determined readily and equally well by any competent social scientists familiar with work which has already been done in Thailand, including the staff of the Research Division of the Agency's Operations Mission in Bangkok.

It would appear to be more useful, therefore, to discuss for this chapter of our report types of needed research studies of a less conventional, albeit more hypothetical, kind. These suggestions for research depend on a model of aspects of the Thai cultural system which it has become possible to construct only in recent years as pertinent research findings have been produced or have been put together in new configurations. This model has been validated in part by a reconstruction of Thai cultural history during the past century, a subject which has elicited slight interest among Thai or foreigners concerned with developmental planning in modern Thailand. Although the Agency for International Development has not requested a report from the staff of the Comparative Studies of Cultural Change, it may be useful to recapitulate briefly and in very general terms our interpretation of recent Thai history in support of the types of research studies which we shall recommend for Thailand.

An Interpretation of Recent Thai History

The people of the Kingdom of Thailand transformed their society during the past century through a process of self-conscious modernization the magnitude of which is hardly appreciated even by foreign Thai specialists. Technological change was less important than social and ideological reconstruction. This cultural revolution was carried out by a more or less politically independent nation which was able to maintain control of its own development without benefit of the kind of self-conscious advice and material assistance now being provided officially to Thailand by foreign governments. In short, the modernization of Thailand was achieved by a largely successful "do-it-yourself" operation with a major notable input of one crucial new variable, the importation of a large number of Chinese males. A result of this

accomplishment was a modern state politically and economically less powerful than Japan in international affairs, but one able to maintain its own physical and psychological health in spite of its small size and the limited character and quantity of its natural resources. The main features of Thailand's history of modernization may be stated in the following theses.

The form of Thailand's transition to a modern state was conditioned and shaped by the availability of overseas Chinese for the performance of crucial functions in the modernization process.

The Thai are now more Thai than they would have been without the presence of the Chinese; indeed, they can afford to be "Thai" in the modern world because of the symbiotic relation which was developed between them and the Chinese.

Thai society is more integrated today than it was formerly precisely because of the presence, prominence, and contributions of the Chinese during the past century.

These unorthodox theses require some clarification. In the mid-nineteenth century Thailand's ruling class recognized that their state was entering a period of danger when the vulnerability of their nation's traditional cultural system to European colonial pressures became apparent. In the face of this situation the Thai elite established as essential goals the preservation of the nation's ethnic self esteem, its territorial integrity, and its political independence.

The achievement of these goals involved a number of specific strategies: the loosely attached outer provinces and dependencies had to be bound firmly to Bangkok; the economic appetite of the European powers had to be satisfied with trade; for national self-protection, those institutions which were most visible or in contact with westerners had to be modernized to meet European standards.

The implementation of these strategies required an increase in the total productivity of the population to create a larger economic surplus, not only to provide for the revenue needs of Thailand for its own public welfare, but also to provide export crops and the products of the extractive industries which could meet the economic needs of the industrial nations. This had to be accomplished without major technological changes except for improved communications which were required in order to move the cash crops and export products of outlying regions which could thus be brought into a national economic network and bound to the capital. The need for government expenditures would mount and more efficient means of collecting government internal revenue would have to

be devised. Such revenue would be crucial because the European trading powers had forced the government to limit customs duties. Finally, legal codes had to be modernized and the corvée system and slavery had to be abolished to meet international standards.

In many ways the traditional Thai of the nineteenth century were quite unsuited to accomplish these tasks effectively by themselves. Among possible factors inhibiting their advance into a modern world was their intense and universal adherence to Theravada Buddhism. This tolerant religion supported individualistic and activist values, but the value of other-worldliness was also esteemed highly. Attachment to particular material things and to particular persons was considered to be a weakness. Indeed, "loyalty" in any Western sense to an individual or to a group was not highly valued. Wealth could be gained and accumulated by the individual but it should be spent ritually to obtain religious "merit" and should not be saved and invested simply to obtain more wealth. "Merit mobility", or movement along a scale of increasing merit, was important, requiring investment of goods and services for rebirth into the next life in a higher position, or to counteract slippage on the ladder of merit. A person with much merit also had political power or influence over those with less merit. An important way of accumulating merit besides supporting monks was to enter a monastery oneself for at least three months or longer if possible. While observing a monk's vows, a man was no longer a person (khon), but belonged to another category (ong) of which the Thai King was always a member, he obviously having been born with more merit than any other Thai. This way of obtaining merit was not open to Thai women, who could not become ong in this life under any circumstances although they could accumulate some merit in other ways. With such limitations on their merit mobility, women were less concerned about becoming attached to material things, and indeed they gained some merit if they could support themselves and at the same time help keep a husband or son in the village monastery.

Traditionally this system was clearly of great social importance, for even in the more secular present some quarter of a million men in any given year are seeking upward spiritual mobility in the more than twenty thousand monasteries of Thailand, while their mothers, sisters, or wives are seeking upward economic mobility in the rice field, at the loom or in other paid employment, or in market. In short, Thai Buddhism cut women off from religion and directed their interests toward economic activities while it attracted the interest and energies of men, made economic activities less congenial to them, and persuaded some that merit could be validated through political power.

Convinced that modernization with its accompanying economic activity and concern for material things was a necessity, the Thai people and their rulers were confronted with the alternatives of turning the task over to women, of de-spiritualizing the men by letting them do it, or of finding foreigners who could be recruited in sufficient numbers to do the job but who could be controlled politically. Having had experience with the overseas Chinese in the past, knowing that males who married Thai women were assimilated rapidly into Thai society, and realizing that the immigrant Chinese had never accumulated either excessive economic or political power (if Chinese entrepreneurs became too successful, they were simply ennobled or given some other preferred bureaucratic status which incorporated them into the Thai system), the Thai government established conditions which attracted controlled numbers of Chinese to the country and permitted them to carry on activities which were essential to the modernization process.

The Chinese brought with them a business sub-culture and a willingness to work for savings and investment opportunities which were largely lacking among the Thai. It was the Chinese who literally created the up-country networks of cash markets and banks with their credit and financing facilities. With some technological and financial help from westerners, the Chinese created the extractive industries which are highly important to the modern Thai economy. They created a demand for Chinese and western imported goods. They provided labor for necessary tasks rejected by the Thai, manning rice mills built by their countrymen, building railroads, handling river steamers, farming commercially, and doing a myriad other jobs which brought Thailand into the first half of the twentieth century. Before an efficient Thai bureaucracy could be developed, Chinese tax farmers effectively collected internal revenue for the state. Opium, gambling, spirits, and lottery "farms" organized by the Chinese provided funds for the state from Chinese consumers. The network of Chinese activities, the infrastructure of their industries helped define and unify a Thai nation by building up the outer and provincial economies to support a more orderly countryside, turning the communication flow inward away from Rangoon or Haiphong to link it with a rapidly growing Bangkok, a capital which is still half Chinese. The three million ethnic Chinese, large numbers of whom still carry out their essential tasks while in the process of becoming Thai, have proved, whether in enterprises which are Chinese, or Sino-Thai, or wholly Thai, to be reliable collaborators in the larger national enterprise of helping to establish an integrated and dynamic Thai society and polity.

The Chinese contributions to Thailand's modern development left the Thai male relatively undisturbed on the farms (often owned and effectively managed by women), in his monas-

teries, and in the government bureaux which have been vastly expanded in part as a response to increasing demands for upward secular political mobility for men but which in their clique and patron-clientel organization have not changed greatly in character. Certainly the Thai male would be less Thai today if his King and his forefathers had wholly excluded the overseas Chinese.

Thai women have continued their interests in the economic field, expanding the scope of their activities as the Chinese stimulated economy expanded. The ideal feminine image is of the "nourishing mother" (mae luang), the mature woman concerned for the material welfare of her family, who will advance in this world if her male kin advance, and whose merit towards reincarnation as a male will be advanced by the religious activities of the men with whom kinship links her, and whom she supports.

Corroboration for these theses regarding important components of Thai social structure and individual motivation will be found if we look with a fresh and not too western eye at the patterning of occupational roles in Thailand. In a roughly established "economic" category women outnumber men three to one, while men outnumber women five to one in a contrasting "political" category. While men predominate in all statuses which can be labelled "political", women are more numerous in all important "economic" positions, the subcategories running from large business owners and managers down to hawkers and petty market sellers. As women own and manage farms, so too they own large areas of urban real estate, and manage these quite independently of masculine control or advice.

It seems clear that in Thailand we must deal with socioeconomic behaviors which differ radically from those with which we are familiar in western societies. Yet this orientation of men's interests toward "political" and "religious" roles and of women's towards "economic" roles in both rural and urban Thailand has been wholly neglected as far as we are aware in all Thai national development planning to date. Likewise the current roles of the Chinese in urban and rural Thailand have been neglected and are apparently undervalued by foreign social scientists concerned with finding entrepreneurial elements in the Thai economy. In an elaborate future development program for Thailand outlined by a task force of the International Bank for Reconstruction and Development as recently as 1959 the Chinese are scarcely mentioned, no doubt in part for diplomatic reasons. Although Thai and westerners have held over-all political and economic control of the Thai state, it should be clear that their roles have been and are today determined significantly by the all-important roles played by the Chinese in the economic and social

development of Thailand. Regardless of Thai sensibilities, these Chinese roles must be taken into account in any research seeking to deal with Thai cultural realities.

It should be clear from the foregoing analysis that to pursue a research program designed to identify entrepreneurial potential in the Thai population or any part of it requires a very considerable knowledge of Thai culture and as much of an "inside" or realistic rather than conventional view of it as can be developed on the basis of currently or potentially available information. One such major research project as this would in turn through its ramifications open up a whole series of further investigations any one or all of which might well be accorded high priority by the Agency for International Development or its Operations Mission in their search for elements involved in cultural change and development within the context of modern Thailand. A few such concomitant projects, all centering around the entrepreneurial function, may be recommended here for serious consideration. Their elaboration as separate projects and their temporal or regional programming could not be done independently, but would have to be carried out sequentially in the field as this program and other possibly related programs were developed.

Recommended Studies Relating to Research on Entrepreneurs in Thailand

Marketing Structure: local, regional, national and international transaction networks, lines of communication, interlocks, and blockage points. (This project should include peasant fisheries; it could make use of technological impact studies through air photo analysis; ethnic, sex, kin, and patron-client roles should be investigated in relation to labor force and occupational categories.)

Rural Migration, Resettlement, and Settler Satisfaction. (This project would deal with rural population movements and post-resettlement reactions, as well as rural-to-urban migration; regional resettlements associated with Mekong River Basin projects should be studied.)

Social Organization of Bangkok. (Little is known about structural components of the primate city; neighborhoods as village clusters; supra-neighborhood relations; cultural class structure; the culture of poverty; rural relations.)

Informal Aspects of Local Administration. (Comparison with parallel three level market structure; comparisons of informal problem solutions at district level; the gap between village and district; cliques, patron-client, and other informal

relations in government. Apparently little is known beyond the formal structure of the "bureaucratic polity".)

Role of Higher Education in Development and Cultural Change. (Content and effect of university education; use of staff and students in research; graduate training in Thailand; research on changing the format of university training; goals and methods; recruitment; supply of graduates to business or industry and to the civil service.)

Elites, Masses, and Social Mobility. (Gap between various types of educated elites and various lower occupational groups; methods and routes for moving outward and upward from peasantry; class structure and patron-client groups; an embryonic middle class?)

The Buddhist Monkhood as a National Structure. (The Sanggha as a mechanism for upward mobility; as a basis for extra-local associations and sentiments; as a base for local development initiative.)

The Military. (Its role in training, mobility, and integration; recruitment and promotion policies; self-image and outsiders' image of the military. Paramilitary and police should also be studied.)

National Integration, Iconographies, and Sentiment Systems. (Relations between outlanders, including ethnic or tribal minorities, and the center; attractions and repulsion; mediators and other middle men or brokers; non-commercial, non-political transactions such as pilgrimages; role of communication media in cultural contexts, including varieties of "improvement teams".)

Structure of Aspirations, Expectations, and Hopes. (Value judgements regarding past, present, and future conditions for a variety of social groups and categories.)

Cross-National Relations. (Actual or symbolic transactions across national or ethnic frontiers; role of foreign groups at home and in Thailand; structural bases for international conflict or cooperation, such as the international Mekong River Basin committee, Buddhist monkhood.)

V. RECOMMENDED TYPES OF STUDIES IN THE ANDES REGION

The recommendations in this chapter are based upon the cumulative experience of a large number of social science researchers in the central Andean area since World War II. Prof. Allan R. Holmberg (1950; 1952) commenced field research in a Peruvian coastal valley in 1946, and anthropologists trained by him and other social scientists associated with him have studied this (Ghersi 1958; Nuñez del Prado 1951 and Vázquez 1965c, d) and a considerable range of other settlements and problems since that time. The anthropology staff of the Department of Sociology and Anthropology at Cornell University joined with the Peruvian Indian Institute in 1951 to establish the Cornell Peru Project to conduct a program of applied anthropological research and participant intervention at Vicos, at that time a manor with Indian serfs in an Andean intermontane valley. Operating with funds donated to Cornell University by the Carnegie Corporation of New York, supplemented by other grants to individual scholars, the Cornell Peru Project staff instituted a program of comparative research in 1952. Some members of the staff continued research in Vicos that had begun with a base-line study carried out in 1949-50 (Vázquez 1952) when a comparative study of neighboring Marcará was also initiated (Ghersi 1959, 1960, 1961, 1963). Other members of the staff studied nearby settlements in order to place Vicos in regional context: Recuayhunaca (Snyder 1957, 1960), and Hualcan (Stein 1956, 1957, 1958, 1961).

Extensive research has been carried out on the Vicos population since that time, with numerous other scientific institutions taking part in the study efforts (Dobyns and Vázquez 1964:11-52; Alers 1965a, b, c; Alers, Vázquez, Holmberg and Dobyns, 1965; Allen 1958; Carrera 1958; Diaz, Ponce, Lube and Montalva 1959; Dobyns 1965; Dobyns, Monge and Vázquez 1962; Doughty 1965, 1966; Fried 1962; Holmberg 1951, 1955, 1957, 1958, 1959, 1960, 1965; Holmberg and Dobyns 1962; Kennedy and Lasswell 1958; Mangin 1960, 1961; Martinez 1959, 1960; Monge and Vázquez 1957, 1963; Montoya 1963; Ortiz R. 1963; Patch 1957, 1962; Payne, Gonzalez and Schleicher 1956; Trigoso 1963; Vázquez 1955, 1962, 1964, 1965a, b, 1966a). At the same time, members of the Cornell Peru Project staff have conducted research on a number of free Indian and Mestizo communities. Members of the Project began to build the data base for generalizations to the national level with another grant from the Carnegie Corporation of New York in 1959. Beginning the following year, a political district in the intermontane Callejon de Huaylas was analyzed (Doughty 1961, 1963a, b), a district capital on the eastern slope studied (Andrews 1963a, b), Viru on the Pacific littoral re-studied (Ghersi and Dobyns 1963), certain aspects of Lima demography and society analyzed on a sampling basis (Stycos and Richards 1963;

Stycos 1963a, b). The Cornell Peru Project staff organized a symposium on internal migration that focused social scientific attention on this phenomenon (Abate and Espinosa 1963; Aranguri 1963; Cheng & Portugal 1963; Matos 1963; Soler 1963; Solis 1963; Vázquez 1963; Paredes 1963). Supplemental grants to individuals permitted studying siblings who migrated to Chimbote from Huaylas and their brothers at home (Bradfield 1963), and an Aymara-speaking hamlet near Lake Titicaca (Hickman 1963). A mail survey of government-recognized Indigenous Communities was conducted (Dobyns 1964).

These studies were followed by several community studies carried out to increase further Cornell Peru Project knowledge of regional characteristics in other parts of Peru in order to evaluate U.S. Peace Corps program impacts in that country in 1962-64. One disintegrating settlement in southern Ancash Department was studied (Castillo et al 1964a, 1965). Another Puno Department settlement where a U.S. aid financed irrigation project had been constructed was analyzed (Castillo et al 1964b). A number of communities in the Mantaro Valley were compared with regard to local development trends (Maynard 1964); Mito in the valley was studied more intensively (Castillo et al 1964c) as was Chaquicocha at its western margin (Castillo et al 1964d). The eastern slope community was re-studied at this time (Andrews et al 1965), and a western-slope cattle raising community studied (Doughty and Negron 1965). Some attention was again directed toward internal migration in these studies and additional analyses (Doughty 1964).

During the period 1964-66, members of the staff of the Department of Anthropology at Cornell University extended their activities to Ecuador and Bolivia as well as Peru to carry out a research-and-development program for the Bureau for Latin America of the Agency for International Development. This effort produced a preliminary study of a number of Indian settlements in the Colta Lake region of Ecuador (Maynard 1965), and a survey of rural settlements in the Quito canton around the national capital of that country. A western-slope community within a few hours travel of the national capital was studied (Morris 1964), and another political district surveyed in this physiographic region. In Bolivia, two mine camps were studied (Vázquez 1966b) and several highland communities and colonies of their natives in the eastern lowlands (Wessel 1966).

Internal Migration

The Cornell anthropology department staff members specializing in Latin American studies have for some time been

convinced that one of the most important processes of social and cultural change currently underway in the central Andean region is internal migration of citizens from one part of Ecuador, Peru, or Bolivia to another. The departmental staff has already carried out some studies of internal migration in Peru (Dobyns & Vázquez 1963) and Bolivia. The staff of the Comparative Studies of Cultural Change recommends that the Agency for International Development accord high priority in its continuing sponsorship of research on the central Andean area to studies of internal migration. Geographic mobility appears to be the major process of national social unification and individual vertical social mobility.

Rural-to-Urban Migration

The main current of geographic mobility in Peru and apparently in Ecuador appears to be rural-to-urban migration. The same migratory current seems to exist in Bolivia, but in lesser measure. This migration has been going on for some years on a massive scale, so that over 60% of the adult population of metropolitan Lima has been estimated to consist of migrants born elsewhere (Stycos and Richards 1963:37). This implies that hundreds of thousands of individuals are consciously and deliberately changing their habits, their ways of life, from rural to urban models (Matos 1961). Since much of the Andean countryside lives in conditions differing little from those of the 17th century, the transition to contemporary urban life in the major Andean cities involves marked cultural adaptation that appears to be fundamental in the modernization process.

Numerous fruitful studies of rural-to-urban migrants might be carried out. Here we attempt to indicate only those that seem to us to possess considerable potential for increasing the efficacy of decision making in the foreign assistance programs in the three countries under discussion.

Provincial Clubs in Capital Cities. First of all, we may highly recommend the potential significance to developmental policy making of studies of provincial clubs in the three capital cities. Some research attention has been paid to these clubs in Lima (Mangin 1959, 1965; Mangin and Cohen 1964). In outline, they are known to play an important role in helping newly arrived migrants adjust to urban life. They are also known to play a significant role in channeling central government resources into rural community self-improvement efforts (Maynard 1964:7). Far more could be discovered concerning the latter role, and its potential for accelerating rural development in the central Andes.

We recommend, therefore, explicit study of the role provincial clubs in Lima play in obtaining central government subventions and other forms of developmental inputs for rural settlements, in raising funds in the metropolis to remit to the home area for developmental or other purposes, in channeling technical assistance to provincial areas or providing it directly as migrants acquire new technological skills in the metropolis, and related questions.

We further recommend exploratory studies in Guayaquil, Quito, and La Paz to discover the prevalence of provincial club organization in those cities, and their significance for the national development process. We recommend studies both in Quito, the national capital, and Guayaquil, the major port, of Ecuador, because a study of either city alone is likely to prove insufficient to understand the role of provincial clubs in Ecuadorian rural development. As a coastal commercially active port, Guayaquil clearly attracts much rural-to-urban migration. On the other hand, Quito as the national capital city makes most governmental decisions concerning rural development.

Many other dimensions of metropolitan life could be studied with profit, especially where firm scientific foundations have been laid by national scholars (Caravedo, Rotondo y Mariatequi 1963; Fried 1960; Rotondo 1961). One of these dimensions is the dating of "demographic transitions" such as rapid declines in mortality, or fertility, as related to internal migration and urbanization (Davis 1959:327).

The Industrial City. The urban settlements in the Andean region fall into several types. One of the most important for development is the industrial city. Metropolitan Lima is, of course, an industrial city as well as a commercial center and political capital of Peru. The process of induction of rural-to-urban migrants into industrial jobs, labor unions, and metropolitan life ways would probably repay investigation in terms of facilitating economizing development policy decisions. The scientific study of absorption of large numbers of migrants into industrial plants can, on the other hand, very likely be carried out more easily in more purely industrial cities where political and commercial functions contribute less complexity to the urban environment. Chimbote in Peru appears to be the industrial city where most of use to development policy makers can be learned. The city has grown more rapidly during the past quarter century than any other in the country save Lima. Its growth is almost entirely a function of industrialization: steel making, fish canning and fish meal production. The burgeoning population aspect of Chimbote has been studied (Matos 1963; Solis 1963) and one study of migrants from a rural district carried out (Bradfield 1963). Far more information about the urbanization

process in Chimbote, which started from a nearly rural base itself twenty-five years ago, could profitably be collected and analyzed for the guidance of development planners who have at their disposal the capital required to establish such large-scale industrial projects as steel mills.

More limited types of industrialization have been carried out in Huancayo (Arguedas 1957) and Arequipa in Andean Peru, in Cuenca in Andean Ecuador, and in Cochabamba in Bolivia. Efforts are currently underway to base industry in the Cuzco (Peru) area to utilize hydroelectric current generated on the Urubamba River. While these industrial developments have to date been less spectacular in their results than those in the coastal cities on the Pacific Coast littoral west of the Andes proper, they may well hold more long-range significance for urban development in the mountains themselves. Existing studies of such cities are primarily historical or demographic (Cavanaugh, Tellez, Aranguri, La Fosse and Carajal 1958; Aranguri 1963). Thus, Agency for International Development sponsorship of social science (industrial sociology or anthropology and economic) studies of industrial impacts in these truly Andean cities appears to be a logical Agency investment in research that may discover behavioral patterns that would allow making more efficient development input decisions than can now be made.

The industrial city and the multi-function metropolis are not alone in attracting migrants from the countryside and smaller settlements. The traditional administrative city also attracts such migrants. Cornell Peru Project research in the departmental capital of Huaraz found a marked tendency for native Huaracinos to emigrate to the coastal towns and cities, being replaced by persons of rural origin migrating into the departmental capital. Thus, this administrative city seems to serve both as a staging area for emigration to larger urban places, and as an arena of cultural change for migrants of rural origin. The stage migration process is known to occur in other contexts in Peru (Ghersi and Dobyns 1963). Finding it in a departmental capital with little industry and no university to attract student migrants suggests that the traditional administrative cities in the Andes may be playing an important role in national social unification beyond that usually perceived. One study of popular religious art in a provincial administrative city has been published (Arguedas 1958) but this class of settlement has been neglected by social scientists save for one sociological analysis of Puno (Bourricaud 1962). Thus, it would appear to be appropriate for the Agency for International Development to support systematic social science research into the role that administrative cities in the three central Andean countries are actually playing in the internal movements of population and their effects upon national unification and development.

The Mining Camp. Another type of city that plays a definite role in the development process is the mine camp, often completely or almost completely a company town. Experience in industrial employment in mines is known to have strongly influenced at least some rural community development efforts in Peru (Adams 1951a; 1959). The key political role of miners in Bolivia between 1952 and 1965 has been abundantly noticed by the daily press. Yet very little scientific attention has been paid to the mine camp as a factor in the development process in the Andes. Mining is, of course, a relatively sensitive economic pursuit in national politics, and this situation may have discouraged social science attention to the nature and functions of mine camps besides mining. The relatively high altitude at which most mines are found in the Andes may also have discouraged social scientists from conducting research among miners. Whatever the reasons for the comparative neglect of mine camps, it seems to us that the Agency for International Development would be well advised to support study of key mine camps in the central Andean republics in order to find out more about how these settlements deal with the task of changing the culture of rural agriculturalists recruited for industrial mine jobs, how mine work experience is translated into community development efforts by retired miners returning to their communities of origin or those who go to work only temporarily or seasonally in the mines, residing in their home communities on a permanent basis.

One small mine camp in Puno Department, Peru, has been studied very superficially (Alencastre 1959), and Cornell University anthropology staff members have made a beginning in studying tin miners in two nationalized mine camps in Bolivia under an Agency for International Development research-and-development program (Vázquez 1966b; Dobyns, Ebanks, Morris, Brown and Ezell 1966). Much more should be known about central Andean mine camps in order to provide policy makers with sufficient information to permit foreign assistance investment decisions based upon adequate assessment of the national developmental potential of such cities in social and cultural as well as economic terms.

With two nationalized mine camps in Bolivia already studied to a certain extent, the next indicated research step in that country certainly is the study of a pair of privately owned and operated mines. There are a great number of such privately held mines still operating in Bolivia, a fact not perhaps generally recognized. Systematic analysis of at least a couple of these mines would permit comparison with the operations of the nationalized mines, so as to arrive at some sound conclusions concerning the relative developmental effects of nationalized and private mine operations in Bolivia.

In Peru, the two largest mining companies are U.S. owned. One at least has been a frequent target of nationalistic and political criticism for its mode of operations (Arellano Bados 1962). A study of the social and cultural impacts of these mine companies on the populations of their prime cities (and in one case an associated port city) and their hinterlands could certainly illuminate the question of the role really played by these operations in Peru. Such a study would tend to make studies of mining operations in Bolivia the more useful by providing comparative data, and carrying out the Bolivian studies would in turn make Peruvian mine studies more useable in developmental decision making.

We recommend to the Agency for International Development the utility of social science studies of Peruvian mining camps. Since the major mining interests in Peru are U.S. owned, however, it might well not be advisable for A.I.D. to support such studies directly. The Agency might well encourage the U.S. companies conducting operations in Peru to provide funds for objective outside study of their operations and socio-economic impacts, or seek other financing for these studies. Such funds would probably best be employed to obtain objective studies were social scientists from Europe, Japan, or India granted the funds to carry them out. Either U.S. or Latin American social scientists would tend to carry both conscious and unconscious prejudices into such a study so that objectivity would certainly be served by having total outsiders actually conduct the studies. The reasoning in this case parallels that which led to retaining Gunnar Myrdal to head the large-scale research effort concerning race relations in the United States that resulted in An American Dilemma and numerous other books that have profoundly influenced the course of events in the U.S. ever since their publication.

Mining is a perennial interest to many rural residents in the Andes, and there are numbers of small mining operations carried on by small capitalists. The Cornell Peru Project staff has come upon a few cases of men who are relatively well-to-do by local community standards because they exploit local ore deposits with some economic success. Such men may be leaders in local improvement programs, even though they may not accumulate the capital to found large-scale industrial enterprises. A special study of such small miners appears advisable in order to inventory the capital potential and developmental leadership resources to be found in the small mining industry, and its potential for larger contributions to national development.

"Company Towns". Closely related in type to the mine camp is the oil town or the urbanized plantation operated by a highly capitalized corporation. All are alike in being

"company towns" where many community services are provided paternalistically by the administration. Often such settlements begin by recruiting young workers, so suffer from constantly rising costs for community services as relatives move in with workers and the latter marry and have children (Beverly 1959; Patch 1958b, 1959a). Detailed studies of these phenomena have not yet been carried out and seem in order. The highest priority in this class of study should go to analysis of a company town that has avoided this problem of rising cost of community services, since the measures taken to avoid it presumably could be widely applied.

Agricultural Resettlement

Rural-to-urban migration is not the only type of geographic mobility found in the central Andean republics that has great significance for national development. The resettlement of agriculturalists in new areas is actively promoted by the governments of Ecuador, Peru, and Bolivia, with varying degrees of success and impact upon the national economy and society.

Spontaneous Migration. Some spontaneous migration of Andean mountain farmers into the rain forests and savannahs of the eastern lowlands of the three countries is occurring. In some areas, this spontaneous pioneering settlement has progressed beyond the penetration roads the various governments are building into lowlands (Martinez 1961; Nuñez del Prado 1962). In other areas, this agricultural settlement follows the penetration roads (Loomis 1943; Anonymous 1962). The dynamics of spontaneous resettlement are little understood. The recent Cornell anthropology department research on agricultural colonies in the Bolivian lowlands has found out something about how such colonies endure in the face of high mortality and great physical hardships despite being ill-equipped to take maximum advantage of the potentials present in the rain forest environment. This research discovered only enough about settler motivations, however, to make it clear that this appears to be a matter well worth serious analysis. The motivations behind agricultural resettlement as contrasted to migration to mine camps or cities to seek industrial employment are significant developmental variables in Bolivia. It would be extremely difficult to define the motivational differences between spontaneous colonists, those in sponsored lowland colonies, migrants to Bolivian cities and mine camps given the present state of knowledge of these various populations. Beginnings toward understanding the process and consequences of geographic mobility in Bolivia have been made by the Cornell studies, and others underway by a Columbia University anthropology graduate student, and social scientists with the Institute

for the Study of Man. As the findings of these studies now underway or recently carried out are reported, it will become possible to formulate further research more sharply focused upon practical problems of policy-making that would appropriately be supported by the Agency for International Development as well as other institutions concerned with both theoretical and applied research.

Sponsored Agricultural Resettlement. In the realm of sponsored agricultural resettlement programs, there are several lines of practical research indicated in the central Andean countries.

In Ecuador, the Ecuadorian Institute of Agrarian Reform and Colonization is attempting to promote the resettlement of highland farmers now residing in overcrowded rural areas, as well as to reform the basic land tenure system of the Andean districts. Perhaps the highest priority recommendation that we can make to the Agency for International Development for supporting research in the central Andes aimed toward directly furthering the aims of the Alliance for Progress is that a grant be made to a U.S. university satisfactory to the Ecuadorian Institute of Agrarian Reform and Colonization sufficient to permit the university to assign at least one research associate to the Institute on a full-time basis for five years to conduct investigations related to the tenure reform and colonization efforts of the Institute. A number of social scientists could be used by the Institute to good effect, one to study the resettlement program at Santo Domingo de los Colorados, one to study the Chimborazo Province land tenure reform program, one to survey other resettlement projects, and one to survey socio-cultural consequences of giving huasipungueros land titles, and so on. The existing body of social science knowledge about the populations of Ecuador is so small that virtually any applied social science study in that country must perforce be also a basic study, and any basic social scientific study will serve the practical ends of the policy maker and administrators.

Here we feel impelled to emphasize our recommendation discussed elsewhere in this document that the Office of Technical Cooperation and Research carry out its research program through research grants rather than contracts, at least in terms of social science research. Because of a series of circumstances specific to Ecuador (but not necessarily unique to that nation), we have no doubt that a grant-supported university program of scientific cooperation with the Ecuadorian Institute of Agrarian Reform and Colonization would yield far better results than any contractual arrangement devised in pursuit of the same goals. Even though a research program conducted by a single social scientist might appear to be a miniscule investment in Ecuadorian development, the potential

impact of the Ecuadorian Institute of Agrarian Reform and Colonization is so great that we cannot recommend such a program too highly. For the Institute sorely needs social scientists to advise its staff and carry out acute problem-related field research for which it lacks staff capacity, and the outside social scientist plays a significant morale-building and sustaining role with relation to Institute personnel.

The basic social science program would probably cost in the neighborhood of $25,000 to $30,000 annually, so that the Agency for International Development could finance very significant applied research that would release much reform energy and help to channel it productively for a grant of from $125,000 to $150,000 for a five-year program.

In Peru, engineering solutions to the problems of agricultural production on the Pacific littoral have been popular among development decision-makers for many years. As a result, many expensive irrigation and reclamation projects have been constructed in the oasis valleys of the littoral. The efficiency of such projects for solving problems of tenancy and aridity in Brazil has been questioned (Robock 1963; Hirschman 1963). The contributions of the Peruvian reclamation projects to the national economy and social structure have hardly been examined. One brief study by University of San Marcos anthropology students found a marked shift toward land ownership consolidation in one such project (Revilla and Ramon 1964). Far more should be known about the economic and social consequences of such expensive development projects for the guidance of present and future policy-makers in U.S. and international agencies dispensing foreign aid, particularly in the form of capital for high cost land reclamation projects (Dorner and Thiesenhusen 1964:1100).

Coastal Irrigation Projects. Highly commendable, therefore, is a study that would survey the resettlement social and economic history of the several coastal irrigation projects that have been completed in Peru, paying particular attention to the question of settler success. There is good reason to suspect that there has been a rather low rate of success among initial settlers on irrigation project lands, producing time lag between investment and ultimate economic productivity greater than those inherent in the technological nature of the projects, and probably raising settlement costs appreciably above pre-construction estimates.

San Lorenzo Irrigation Project in Northern Peru. Equally recommendable is a study of the resettlement process on the San Lorenzo irrigation project in northern Peru. There the dynamics of settler failure or success can be examined in

operation, and a high-cost irrigation scheme analyzed during its early settlement stages. As pointed out elsewhere in these recommendations, studies of communities in northern Peru should receive high priority at this time simply because this part of the country remains virtually unstudied by social scientists.

Settlement of Uncultivated Lands. A policy of encouraging rural settlement of uncultivated lands with foreign farmers has been followed from time to time in the central Andean republics, so that colonies of persons of foreign origin and their descendants exist in a number of places. A matter of significance in developmental policy making is the degree of social and economic success achieved by such colonies compared to that of colonies of internal migrants within each nation. Thus, Okinawans in lowland Bolivia, Mennonites, and other foreign colonies need to be evaluated just as do sponsored and spontaneous colonies of internal migrants.

Nationality Colonies in Urban Centers. Immigration into the central Andean republics has not been limited to farmers, however, and another research step to be taken is the study of nationality colonies in the urban centers. The Chinese colony in Peru has been studied briefly (Kwong 1958), but Peru also holds persons of Japanese origin, Germans, Jewish refugees from various parts of Europe, and even a colony of United States citizens several thousand strong. Lima is in some ways a rather cosmopolitan metropolis, and so are Quito and La Paz to a lesser degree. Both the latter contain significant German populations prominent in trade. The innovative role of these immigrants in the various countries would repay detailed examination.

Provincial Administrative Unit

In conducting the studies for the Plan for the Development of Southern Peru, the scientific staff carried out investigations of administrative units of various sizes in Cuzco Department (Allred et al 1959). Members of the Puno-Tambopata Program anthropological staff surveyed one Province in Puno (Ortiz y Galdo 1959b). Members of the Cornell Peru Project staff have at different times studied one intermontane political district (Doughty 1963a, b) and one western slope district (Bourque, Brownrigg, Maynard and Dobyns 1966). The human geography of one district on the western slope was studied briefly by Peruvian geographers (Ubilluz 1958), land tenure and family changes in another by a Peruvian anthropologist (Cotler 1959, 1961), and folklore of two others (Arguedas 1953). The "district" constitutes the minimal political administrative unit in Peru. The

Southern Peru Plan analysis of provincial administration, while it provides a useful basic description of the functioning of provincial government in Cuzco Department, really does not delve deeply into the relationship between provincial government and the developmental process within the province.

Developmental Functions of Provincial Government. We recommend that the Agency for International Development might well support a study of the developmental functions of provincial government in at least one political province in Peru, and preferably in two or three located in different sections of the country so as to permit generalization with some degree of assurance to all the nearly 200 provinces. A provincial study that would provide the most significant data for development decision-making would certainly call for a combination of disciplinary skills of anthropologists, agricultural economists, nutritionists, and possibly sociologists and/or political scientists.

In Ecuador, much the same kind of recommendation can be made. There is as far as we know no available study of even the minimal unit of political administration. A study of a canton would be extremely useful for gaining increased understanding of the actual day-to-day operations of local provincial government, and the extent to which these foster or hinder local social and economic development.

In Bolivia, the data base is nearly as deficient as in Ecuador, although one canton was studied some years ago (Leonard 1948). Building from this scanty scientific base, another canton on the altiplano rather than another valley region could be analyzed with profit, along with a canton in the eastern lowlands. This would allow some generalization from the specific studies to the three major physiographic regions of the republic, and to the nation.

The number of detailed studies of communities of various types in both Ecuador and Bolivia is so small that comparatively little can be attempted in the way of scientific generalization about these countries from this kind of data base. We recommend, therefore, that a series of community studies of representative settlements in each country be supported by the Agency for International Development. These might well be financed as parts of the cantonal studies, or initiated as preludes leading into cantonal and later provincial analyses.

The situation in Peru is much more favorable to national generalizations, in that significant numbers of community studies have been carried out (Alencastre 1960; Arguedas 1956;

Avalos 1952; Boluarte 1961; Escobar 1947; Farfan 1952; Faron 1960; Gillin 1947; Guillén 1953, 1961; Hammel 1961, 1962a, b, 1964; Llosa 1962; Matos 1951a, 1953, 1956; Mishkin 1940, 1946; Montalvo 1958, 1960; Montalvo y Galdo 1959; Nuñez del Prado 1949, 1952, 1957; Ortiz y Galdo 1958a; Sabogal 1961, 1962; Soler 1954, 1961). Since most of these studies have been summarized elsewhere (Dobyns 1964) we will not review them here. We have, however, prepared a map of Peru showing the geographic locations of the communities studied to 1964 (utilizing, besides sources cited in the text, Adams 1951b, 1953; Alers Montalvo 1960; Bernard 1957; Castro Pozo 1924, 1946; Collazos 1954; Collazos et al 1954, 1960; General Engineering Laboratory 1962; Hudgens, Lozada and Peterson 1952; Kuczynski-Godard 1944, 1945; Landázuri 1963; Martínez 1962a, c; Muelle 1948; Nuñez del Prado 1960; Nuñez del Prado and Sanchez 1964; Nuñez del Prado 1959, 1963; Obando 1961; Patch 1958a, 1959b, 1961; Pulgar V. 1945; Schraer and Newman 1954; Soler and Basto 1953; Soto 1953; Trujillo 1952; Tschopik 1946, 1947, 1955; Vázquez 1949; Wellin 1956). This map shows at two glances two major areas for community study effort that are virtually unstudied to the present time. One is the northern tier of political departments: Tumbes, Piura, Lambayeque, La Libertad, Cajamarca, with two very brief descriptions of an oil town (Beverly 1959; Patch 1958b) and a potters' village (Christenson 1955). The other is the southern group of coastal-mountain departments: Arequipa, Moquegua, and Tacna. A study of a Tacna town by a Peace Corps volunteer has been published this year (Korb 1966), but does not alter the situation much.

Intermontane Valley Ecological Unit

One of the clearly important ecological units found in the Andes is the intermontane valley. The mountain barriers around such valleys tend to inhibit communication between the valley population and that elsewhere in the central Andean republics. The concentration of water, arable land resources and sheltered building sites in the lower reaches of the intermontane valleys appears to foster the development of characteristic valley socio-cultural patterns, although local differences have developed and survived. The operation of open market cycles at weekly or other intervals within such intermontane valleys indicates the importance of this unit in economic activity. Yet no study has yet been made of one of these intermontane systems save by English cultural geographers (c.f. Preston 1965).

We recommend to the Agency for International Development the desirability of its sponsoring research into the nature of inter-settlement connections within an intermontane valley

in the central Andes, and the nature of extra-valley commercial, and other types of contacts. The basic aim of the research should be to furnish policy-makers with a realistic description of a sample intermontane valley socio-economic system focused upon the potential for local development encountered within the valley system, and the stimuli to local development entering the valley system as a result of its external contacts.

Occupational Foundations of Political Participation

A major problem in national unification in Ecuador, Peru, and Bolivia, is that of political participation. By political participation we mean both partisan politics and other forms of intervention in the governmental process. Under present circumstances in the central Andean republics of sensitivity to social science research into political attitudes supported by foreign governments, we would not recommend that the Agency for International Development attempt to support social science research into partisan political activity in this region.

Other forms of political activity besides participation in political party activities can play an important part in the development process both locally and nationally. We recommend that the Agency for International Development support social science research into the occupational foundations of these non-partisan forms of political activity. This recommendation suggests that social science research in the central Andean republics has not yet, as far as we are aware, tackled this class of problem. There are clear differences in some occupational roles in the three central Andean countries, with miners in Bolivia playing a rather more important national role than miners in Peru, while mining is quite insignificant in Ecuador.

Studying the similarities and differences between occupational roles and non-partisan political activity in the three central Andean countries should prove quite helpful in providing foreign assistance policy-makers with some guidelines concerning the occupational groups that appear to be keys to the developmental process in each of the three nations. The allocation of scholarship funds for study in the United States or in the local country might be made more efficient by more precise knowledge of what occupations play what kinds of roles in local and national development.

In an overwhelmingly agrarian society, one might expect leaders in local development to be overwhelmingly agriculturalists. It appears quite likely that this is not the case in the central Andean countries. The agrarian population

living on farmsteads consists mostly of occupationally undifferentiated Indians, so that development leadership among this portion of the population does seem to come from farmers or farmer-stockmen. There are thousands of farm villages in the central Andes inhabited by artisans, shopkeepers, small miners, teachers, national policemen, etc. Community studies already carried out suggest that significant differences in the developmental roles of people following these different occupations exist. None of the community studies published to date has focused upon this specific question of development strategy. We consider that the Agency for International Development might appropriately support community studies of settlements of different sizes in various regions of Peru, Ecuador and Bolivia focused upon this specific developmental variable in the immediate future. A reasonable sample of rural communities with rather minimal occupational differentiation should permit some regional generalization about the key occupations in rural improvement and the actual or potential role of the rural syndicate (Dorner and Thiesenhusen 1964:1103).

At the more complex urban level, we certainly consider it very appropriate for the Agency for International Development to finance similar social science research into differential effects on the development process by people following different occupations. At least two lines of research appear feasible.

One kind of research approach in systematic evaluation of the different contributions people in different occupations make to national development would be an extension of the rural community study method. It would focus upon one (or more than one) particular city, studying the various occupational groups found among its residents in terms of their respective relative contributions to the city's course of development.

Another kind of research approach to this systematic evaluation of differential development contributions by people following different occupations would focus upon specific occupations on a nation-wide basis. Thus, a series of specific studies might evaluate the development achievement of attorneys in Bolivia, civil engineers in Peru, "agricultural engineers" in Ecuador, small mine owners, salesmen (or salesmen in certain key fields such as hydroelectric generating equipment), bureaucrats, textile workers, union officials, physicians, university professors, secondary school teachers, and so on. In Bolivia, a significant study to carry out would be an analysis of differential social action by *maquipuras* and other types of free-lance mineral extractors, and *miners* on COMIBOL or private mine company payrolls. A comparison with the Brazilian *garimpeiro* or gold and diamond

panner could be instructive as to role and function (Pierson and Wagner 1947:69).

Within this general approach, one specific study that the Agency for International Development might well sponsor would be an analysis of the differences between primary school teachers who reside in the rural communities where they teach, and those who commute to and from the rural communities where they teach. Subjective impressions formulated during years of field work in rural central Andean settlements suggest that the teacher who resides in the rural community and identifies with it becomes much more effective in changing the outlook and knowledge of his or her pupils than the teacher oriented toward life in more metropolitan centers who spends as short a class-week at his or her assigned school as possible, and as long a weekend in a town or city as possible. Systematic verification of existing subjective impressions would permit classifying rural school teachers into at least two groups with markedly different rural development impacts. If the personal differences producing these different orientations could then be identified accurately, the Agency and the central Andean education ministries with which it works should be in a position to make policy decisions about teacher training and recruitment and on-the-job training and advancement. Until the present time, the primary problem of the public school systems in the Andean republics has been simply to train and hire sufficient teachers of any kind to staff the schools demanded by the national population awakening to the advantages of a modern formal education.

Great strides have been made toward hiring and training enough teachers of some kind or other to staff all the classrooms built, perhaps most successfully in Peru. There gradual upgrading of teacher qualifications is already well underway. Thus, a study of the sort suggested would provide additional criteria for teacher selection in the upgrading process, including foreign assistance to local teacher training institutions and to individual teachers studying abroad.

A somewhat more general study that could be quite illuminating for the foreign assistance policy-maker would be an analysis of the developmental role of intellectuals in Ecuador, Peru, and Bolivia. Closely related professional studies could profitably analyze the developmental roles of the clergy, the politicians, the officers of the armed forces, and the national police forces. Comparison with Brazilians of similar occupations should prove illuminating (Pierson and Wagner 1947:70). Internally a comparison of national police and school teacher attitudes toward rural assignment could prove helpful in planning rural development programs.

Another specific study recommendable as significant to Agency for International Development policy-making would be an analysis of the occupations of persons belonging to the few active non-partisan political action groups in the central Andean republics. This question is of prime concern precisely because such organizations are few in number in the Andean area, yet have played a tremendously important developmental role in other countries such as the United States. One such Peruvian organization that could be analyzed is the peasant association formed mostly by members of Indigenous Communities under the stimulus of a former head of the Special Projects program of USAID/Peru, the Hon. Brian Beun. This association may well be unique to date in number of local citizens affected by a voluntary association in whose foundation an Agency for International Development official played as key a role as Beun appears to have in this case. It seems, therefore, to be an organization well worth scientific study as a model that might be replicated in other South American nations with acute peasant problems.

Special Types of Settlements

The city plays a fundamental role in cultural change both among its own inhabitants, and among the residents of its hinterland (Redfield 1941). Thus, it is important for the foreign assistance policy-maker and administrator to have at hand data on the innovative functions of the various cities in the countries affected by his actions. Such data are now relatively scarce as far as the urban centers of the central Andes are concerned.

Even basic descriptions are relatively rare, with Bolivia the best studied of the three central Andean republics. The spatial distribution of classes in Sucre, the pre-1898 capital, has been outlined (Hawthorn and Hawthorn 1948a:22) and its urban form discussed (Hawthorn and Hawthorn 1948b). The growth of La Paz, the post-1898 capital, has been described (Leonard 1948b). Even less seems to be known of urban patterns in Peru and Ecuador.

By comparison, Mexico appears almost well-studied, with two brief analyses of Merida, Yucatan (Hansen 1934; Redfield 1941), a description of Oaxaca (Hayner 1944; 1948), an analysis of class and housing, telephone usage factors in urban ecology of Guadalajara, Jalisco (Dotson and Dotson 1954:367-71), plus several analyses of aspects of the national capital, including its growth and form (Hayner 1945), crime rate differentials (Hayner 1946), and detailed studies of representative families (Lewis 1959, 1961).

It seems appropriate, therefore, to recommend that the Agency for International Development might appropriately sponsor research into several aspects of urban life in the central Andes, besides those mentioned elsewhere in this document.

One of these aspects is the extent to which traditional Latin American urban values of residential location preference persist in central Andean urbanization. In contrast to United States flight of the middle and upper classes to the suburbs, the very cognate term carries a lower class connotation in Hispanic American tradition. The upper class families traditionally lived in handsome homes on or as near the central Square as possible, overlooking the cockpit of political decision making, the hub of commerce and urban communications. The significance of the complex arrangement of central urban structures in Lima, with the presidential palace, archepiscopal palace and cathedral on the Plaza de Armas, the Congress on the Plaza de la Inquisición, and the Club Nacional, Circulo Militar and Cerro de Pasco Corp. offices fronting on the Plaza San Martín might turn out to be greater upon systematic examination than one might think on a casual tour of the Peruvian metropolis.

Again, the outward growth of Lima via squatters' settlements has been accompanied by the development of a series of upper and middle class suburbs -- Miraflores, San Isidro, Monterrico.

Thus, there appears to be ample reason for research on the social structure of the Peruvian capital as a case of apparent exception to a pattern hitherto encountered in Latin American provincial cities (Hawthorn and Hawthorn 1948a; Dotson and Dotson 1954; Hansen 1934).

The process of urbanization through building squatters' settlements deserves at least survey attention in numerous provincial cities in Peru: besides Ica (Hammel 1961); Arequipa (Rund 1966); and Chimbote (Bradfield 1963; Matos 1963; Solis 1963) and Lima, where the process has received some attention (Turner, Turner and Crook 1963; Mangin 1963). Trujillo, Chiclayo, Mollendo, and even smaller places such as the W.R. Grace Co. sugar plantation company town of Paramonga appear to be growing in area by the squatting process.

In addition to these matters of urban growth and change, there are additional types of settlements with special functions in the cultural change process that have been inadequately studied.

Frontier Towns. One of the obvious points of entry of innovations into national states with well-defined territorial

boundaries is the frontier settlement where traffic crosses the international boundary. How cultural changes may cross international boundaries in the Andean region is largely unknown. The process has not been studied in any serious way at all save, perhaps, in the Mexican-U.S. case (Beegle, Goldsmith and Loomis 1960; Hoyos and Hoyos 1966). Thus, we can recommend to the Agency for International Development sponsorship of a series of studies of the cultural influences moving across the various international boundaries in the area.

1) Casual reading of Ecuadorian newspapers suggests that a distinct difference in economic development exists between Colombia and Ecuador that leads to Colombia recruiting labor in Ecuador. Research on Colombian influences on Ecuadorian development seems indicated.

2) At the southern margin of the central Andean region, large numbers of Bolivian workers are known to seek seasonal employment in northern Argentinian sugar cane fields and other agricultural pursuits. Once again, research on Argentinian influences on Bolivian development is called for.

3) The heritage of the War of the Pacific still affects Peruvian-Chilean relations to some extent, but very little is known about the actual frontier relations between the restored Peruvian Department of Tacna and the Arica area in northern Chile.

4) The highland boundary between Bolivia and Peru has seen a great deal of movement back and forth between the two nations. Peruvian workers formerly recruited for plantation labor in Bolivia have been largely diverted to their own country since the Revolution of 1952 in Bolivia, which also sent large numbers of Bolivians into exile in Peru. The Peruvian newspapers refer occasionally to the danger of Bolivian revolutionary ideas crossing the common frontier, but in reality very little is known from objective studies of the activities and influences of Bolivian exiles in Peru. On the Bolivian side of the boundary, the influence of Peruvians has been little studied. Recent Cornell Andean Indian Community Research and Development program investigations have found a frontier Indian community on a pre-revolutionary estate that has been profoundly influenced by its frontier location and local pressures on the land base around Lake Titicaca. Much of the past experience of the Indians in this community tended to turn them into a social isolate. The Cornell staff endeavored to reverse the isolating process and initiate measures leading to increased integration of this frontier population into the Bolivian nation! Continuing research at intervals on the long-term trend, whether isolating or integrating, of this community seems to offer considerable

potential for theoretical comprehension of important intergroup relations dynamics in both Bolivia and Peru.

5) The boundary between Bolivia and Brazil is one that has gone through historic readjustments. At the present time, a recently completed railroad links Santa Cruz, Bolivia, with Corumba, Brazil, via Puerto Suarez at the Bolivian border. A study of Puerto Suarez, and the movement of goods and people over this rail route should prove instructive with regard to Brazilian influences in the eastern Bolivian lowlands.

6) The boundary between Ecuador and Peru lives under the shadow of the international boundary conflict of 1941. Considerable trade crosses this frontier, nonetheless, both legally and clandestinely. Incidents in this trade reach the pages of the daily press from time to time, but again almost nothing is known about the social effects of movement across this international boundary. Research seems called for.

Since several of these international boundaries are highly sensitive politically within the various countries, and foreigners are excluded or restricted in some area adjacent to the frontiers, conducting research on the social change process in these areas would require very close cooperation between U.S. social scientists and their colleagues in the countries concerned, if not research conducted entirely by social scientists who are citizens of the respective nations.

7) Since Bolivia is landlocked, external influences can be largely conceptualized in terms of movement across geographic frontiers. Both Ecuador and Peru possess long Pacific coast lines, however, with numerous ocean ports that also serve as ports of entry for foreign goods and people and ideas. The export-import business of both countries is dominated by a single major port, Guayaquil in Ecuador and Callao in Peru. Thus, an understanding of innovations arriving in both countries by sea routes seems clearly to call for studies of Guayaquil and Callao as foci of cultural change in their respective national hinterlands.

8) Even landlocked Bolivia is open to another form of industrial transportation that may be assumed to play an important role in at least some classes of cultural change. This is air transport that lays down small but significant numbers of international tourists, and smaller numbers of international civil servants, government representatives, and other advocates of change in unevenly developed nations. The development of air transport has also been recognized as a significant influence toward national unification in Bolivia and Peru, by materially accelerating the speed of communication between outlying settlements and the national capitals.

Yet the research data base on this kind of cultural change appears to be in even worse state than that on settlements affected by roads. Not one of the community studies thus far conducted in the central Andean region treats, to our knowledge, of a settlement with regular air service! This component of the national cultural change process appears to have been completely neglected by researchers.

It is easy to predict, therefore, that two kinds of studies of the impact of air transport might prove to be very useful in development planning. One is analysis of the general impact of international airports, taking the Guayaquil, or Quito, or Callao, or La Paz airport as the first case for study. The second is analysis of the national integrating effect of airports such as that in Iquitos, Peru. Related to the question of integrating effects of commercial air service is that of non-commercial flights. The planners in the Agency for International Development might well profit from a general report on the use of amphibious, short-take-off-and-landing and other types of aircraft by organizations such as the Summer Institute of Linguistics in Ecuador and Peru, where it is charged with responsibility for educating many Indian populations in areas isolated save by air.

9) Another type of analysis of the cultural change process that might logically and usefully follow upon studies of the innovative role of frontier settlements, port cities, and international and domestic airport cities, would be a study of innovation in the various central Andean republics through time. An exemplary model for such studies exists in a study of the dated distributions of technological innovations in England (Hodgen 1952).

Terminus Towns. The mechanical transportation situation in the Andean region is such that at the same period when the Peruvian government is investing in the construction of a railroad in one part of the country, service is being abandoned on railroads in other parts of the country. This situation suggests the utility of studying the social and economic factors involved in the two kinds of developmental decisions. The study of rail-terminus towns in Brazil was some years ago indicated as a desirable line of research there (Pierson and Wagner 1947:69) in order to understand how such settlements mediated between urban centers and extensive rural regions. The same general phenomenon bears investigation in Peru, but in terms of competing means of mechanical transport.

The fundamental research question as to why rail service to former rail-terminus towns is being abandoned while new railroads are still being constructed in the region might be investigated by studies of such former terminus towns as

Sayán, in Chancay Province, Lima Department. Studies of present rail-terminus towns such as Huallanca in Ancash Department can also throw light upon this question.

A parallel and related research question bearing upon realistic formulation of developmental policy is the nature of social and economic change produced in the settlement that becomes a highway terminus town -- the end of the road (see Nuñez 1963 and Miller 1959 and 1965 for Mexican cases). In the same area as Sayan, the Indigenous Community of Parquín in the same Province offers the opportunity to study these effects in a settlement not long since linked to the national highway network, and recently affected by serving as one end of a bus route.

A rather more elegant research design can be achieved by conducting studies of rural settlements before they are linked to the national highway network, in order to establish an accurate base-line measure before the arrival of the stimulus of highway transportation, possibly following the course of access road construction, and then restudying the settlements at intervals after the stimulus of mechanized transport has operated on them. Thus, the base-line does not have to be reconstructed from respondent memory as in the case of Parquín, or the settlements that have already been studied after they were tied into the national highway network (Holmberg 1950; Soler 1961; Cotler 1961; Boluarte 1961; Guillén 1961; Andrews 1963a, b; Doughty 1961 etc.). There are literally scores of such communities now building access roads by communal effort available for study in the Peruvian Andes.

In the tremendous eastern lowlands of Peru and Bolivia, much transportation moves on the great tropical rivers. Here, the same research recommendations made long ago in Brazil can be repeated. Studies of "river towns" in areas of entirely riverine communications (Pierson and Wagner 1947:69) are certainly needed.

National Scientific Capabilities

One of the key factors in modernization and national development that it seems to us should be taken into account in foreign assistance policy decisions within the Agency for International Development is the scientific capability within each country receiving AID assistance, and the course of scientific development. Undoubtedly this factor is in fact taken into account in at least a general way within the Agency in formulating its South American assistance programs.

As far as we are aware, however, it can be taken into account in quite systematic and specific terms only in Venezuela, where an inventory of scientific manpower and capabilities has recently been carried out (Kidd 1965:727). We highly recommend to the Agency for International Development that one of the most important kinds of research that it could sponsor throughout the world is a survey of scientific capabilities and the state of "science in being" in each country receiving AID assistance, patterned after the Venezuelan inventory. We would recommend further that such inventories should be repeated at five-year intervals, in order to assess the trends in scientific development in each country. We think that there is enough sound evidence that the national development process depends upon a self-sustaining national scientific establishment to make precise knowledge of the state of science and the trends in scientific capability in each country receiving Agency for International Development assistance an absolute necessity for Agency policy makers.

While some evaluations of national educational institutions that include scientists among their personnel are verbally reported to have been made by Agency for International Development staff members, and may exist in the classified documents circulated within the Agency, we are here recommending a different type of inventory. We are here recommending the Venezuelan type of inventory taken openly and overtly for reporting in the unclassified scientific literature with the constant participation of study staff members who are citizens of the country's scientific capacity being inventoried, not to mention its scientists themselves, under the auspices of the head of state or prime minister (Kidd 1965:727).

In the central Andean area, then, we recommend that the Agency for International Development stand ready to finance comprehensive inventories of the scientific manpower now engaged in scientific activities in Ecuador, Peru, and Bolivia. Since the Venezuelan study cost about $25,000, this may be taken as an approximate minimum figure for an analysis of this kind.

We further recommend that the Agency finance these inventory studies in such form that they will be carried out by one or more United States scientific institutions working in close collaboration with one or more scientific institutions in each of the central Andean republics. We here concur in Gardner's (1964:44) recommendation that "feasibility studies and assessments of human resource development needs and priorities in particular areas or countries" are needed, but suggest that U.S. universities and collaborating institutions in each country conduct such studies rather than the Agency.

In addition, we recommend that the Agency then schedule financial support for national reinventories at five year intervals after each initial inventory. When it is possible to reduce this interval so that the period of the scientific capability inventory coincides with a national census-taking period, we recommend that the inventory be carried out sooner so as to gain the advantages of being able to relate the scientific inventory results directly to the census results by collecting both sets of data within the same time interval.

Finally, we recommend that as quickly as the results of such inventories are available, their publication be financed by the Agency if other resources are not immediately available and they be taken into account in Agency planning for allocation of assistance funds to training all types of scientists relative to other aspects of each assistance program, consulting regularly with U.S. and local scientists on questions of strategies for maximizing rates of scientific growth in each nation.

Ethnographic Survey of the Central Andes

The International Labour Organisation began direct cooperation with the government of Peru in 1953 to work toward Indian integration in southern Peru, and anthropological research has been carried out by members of the staff of the Puno-Tambopata Project.

This has supplemented Cornell Peru Project research at Vicos which has been both theoretical and applied in nature. Many of the community studies listed above which are theoretical or simply descriptive have resulted largely from applied anthropological programs carried out by the Department of Anthropology at Cornell University and rather parallel research by anthropologists on the staff of the Peruvian Ministry of Labor and Communities.

This rather sizeable applied social science research effort has revealed in quite clear terms that there has been a serious lack of basic social science research in Peru and the other central Andean nations. Systematic comparisons of Peruvian peasant communities where the major challenge of modernization lies are possible mainly in terms of the reports listed above which have arisen from applied social science projects. This means that the data available for comparative studies which lead to generalization at a level likely to be most useful in defining for foreign assistance planners and policy makers are seriously limited. These data are limited in the number of communities well-studied, particularly in the number analyzed with directly comparable frames of

theoretical reference. These data are limited in representativeness because they have been drawn from relatively few areas of Peru and even fewer in Ecuador and Bolivia, so that it is currently impossible for the social scientist called upon to generalize about these countries to know with any scientific assurance derived from any adequate data base concerning all geographic areas of the respective countries. It is simply impossible, given the present state of ethnographic research in the Andes, to be sure how representative of the entire rural population the whole set of existing studies really are.

Curiously enough, ethnographic research on the tribal peoples in the Amazon Basin of Peru and Ecuador and the eastern lowlands of Bolivia appears to be considerably more advanced in this sense. The data base for these tribal peoples who constitute very small percentages of the national populations is sufficiently great and geographically broad to permit generalization with considerable assurance of representativeness.

A systematic ehtnographic survey of the geographic distribution of distinctive cultural traits in the three central Andean republics apparently has never been carried out. Such a survey could allow generalization about peasant culture and society in these three countries on a much more scientific basis than at present.

Although a large body of literature on the "Indian problem" in each of the three central Andean countries has been published in Spanish, this literature is typically couched very much in terms of European cultural models (e.g., Mariátequi 1928; Vara C. 1936; Frisancho 1931; Otero 1954), and displays relatively little awareness of the great degree of cultural variations between indigenous Andean populations. (Cf. Ecuador: Galarza A. 1962; Guevara 1957; Jaramillo A. 1954; Maiguashca 1949; Modesto P. 1954; Monsalve P. 1944; and Peru: Alayza Paz-Soldan 1928; Kuczynski-Godard and Paz-Soldan 1948; Ponce de León 1946; Roca S. 1935; Saenz 1945; Tudela 1949; Valcárcel, Valega Larco and Antúñez de Mayolo 1927; Valdez de la Torre 1921; Vega 1958; Vidalon M. 1920; Villavicencio 1942; Yrigoyen 1922). Despite a growing body of ethnographic literature concerning Andean highland populations in both English and Spanish, no concerted effort seems to have been made as yet to define the extension of and characterize the cultural and social structural characteristics of subcultural regions within the Andean physiographic province. Historical linguistic distinctions that are customarily drawn are woefully inadequate indices of regional similarities and differences.

Since this basic scientific task of cultural area definition and characterization has not yet been carried out, generalization from any given community or set of communities that have been or may be studied to a pertinent region or even to the national contexts necessarily remains relatively difficult and subject to error. Any generalizations that may be advanced are necessarily questionable because of the lack of firm knowledge of the subcultural regions that make up the three central Andean republics. Applied social science research directly applicable to the policies and problems of foreign assistance programs in these three countries will continue to be severely handicapped by this situation of uncertainty until and unless the basic ethnographic survey work is carried out that would allow of increasingly precise formulations.

It is recommended, therefore, that the Agency for International Development participate in financing, along with other institutions mainly concerned with basic research, a systematic ethnographic survey of the central Andean regions of Ecuador, Peru, and Bolivia. It is definitely in the self-interest of A.I.D. to accelerate the collection of basic scientific data in this area in order to improve the quality and reliability of the applied social science research upon which its own personnel can profitably draw.

In methodological terms, it is especially important to undertake a large-scale data collection effort for the definition of traditional Andean subcultural areas as soon as possible. The very process of modernization is itself changing the nature of rural peasant society in the Andes, thus making the process of analysis progressively more difficult and less reliable. The extension of the road network has already materially changed the cultural characteristics of many Andean mountain populations. It is changing others, and will continue to foster the formation of uniform national cultures in each of the three central Andean countries. As hitherto isolated areas are brought into easy contact with the modern industrial world, traditional behaviors disappear with relative rapidity. The cultural concepts behind those behaviors linger in the minds of the rural populace, however, to influence their behavior under changed conditions. Methodologically, it is far more economical of scientific manpower and time to observe and record the basic cultural concepts while they are still expressed in overt behavior than to attempt to reconstruct them from informant accounts after they have been suppressed, and typically surrounded with conflicting sets of values promoted by representatives of the urban society. Methodologically, the results of studying these basic cultural concepts while they are still being expressed in overt behavior are far more reliable than attempts to recover them later on in time. The methodological situation

may be conceived in terms of experimental research design. The data collected before urban influences overwhelm a given rural population define conditions before a given stimulus or series of stimuli affect the experimental population, and permit direct comparisons with data collected during the application of the stimuli, and after they have been in operation for varying periods of time. If the data concerning pre-stimulus has already reached a community, the scientist cannot ever be really certain of the reliability of his information about the pre-stimulus stage.

Recent events in South America indicate the wisdom of observing certain minimal rules of procedure in conducting social science research in the central Andean republics. The widespread public discussion of "Project Camelot" as a U.S. Department of Defense-financed social science research program bordering on if not actually constituting espionage has affected not only Chilean social scientists and non-Chileans attempting to conduct social science research there (Silvert 1965:57), but has also influenced the attitudes of citizens of other South American nations quite perceptibly (Horowitz 1965:3). Colombia has since been the scene of a crisis concerning social science research involving "Proyecto Simpatico." Peru has also seen adverse publicity accorded social science research financed by grants from the Advanced Research Projects Agency of the Department of Defense. (La Tribuna [Lima] 12, 18, 19 February 1966).

The very sensitive climate of public opinion produced in the South American nations in the train of these public discussions imposes distinct limitations upon U.S. social scientists. Present conditions appear to make it extremely unwise for any U.S. social scientist to attempt to conduct research in South America financed by any branch of the Department of Defense, unless such research be carried out in direct collaboration with the armed forces of the country. These same conditions appear to make Agency for International Development financial sponsorship more of a handicap to the U.S. or local social scientist than before the U.S. intervention in the Dominican Republic and the disclosure of Project Camelot and consequent events. These conditions appear to leave Agency for International Development financial sponsorship of social science research acceptable to Latin Americans, but to make grant-financed research more acceptable than contractually financed research because of perceptible differences in Agency supervision of researchers working under the two arrangements. The National Science Foundation, as a scientific organization and foundation, even though U.S. government, occupies a respected position among South Americans.

The current situation makes U.S. social scientist cooperation with national social scientists and institutions

even more desirable than in the past. The Department of Anthropology at Cornell University enjoys the distinct advantage in this regard of operating under a long-standing formal agreement with the Peruvian Indian Institute, an entity within the Ministry of Labor and Communities, but with semi-autonomous status, and a long history of Peruvian research. Agency for International Development grants to U.S. social scientists for conducting research in the central Andean republics may be expected to produce better results when these provide for collaboration with national social scientists.

In carrying out a basic ethnographic survey of the central Andean area, the participation of anthropologists and their students in Peruvian, Bolivian, and Ecuadorian universities would in any event foster rapid data collection, widespread geographic coverage, and accurate interviewing in local dialects and Indian languages.

A three-country basic ethnographic survey would provide maximum scientific yield if set up in such a way that data collected by any single participating institution were provided all the other participating institutions.

It would be premature to attempt to define exactly in these recommendations the topics to be investigated during the basic ethnographic survey. Each participating institution and social scientist would inevitably build certain variations into field research programs in terms of local and individual interests, which would properly be reflected in specific proposals submitted to the Agency for International Development. Some of the common subjects for investigation can be outlined here.

Peasant Bartering Networks. The peasant economy of the Andes long ago worked out mechanisms for the exchange of goods between settlements as well as individuals. These mechanisms involve peripatetic traders, animal pack trains employing donkeys, mules, horses, and llamas, trading expeditions following regular season cycles, and open market fairs. This agrarian economic exchange system or series of regional systems constitutes the development base for modernization. Yet it has been little studied (Valcárcel 1946) and is in fact very imperfectly understood by or even known to non-participants. The structure and functioning of the various regional networks should be studied and made known to developmental planners and policy makers. Knowledge of these peasant bartering systems is extremely important during the period of transition to mechanized transportation and re-direction of geographic patterns of exchange.

The recommendation that key occupational groups be studied bears repetition here. Some of the significant occupations that need study in order to understand their contem-

porary economic and social roles as bases for development are muleteers who drive pack trains in areas where mechanical transport has not and in some cases cannot penetrate, itinerant peddlers who buy commodities in one place for resale in another, and itinerant curers who carry a wide range of herbal and related remedies. Again these are significant Brazilian occupations (Pierson and Wagner 1947:69) and comparisons of the Andean and Brazilian role similarities and differences should be illuminating. At the opposite extreme, the marketing organization of large farm units tending toward self-sufficiency needs study (Dorner and Thiesenhusen 1964: 1102).

Ethnic Identification Symbols. In much of Andean Ecuador, rural inhabitants are identified as belonging to "tribal" Indian groups or Mestizo society on the basis of their dress. In much of rural Peru, rural inhabitants can be identified as residing in specific rural settlements on the basis of their dress. The same sort of pattern obtains in Andean Bolivia. Hat materials, forms, and decorations differ widely. Ponchos vary in size, materials, design; blouses and shirts are worn in different styles. Skirt forms and colors vary widely, along with trouser styles. Waistcoats characterize certain populations. Footgear ranges from factory-produced shoes through artisan-made shoes, sandals, and going barefoot. In urban settlements, styles of dress define distinct social differences. An electrician in Lima wears a business suit to symbolize his white-collar status, in contrast to the blue-collar factory worker. Yet these extremely important cultural symbols are little understood by those not participating in these societies, and have been almost unstudied in any systematic manner. The process of trading geographic identification symbols for class or status identification symbols appears to be one of the most important cultural change processes under way in the central Andes, but systematic scientific study of this process is conspicuous by its absence.

Another type of symbol of ethnic identity in the Andean republics is the alcoholic beverage one consumes. There is good evidence that home brews which symbolize Indianness are giving way to beer and/or distilled liquors (Mangin 1957). Thus, an integral part of a systematic ethnographic survey of the central Andes should be mapping the relative distribution of chicherias that sell maize (or quinoa or others) chicha compared to store-bars and taverns selling beer, wine, and distilled liquors. Considerable ambivalence toward alcoholic beverages has been found in one wine-brandy producing area in Peru (Simmons 1959, 1960). The imported alcoholic beverage enjoys high prestige in urban populations in Bolivia, Peru, and Ecuador (Sanjines 1965 and Simmons 1955:114). Yet the role that alcoholic beverages play in Andean life and cultural change has been inadequately studied.

Settlement Patterns. Settlement in the central Andean republics follows two distinct patterns, one rural Indian pattern, and one rural-urban European pattern. Traditional Indian settlements consist of extended family farmsteads scattered over slopes or plains. Traditional European settlements consist of compact towns with buildings erected on square blocks along streets laid out in grid-patterns. A systematic classification of central Andean settlements has not yet been made in these terms, nor the respective implications for development systematically examined.

House Types. The Andean environment consists at first glance of an "adobe world" of simple windowless homes made of locally formed sun dried bricks. A more systematic examination reveals a tremendous range of house types, roof shapes and materials, house size, commodiousness, rather than the uniformity of flat roofs, plastered walls, and concrete or tiled floors that has been hypothesized (Davidson 1947:249-250). The existing investment in housing and public buildings constitutes once again the base from which modernization must occur, yet it is little studied. The condition of the public square in Peruvian Andean settlements appears to be one simple index of community morale and organization. Such indices remain to be studied; they can currently be employed only in a very limited context.

Festivals. Festive patterns vary tremendously in the central Andes, and indicate a great deal about the nature of rural and urban settlements. Previous research has revealed that at one extreme of festival celebration, this activity can lead to the actual disintegration of rural settlements (Castillo et al 1964a). At another extreme, the diffusion of the cult of certain saints from urban to numerous rural centers appears to be one of the mechanisms of national unification in nations where thousands of rural settlements have long existed in semi-isolation from the currents of national culture (Willems 1949; Dobyns 1960). The cults of Our Lord of Miracles, St. Rose of Lima, and St. Martín of Porres all originated in the Peruvian capital and have spread widely in Peru, and the first attracts many pilgrims. In Ecuador Our Lord of Great Power in the church of St. Francis in Quito draws pilgrims. Pilgrimage to the town of El Quinche in Canton Quito goes on the year round, and large paintings there depict miraculous cures by the Virgin of Quinche. Other settlements such as Pomasqui and Balbanera attract lesser pilgrimages. Yet neither the process of diffusion of the cults of major saints nor their present extent have been systematically explored.

One key pilgrimage that calls for study because it is

by detailed studies of the settlements found to be the goals of major pilgrimages, constitutes one of the research tasks still to be carried out in this area.

A survey of nativistic religious movements during recent years such as that Erasmus (1952) recorded among the Mayo Indians should be part of the general survey of religious patterns.

Spas. In unevenly developed nations with concentrations of medical personnel in metropolitan areas, there appears to develop, at least in some instances, a widespread utilization of thermal springs for therapeutic purposes. This occurs in Brazil, where research attention was directed nearly 20 years since to "spa cities" such as Pocos de Caldas, Minas Gerais, "which has approximately 35,000 visitors annually" (Pierson and Wagner 1947:69). This same phenomenon occurs in Peru. One of the important types of passenger on interprovincial buses and colectivos (modified stock cars carrying paying passengers between cities) is the health-seeker bound to or from one of the Andean spas such as Churin or Chiuchin in the upper Huaura River Valley, Chancos or Monterrey in the Callejon de Huaylas, Cajamarca, etc. Despite the importance of these spas in the attitudes of Peruvian citizens toward modern medicine, and their contribution to the development of the national economy and national culture, these spas have not been studied in any systematic manner. As far as we know, there does not even exist any comprehensive listing of them, much less any accurate idea of the annual number of visitors and the economic significance of the spa trade to the settlements blessed with thermal springs with a reputation for curing human ills. The logical first step toward understanding the present importance and future potential of spas in Peru would be a nation-wide survey of such settlements, followed by a detailed analysis of at least one such settlement.

Social Structure. Some research into the social structure of the development process has been conducted by members of the staff of the Cornell Peru Project, the Peruvian National Plan for Integrating the Aboriginal Population (Martínez 1964, 1962a, c; Ortiz and Galdo 1958a) and the University of San Marcos (Matos 1957, 1958). Far more remains to be done. One dimension of the social structure related to national development is the question of the causal relations between land tenure systems and primary social structure. Members of the staff of the Cornell Peru Project have begun to investigate this topic in Vicos (Holmberg 1955, 1959, 1965, etc.) and the Viru Valley of Peru (Vázquez 1965c, d), but far more must be done before firm generalizations can be advanced. Many Peruvian analyses depart from an idealized conception of

so many more analyses based on contemporary field research on actual tenure patterns are urgently needed (Cotler 1959, 1961; Dobyns 1964:13-22; Faron 1960; Mishkin 1946). If the causal connection between land tenure systems and primary social structures posited in the pioneering studies can be verified throughout the region, the practical implications of such basic research would be indeed tremendous. The first step is to study the present agricultural system (Dorner and Thiesenhusen 1964:1103).

Once again, the importance of occupational studies cannot be over-emphasized. Nearly 20 years ago the fazendeiro or large landed owner in Brazil was identified as an important group for social scientific study (Pierson and Wagner 1947:70), and subsequent events have abundantly confirmed that judgement. The behavior of large landowners in India during the various tenure reform programs carried out there since Independence also points to the importance of research on the role of large landowners. The hacendados or large landed proprietors of Ecuador and Peru can certainly be expected to play key roles in the agrarian reform movements in their countries. So the foreign assistance policy-maker surely could profit from research into their characteristics.

A significant type of land owner in Peru and Ecuador that appears to be little understood outside these countries is the "Public Charity Society". These organizations hold relatively large tracts of land that are let to the highest bidder at public auctions for stated periods of exploitation. These organizations constitute, therefore, one very significant factor in land tenure reform efforts. So studies of these institutions in both countries could quite logically be supported by the Agency for International Development as part of its contribution to the Alliance for Progress effort toward agrarian reform in Latin America.

Reasonable Grant. One kind of research unit that could hope effectively to carry out a basic ethnographic survey in the central Andean republics under present circumstances would consist of a Research Associate in a U.S. university assigned to full-time research and training duties in one of the Andean countries in cooperation with one of the local universities or other suitable institutions (such as the national Indian Institutes), a minimum of one professor from each participating institution, and their advanced students, with secretarial help in data processing. Such a unit would require one field vehicle, and travel funds sufficient to permit free movement of all participants in the field, and of the Research Associate and two professors be-

should be provided with funds adequate to publish scientific findings from time to time in both Spanish and English, and field notes should be filed in duplicate sets at each institution. Budgetary details would necessarily vary with the specific institutions involved, their geographic location (which affects air fares) and the particular personnel conducting the research (whose salary levels vary). An approximate budget to permit six U.S. graduate students and six Andean students in field work each year, would appear to be on the order of from $78,000 to $92,000 per year exclusive of paying permanent equipment costs during the first year of research activity. On a five year grant basis, this would imply from $390,000 to $462,500 per institution, exclusive of approximately $9000 for permanent equipment.

Indian-Mestizo Relations

Often involved in land tenure patterns in the central Andes, intergroup relations between Indians and non-Indians constitute a broader field of social influence. For intergroup interactions occur in the towns and cities where land tenure is not a prime consideration coloring them. The Indian populations of the central Andean republics continue to be large, in terms of the criterion of language habitually spoken as well as other indices. The legal language of Ecuador, Peru, and Bolivia is Spanish, however, and the socially dominant population is non-Indian, in cultural terms, at least. Thus, the nature of intergroup relations constitutes a significant field for research related to the national development process (Gillin 1945, 1948).

A considerable portion of the Cornell Peru Project research at Vicos has dealt with Indian-Mestizo relations (Holmberg 1955, 1960; Vázquez 1966a, 1964), supplemented by a detailed study of a Mestizo trading town in these terms (Ghersi 1959, 1960, 1961). Puno-Tambopata Program anthropologists have also focused upon this aspect of the regional development process in Puno Department (Galdo 1962; Martínez 1962b). Some limited general statements have been made on the subject (Fried 1961), but a comprehensive understanding of intergroup relations throughout Peru is still lacking. Not only the Indian minority, but also the Negro, the Chinese and Japanese immigrant groups need to be taken into account in any realistic overall assessment of intergroup relations. Much the same situation exists in Ecuador where the Otavalo Indians have received nearly all of the scientific attention given this subject to date (Buitron 1947; Collier and Buitron 1949; Parsons 1945; Preston 1963; Rubio Orbe 1956) save for some Negro settlements (Preston 1965) and Bolivia, save that even less is known from scientific studies there.

Physiography and Development

In a realistically scientific admonition, John W. Gardner (1964:19) recommended that "the Agency should adopt a wide, rather than a restricted, framework for the kinds of basic research it might assist." In this same spirit, we recommend that basic research into the relationships between physiographic conditions and development is supported. In the Andean region, the ecological significance of life at very high altitudes is the immediately obvious topic for serious continuing research.

Peruvians pioneered research into the biologies of humans, animals, and plants living at high altitudes in the Andes (Monge M. 1928a, b, 1929) and possess the largest in-being pool of scientific manpower scientifically trained and equipped to carry on this research activity (Monge C., Cazarla, Whittembury, Sakata and Rizo Patron 1956; Hurtado and Rotta 1939; etc.). Recent United States concentration on high altitude flight and space exploration has heightened U.S. interest in physiological responses to high altitude conditions (Hurtado, Velásquez, Reynafarje, Lozana, Aste Salazar, Reynafarje, Sánchez and Muñoz 1956; Hurtado, Velásquez, Reynafarje, and Aste Salazar 1956), so that tremendous amounts of research funds have lately been invested in many lines of investigation of the behavior of various life forms in extreme extra-terrestial artificial environments.

One of the problems of national social and economic development in the central Andes is precisely that development must be carried on by human populations inhabiting extreme high altitude terrestial environments that cannot be manipulated or controlled with nearly the ease of the relatively small artificial extra-terrestial environments. Thus, there is good reason to recommend that the Agency for International Development not rule out support for basic scientific research into these complex and critical relationships between man and other ecological components found above 10,000 feet above mean sea level.

The Peruvian research has been published often in Spanish (cf. Hurtado and Aste Salazar 1943; Monge C. 1949; Monge M. 1935; Monge M., Contreras, Velásquez, Reynafarje, Monge C., and Chavez 1948), so remains somewhat inaccessible to U.S. researchers, while the recent U.S. research published in English (or still classified unpublished) remains inaccessible to the Peruvian (or Ecuadorian and Bolivian) researchers. Accelerating the exchange of scientific findings might well be one of the most productive immediate measures that a research-supporting organization such as the Agency could undertake.

In longer range terms, grants that would enable established Andean research institutions to assign researchers to investigate the developmental consequences of the stresses placed on animal organisms at the higher elevations could eventually pay very large practical dividends. Such grants giving individual investigators the security required for serious long-term research might also not pay very large dividends. This home truth about research findings needs to be kept in mind by the Agency for International Development at all times; if scientists could predict the research outcomes and practical consequences of their findings before undertaking a given research project, they would not need to initiate it!

Stressful high altitude environments are not the only physiographic problems of development encountered in Peru, Ecuador, and Bolivia. We can repeat the same recommendations for research in these nations advanced some time ago for Brazil in terms of studying the relationships between physical conditions and cultural, social, and even psychological traits in the populations of semi-arid regions (Pierson and Wagner 1947:71). The semi-arid Bolivian high plateau, the truly arid Peruvian Pacific coast with its valley oases, offer development problems not unrelated to those of the Brazilian nordeste. In addition, the colonization of the lowland rain forests in Ecuador and Peru and Bolivia (Sakari 1960), places highlands populations in the same extremely moist, humid environment along with serpents and predators like many Brazilian settlers in the vast Amazon Basin. Thus, there are at least three distinct physiographic variables that will bear investigation: high altitudes, aridity, humidity.

VI. SUGGESTED COMPARATIVE STUDIES

Perhaps the most difficult type of study to recommend without drawing up much of the research design is the worthwhile comparative study. A central problem of comparison of cultural change process, dynamics, and rates in various cultures is that of striking a balance in data collection and analysis. On the one hand, comparison appears to be facilitated by reification of concepts so that direct comparison often has been accomplished at one or more levels of abstraction removed from the primary data collected in the field, leading to concern over the meaningfulness of such comparisons. On the other hand, retention of that contextual detail that satisfies the analyst that violence is not being done to the cultural meaning of the data from any particular society tends to impede the ease and even the possibility of direct comparison, especially of static traits.

Being very conscious of the difficulties in collecting meaningful field data on the cultural change process, and the urgent need for cross-cultural generalization, we recommend to the Agency for International Development that it seek to support long-term field research projects in preference to single year studies of special topics, even though we also recommend some studies of the latter duration. We make this suggestion in the belief that long-term studies of particular communities and areas permit social scientists to collect data that can be validly compared across cultural boundaries without conceptual reification to the point of throwing the contextual validity of analysis in doubt. This recommendation is not intended as a claim that the Comparative Studies of Cultural Change long-range research design developed at Cornell University is the perfect answer to the analysis of cultural change. We are quite conscious of defects in our own approach.

Rather, we offer this recommendation in the belief that those long-term field research projects that have been successfully carried out thus far have proved relatively fertile sources of meaningful data about the cultural change process, particularly in comparison to the short-term study limited to a few months with no collection and reporting of data at a later date. This recommendation is based quite simply upon the fact that the cultural change process operates through time, and typically operates at such a pace that its more meaningful dynamics are revealed over decades rather than single years. Thus, the long-term field program that sends researchers back into the same community or area repeatedly over a period of time is in the nature of the cultural change process more likely to discover meaningful aspects of the

dynamics of the whole process than an equally expensive series of programs sending the same number of investigators out to look at a randomly selected sample of communities or problems for a few months only.

The short-term field study with no follow-up remains forever one synchronic cross-section in the constantly, if often slowly, changing characteristics of a given population. It should be recognized that a static view of culture is inherent in the analysis of synchronic data, and that synchronic data often lead the analyst somewhat astray in attempting to assess correctly the functionally important cultural traits observed.

Re-studies of previously analyzed populations that provide at least a diachronic view of them are one corrective of the static view arising from the analysis of synchronic data, and one method for studying cultural change realistically.

Even in the United States, the picture West (1945) painted of Plainville, USA is definitely not the same one that Gallaher (1961) found fifteen years later.

In Mexico, the Lewis (1951) team re-study of the village of Tepoztlán gathered much fuller data about this specific settlement than Redfield (1930) had been able to collect alone in his pioneer community study. More important, the Lewis analysis revealed significant observational biases in the Redfield study, and was able to record significant cultural changes that had occurred in Tepoztlán since the original study, thus throwing considerable light upon the cultural change process in rural Mexico.

Also in Mexico, repeated visits to Tzintzuntzan have enabled Foster to bring out illuminating new analyses of such things as dyadic contracts involving short-term exchanges with significant reciprocity (Foster 1961) which throw light on the patron-client relationships and personalism of Latin American society (Foster 1963), as well as to note the resistance to change the inhabitants of Tzintzuntzan have offered since the epoch of the cultural missions. Yet the original monograph on this community appeared in 1948, and would stand alone without Foster's revisits and continued publication about the course of events there.

One of the most spectacular studies resulting from a revisit by an anthropologist to a small-scale social system that she had studied a quarter of a century earlier is New Lives for Old (Mead 1956). The original study (Mead 1930) served as a base line describing Manus as it was before World War II. The re-study enabled Mead to reconstruct the events during the war that led the islanders to undertake a wholesale reformation of their traditional way of life, and

enabled her to observe the social consequences of that consciously designed new way of life.

In the same Pacific area, another theoretically profitable re-study by the same anthropologist (with a younger colleague) of people known much earlier is Firth's (1959). The original study again functioned as a base line against which to measure change produced by more or less reconstructible stimuli.

In view of the greatly increased scientific yield of the re-study compared to the initial study of a given population, particularly in terms of understanding the cultural change process in various cultural systems over the world, it seems to us very reasonable to recommend that the Agency for International Development consider such re-studies as having higher priority in its support of social science research than initial studies, save in those world areas where no exploratory studies at all have yet been carried out.

Despite the relatively high scientific productivity of the re-study, this procedure still produces only a diachronic analysis comparing a given social system at two points in time. Thus, the stimuli causing change between the two periods of study must be reconstructed from informant accounts and written records (if these exist), just as in any other historical reconstruction. Such historical reconstructions are inevitably open to error.

Long-Term Continuous Field Studies

The long-term field study program that observes a given population repeatedly over a long period of time is, therefore, scientifically preferable to the re-study. The higher the frequency of observation, and the greater its intensity, the more likely the study is to record accurately the facts concerning stimuli producing significant cultural changes, and to be able to study change in process rather than reconstruct it *ex post facto*.

One of the most productive social science studies of this nature was carried out for many years by anthropologists and their behavioral science associates at Harvard University. Focusing research attention initially upon one small Navaho Indian population in New Mexico, this program accumulated perhaps the richest data base on a single small population ever assembled by social scientists. Intensive study of one small Navaho population led to a detailed analysis of Navaho culture that is unique in understanding many facets of that culture not successfully studied by any other method (Kluckhohn 1944)

When the federal government showed itself receptive to the use of social science analysis of Indian cultures by its Bureau of Indian Affairs personnel, this university program furnished the social scientists to write two of the best-stated descriptions of Navaho culture and society ever written for the guidance of teachers, administrators, and policy-makers dealing with these Indians, from the firmest data base of any available for U.S. Indian tribes (Kluckhohn and Leighton 1946; Leighton and Kluckhohn 1947). These excellent studies followed a slightly earlier volume directed to the specifics of medical care of Navaho patients (Leighton and Leighton 1944).

The depth of knowledge of specific Navahos accumulated by the Harvard project led in time rather naturally to the study of nearby settlements of non-Indians for comparative purposes, as well as to examination of some other Indian societies (Adair and Vogt 1949; Vogt 1955).

At a later time, the anthropology department at Harvard initiated another long-term research program in the Mexican State of Chiapas, where the practical efforts of the Mexican Indian Institute directed toward the integration of the Mayan-speaking Indians of that area into the national social structure could be studied. The results of this long-range research are now beginning to appear. Analysis of the principal trading center and Indian satellite villages in a widespread Indian farming region has thrown several Guatemalan studies of Mayan-speaking communities into greater comparative perspective by helping to segregate Mexican from Guatemalan national traits (Cancian 1964; Colby and Van der Berghe 1961; Vogt 1965). A series of inferences have been drawn from recently collected data concerning aboriginal Mayan religion (Vogt 1961, 1964a, b) indicating that the dynamics of cultural stability over several centuries are under examination. We have already mentioned in an earlier section a study of effects of building a road into an Indian village in this area (Miller 1965), in which community decisions on utilizing an Indian Institute medical post are also analyzed.

Without belaboring the point with more examples, we simply recommend to the Agency for International Development that it support long-term social science research programs of this type with long-term grants. We stress grants for the general support of the research program, not for specific research goals that may turn out to be unrealistic in terms of the field situation. The sustaining grant will afford researchers the freedom that they need to pursue fruitful leads and theories.

Such grants need not always be tremendously large to be effective (although we are not denying the utility of large

sums for some types of social science research under appropriate circumstances). The utility of the long-term research program lies in its frequently repeated observations, as we have already stated, and financial support that will permit a core staff to carry out such repeated observations over a long period of time is more likely to yield practically useful findings than the same amount of money that must be spent for a large number of researchers working during a short period of time.

Regional Social Structures

Earlier in this document, we recommended that the Agency for International Development might well support fairly large-scale studies of certain types of physiographic regions - intermontane valleys, riverine ecological systems, and so on. We now couple that recommendation with the one immediately above for support of long-term social science studies of given populations.

It seems to us that the most productive kind of study of these natural theaters for cultural changes to occur on a significant scale will be one that begins with a fairly comprehensive multi-disciplinary study of as many aspects of the region as possible that can serve as a base-line measurement against which to measure changes defined by a continuing series of later observations. In fact, we suspect that the sheer size of some of the appropriate areas for regional research and the magnitude of the populations in them almost require long-range research. The initial massive study would not be likely to achieve much more than a general survey under the most optimum conditions of financing, scientific personnel recruitment, and national cooperation.

To make the initial survey results more profound and accurate, additional follow-up studies would probably be called for in any event. These could and we think should be conducted concurrently with continuing observations aimed toward identifying influences toward cultural change, and their consequences.

A final reason for recommending long-term social science studies of this sort lies in the nature of a research finding based upon our cumulative years of applied social science experience. The synchronic study, even if it is conducted on a large scale with careful comparisons of numerous social systems and well carried out, and almost regardless of the degree of desire for it by policy-makers when begun, ends up more or less forgotten on library shelves after the findings are published. The nature of political and administrative

life is such that policy-makers and bureaucrats will almost inevitably have changed between the initiation of a large-scale regional survey and the publication of its findings. New policy-makers and administrators, not having taken part in planning the study, and often not sharing the same perception of the need for it that its initial supporters had, are predisposed to ignore it. If there is no continuing research, there is no great awareness of nor motivation to utilize the results obtained. Thus, more than one developing country's leaders can legitimately complain that the nation has been studied, re-studied, and then studied some more, but nothing tangible has resulted from all the studies. A certain amount of the reason for this situation lies in the studies all being synchronic, well-intentioned and often excellent in themselves, but synchronic withall, with no built-in research follow-up to keep policy-makers and administrators alerted to the possibilities of utilizing the research data being collected. The continuing research can serve to keep scientific findings literally "alive" in the sense of keeping scientists on the scene conducting analyses of change tendencies as well as refining the original measurements so that they can interpret the findings to those who can make practical use of them.

The key to such research strategy lies, we think, in a policy of key grants to research institutions that will enable them to maintain core research staff members in the field alternating with periods of data analysis on campus (if a university is involved) or at the home office, for a decade at a time.

Peasant Fisheries

One of the studies that could discover development potentials in a specific traditional occupational group that provides a protein food important in densely populated areas would be a comparative analysis of peasant fishermen. A rapid survey of Peruvian Pacific coast fishermen has been made (Hammel and Haase 1962), but nothing is known in depth about peasant fishermen in this country where dried fish is highly prized and widely consumed in the Andean settlements. Some analysis has been carried out of Surinam fishermen exploiting tidal pools on abandoned plantations. Peasant fishing is known to be important in Brazil, and AID has financed the organization of cooperatives among Panamanian peasant fishermen. In South Asia, peasant fishermen supply a very critical food item, and some fishing settlements have already been reported upon in Malaysia (Firth 1946), and Vietnam (Donoghue 1963). Something is known of Japanese peasant fishermen (Norbeck 1954) and a little about those on the coasts of Europe (Anderson and Anderson 1964).

A research program could well be mounted to compare different national varieties of peasant fishermen, and to compare peasant to highly capitalized commercial fishermen with a view to finding out whether foreign aid yields more economic and social change when invested in commercial fisheries that recruit individuals and give them explicit training on the theory learning from scratch works better than unlearning previous practices, or in upgrading peasant fishermen by promoting cooperative organization, mechanization, and other means of technification.

Such a research program would need to conduct some control studies of the social structures and economics of highly capitalized commercial fishing.

The first stage of such a program would logically be to review the extant literature on peasant fishing in order to develop specific hypotheses for testing in field research. The second stage would consist of a good deal of travelling in coastal and inland waterway areas to survey peasant and commercial fishing populations. The survey would collect certain kinds of basic data to fill in gaps in the existing data base and augment it. The survey would also canvass possible sites for detailed field research in a later phase. The bulk of the new research should be planned in terms of refined and specified hypotheses developed from the survey data. Final analysis should aim toward providing a firm answer to the question as to the socio-economic yield of investment in upgrading peasant fishing as compared to investment in other forms of fishing. Quite a holistic view of social variables needs to be maintained throughout, so as truly to measure social consequences of alternative methods of fishing, to avoid simple economic measures that fail to take into account the actual social networks involved.

Urban Studies

The world's population has for some time been moving into cities, and appears likely to continue doing so. Understanding the urbanization process is, therefore, vital not only to social science, but also to society itself (Sjoberg 1959:359). It appears to be especially important to study urbanization in a world-wide comparative context, and not assume United States social process can be found operating in other cultural areas. Not even the research instruments worked out to study U.S. cities can be readily employed in other countries (Sjoberg 1959:357-358; Whiteford 1960:254), so there is hardly reason to think that urbanization occurs elsewhere in the same manner as in the United States.

An understanding of world urbanization requires, then, at least a modicum of general theory to guide the comparisons of urbanization in different countries so that the field studies can contribute to general understanding of the process as well as specific analysis of particular cities.

Effects of Social Power on Cities. One frame of reference for studying urbanization is that of examining the effects of social power on cities around the world (Sjoberg 1959:353). Research on this variable has clear pertinence to Agency for International Development operations, since it deals with other governments that wield social power within their respective nations.

A possibly fruitful set of comparative studies in this frame of reference might examine the similarities and differences between:

1) the planned and prepared settlement of farming communities with urban facilities such as kibbutzim (Spiro 1963; 1965) and moshavim (Weingrod 1966) in Israel.

2) the intervention of state power in urbanization of Haifa.

3) state formation of "satellite cities" such as Ventanilla and large-scale low-cost housing projects in Lima, Peru (and/or Bogotá, Colombia, etc.).

4) citizen invasion of state (and sometimes private) lands to form urban squatters' settlements in Lima (and/or most other Peruvian cities, Guayaquil, Bogotá, Santiago, Buenos Aires, Sao Paulo, Rio de Janeiro, Mexico City, etc.).

5) state formation of racially segregated urban districts in the Union of South Africa, utilizing state construction, forced removal and pass laws (Sjoberg 1959:354).

6) state formation of a new national capital, Brazilia, planned to become a communications hub as well as decision-making center.

Impact of Technology. A second frame of reference for the study of urbanization is that of examining the impact of technology on cities. Mechanized transport appears to be a particularly important aspect of technology for investigation, both in external terms of long-distance transport impacts on city location and growth, and internal urban functions of residence, commerce, labor, and so on (Sjoberg 1959:347). The relationships between transportation capacity and the exercise of power in establishing or modifying urban settlement patterns would bear investigation in the kinds of contexts suggested above.

Cultural Values and City Location, Form, Function. A third frame of reference for the study of urbanization is that of examining the influence of cultural values upon city location, form, function, etc. The direct behavioral consequences of religious values are readily visible in the cities of Islam, especially in temporal ordering of activity (Sjoberg 1959:345). Something of the effect of Roman Catholic religious values implemented by the sovereign power of the Spanish crown may be observed in the placement of churches on central squares along with secular governmental buildings throughout Hispanic America (Davidson 1947:249; Foster 1960: 48-49). Research seems sorely needed on the cultural values affecting urban growth and change today, in countries besides the United States where a beginning has already been made (Firey 1947). The desire to own one's home and city lot appears, for example, to be a major motivation among urban squatters in Latin American cities, taking precedence over enjoying utilities such as electric power, running water, sewage disposal, and so on, yet this capitalistic movement has hardly been thought about in these terms, much less analyzed (Turner, Turner and Crooke 1963; Mangin 1963).

Innovative Functions of Cities. A fourth frame of reference for the study of urbanization is that of examining the innovative functions different cities have in various countries. This frame of reference considers the city itself to be a kind of independent or causal variable with regard both to its own population and that of its hinterland. One of the critical research interests within this frame of reference is the degree of urban secularization inherent in large-scale urbanization (Sjoberg 1959:340-41).

The Peruvian metropolis of Lima appears to be one appropriate context for research in this vein, given the known importance of the cult of Our Lord of Miracles (Vargas U. 1957), and those of Sts. Martín of Porres and Rose of Lima in the fastest-growing industrial center of its country, famed in tourist terms for the great number of its churches. Another key research interest is systematic description of precisely how various cities do function as innovative centers for their hinterlands (Whiteford 1960:2).

This is a matter of dynamics of cultural change that has a direct bearing on the degree of success many possible foreign assistance programs can hope to enjoy. So the Agency for International Development can take quite a legitimate interest in sponsoring such research. The Latin American cities remain among the least studied in the world despite a few pioneering attempts (Hawthorn and Hawthorn 1948a, b) in Sucre and La Paz, Bolivia (Leonard 1948b), Oaxaca (Hayner 1944, 1948), Guadalajara (Dotson and Dotson 1954), Mexico City (Hayner 1945, 1946; Lewis 1959, 1961), Guatemala City

(Caplow 1949) and an analysis of social class in Queretaro and Popayán (Whiteford 1960), and the beginnings of generalization (Caplow 1952).

Universities and Development

In contracting with U.S. universities to conduct foreign assistance programs and to carry out research in this connection, the Agency for International Development seeks to utilize a fairly obvious pool of institutional resources, including one of the major groups of scientists in the country. The very fact of underdevelopment or uneven development in the foreign nations receiving United States aid places the university in those countries in a different role than that of the U.S. university in its affluent and highly industrialized society. This is true of the local national universities and the United States university staff operating overseas.

This difference in relative degree of development between countries, and between institutions within the developing countries, indicates one very important kind of comparative research that the Agency for International Development might logically support. This is to assess the relationships between individual universities or whole higher educational systems and national development. Few U.S. professors appear to have even thought about this question, much less investigated it. Although it is clear in a general way that United States agriculture has gone through a technological revolution during the century since the land grant college system was founded by national policy, studies have not yet clarified the relative contributions to that gross and very important cultural change made by the land grant colleges, by private industry, by direct government interventions of various kinds, and so on, although some bare beginnings of analysis of the land grant college role have been made (Weidner 1962:283).

Thus, one kind of research currently needed is retrospective research into the historical dynamics of development in the United States, with particular attention to the role institutions of higher learning have played in it.

Such research would by itself offer few guidelines to the possible roles universities can play today in other national development efforts, inasmuch as gross differences in national requirements may have come into being because of the differential development of various nations. One analysis of human resource needs in the various countries at the present time in terms of four differentially developed groups of nations suggests rather different educational priorities. Underdeveloped countries logically need primary educational development while training some university graduates abroad.

Partially developed nations need secondary educational development. Semi-advanced nations require higher education reform, technification and expansion. Advanced nations have "omnivorous demand" for technically and scientifically trained people. They need university and especially post-graduate expansion (Harbison and Myers 1964:176-178). More comparative analyses such as this are needed. Comparative examination of other developmental dynamics in other countries would be required to make the research on United States development particularly useful.

This means carrying out rather parallel studies of the national development process in other countries as far as it has gone, again paying particular attention to the relationships between institutions of higher learning and development. Such data appear to be even rarer than those on the United States (Weidner 1962:283). Special attention would need to be paid in these studies to the question as to whether the expanding role of the large university would permit it to carry out developmental functions performed by other institutions in the United States case.

New Analytical Techniques

The Agency for International Development, in line with the Gardner (1964:19) recommendation that it should support a wide range of basic research, might well devote some of its financial support to funding programs designed to work out new techniques or improved techniques of research.

Since fruitful new techniques are relatively difficult to devise, and their very novelty inhibits predicting what they might be, we limit ourselves to recommending that the Agency be alert for proposals from the scientific community that show promise of developing useful new research techniques.

We limit ourselves to a pair of perhaps obvious examples of suggestions for improvement.

One area of marked and fairly rapid improvement lies in the use of computer analysis of data. It has already been asserted that synthesis of the multivariant reality of complex social action outruns the capacity of the English or any other historically developed human language, and the capability of even mathematic methods of representation has been questioned, with analogue computers as the apparently most appropriate available kind of representation (Bales 1959:303).

A second area of potential improvement lies in the accumulation of aerial photographs of cultural phenomena and their increasingly sophisticated interpretation by social scientists. One possible line of research on technical improvement might be land tenure analysis (Wessel 1966; Osterhaudt 1965). The trends in farm unit fractionization under the pressure of equal heir inheritance laws or other factors (Vázquez 1965c, d) should be susceptible of precise quantitative measurement over time by interpreting a series of appropriate aerial photographs.

Studies of peasant economies are notoriously handicapped by deliberate falsification of responses by informants fearful of increased government taxation, or by simple poor memory of crops planted, lack of precise knowledge of field dimensions, etc. Such disabling handicaps on the direct interview technique for data collection may be overcome through painstaking analysis of appropriate aerial photographs. If crops can be identified in a series of photographs taken at different seasons, the agricultural economist need not rely upon dubious peasant accounts to find out what actually has been planted, and how much of it.

Long-range ecological changes pressuring human populations toward at least some kinds of cultural adjustments may be analyzable from certain types of aerial photographs. At least, as the technical capacity to orbit photographic equipment in space permits viewing the earth from a more distant perspective than man has ever before had available, we may be able to find important leads to significant research projects. Photographs of canyon patterns on the eastern slope of the Andes east of Lake Titicaca suggest, for example, that a large-scale field investigation of archaeological remains supplemented by analysis of surviving historic records of land use in this Cordillera Real area might reveal significant dynamics of depletion of high-altitude steep slope soils and consequent large-scale erosion, and perhaps establish a time table for such events.

Aerial photograph interpretation might well be improved for the analysis of urbanization and industrialization. Appropriate vertical photography might record the process of squatter settlement quantitatively with considerable accuracy, for example.

The basic criterion to be worked out through experimentation may well be that of comparative costs. Experiments comparing the cost of analysis of a phenomenon such as a squatters' settlement by conventional interview or observational techniques and group photography, to that of aerial photography and interpretation are needed to settle this

question. In some cases, such as field size and cropping, aerial photography offers absolute data-collection advantages regardless of cost, as already indicated.

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