SOCIO-CULTURAL AND ECONOMIC CHARACTERISTICS OF CONDITIONS IN ANCAS AND LA LIBERTAD, PERU WITH SPECIAL EMPHASIS ON THE CALLEJONES DE HUAYLAS AND CONCHUCOS: IN AN EVALUATION OF CARE-SPONSORED WATER, SEWAGE AND HEALTH PROJECTS

WASH FIELD REPORT NO. 1

NOVEMBER 1980

Prepared For:
The U.S. Agency for International Development

ITATION
OJECT

COORDINATION AND INFORMATION CENTER

Operated by The CDM Associates
Sponsored by the U. S. Agency for International Development

1611 N. Kent Street, Room 1002
Arlington, Virginia 22209 USA

Telephone: (703) 243-8200
Telex No. WUI 64552
Cable Address WASHAID

The WASH Project is managed by Camp Dresser & McKee Incorporated. Principal Cooperating Institutions and subcontractors are: International Science and Technology Institute; Research Triangle Institute; University of North Carolina at Chapel Hill; Georgia Institute of Technology—Engineering Experiment Station.

SOCIO-CULTURAL AND ECONOMIC CHARACTERISTICS OF CONDITIONS IN ANCASH AND LA LIBERTAD, PERU WITH SPECIAL EMPHASIS ON THE CALLEJONES DE HUAYLAS AND CONCHUCOS: QUESTIONS TO BE CONSIDERED IN AN EVALUATION OF CARE-SPONSORED WATER, SEWAGE AND HEALTH PROJECTS

by

Charlotte I. Miller, Ph.D.
Consulting Anthropologist
CDM WASH Project

Submitted to:

Anamaria V. Long
USAID
PPC/E/PES

Washington, D.C.
November, 1980

TABLE OF CONTENTS

Page Number

LIST OF FIGURES

ACKNOWLEDGEMENTS

I would like to thank the following people for their cooperation in helping me to put together this information.

Ms. Sallie Alvin	USAID/PPC
Dr. Leslie A. Brownrigg	AMARU IV Cooperative Washington, DC
Ms. Margaret A. Brush	
Dr. Stephen B. Brush	National Science Foundation
Dr. Paul Doughty	University of Florida
Ms. Polly Doughty	Gainesville, FL
Dr. Stephen W. Dudasik	Boone, NC
Mr. Joseph Haratani	USAID/NE
Ms. Rita Jan	USAID/PPC
Ms. Anamaria V. Long	USAID/PPC
Dr. Anthony Oliver-Smith	University of Florida
Dr. Margaret A. Pierce	Valdosta State, Valdosta, GA
Dr. Robert Werge	Office of International Course Development and Overseas Training/USDA
Dr. Barbara O. Bode	Fordham University

I would also like to thank the staff at the Microfilm reading room at the Library of Congress for their assistance in obtaining dissertation materials.

I would also like to express my thanks to Charles Pineo and Mary Elmendorf for directing me to some existing studies on this subject.

SUMMARY:
IMPLICATIONS OF SOCIO-CULTURAL AND ECONOMIC FINDINGS

The following discussion is based on the more detailed socio-cultural description contained in the body of this report.

Ecology. Water and sanitation practices will vary considerably in the study areas because of differences in altitude, availability of and closeness to sources of water, and population density. For example, bathing will be much more frequent in urban areas than in rural areas. Closeness to large cities and towns, location on rivers or near the puna (tundra), use of irrigation in agriculture all will cause variations even in small communities of the same size.

Demography. Women are more numerous in small communities and are the decision-makers in terms of water and sanitation practices. They are the teachers of elmination and washing practices to their children: the how and the where of hygiene. Good projects in water and sanitation will focus on female participation. Because of male migration to urban areas and back, men may be a resource for introducing innovations: brushing teeth, toilet paper, kitchen equipment and hygiene practices. The women will decide, however, whether to adopt the innovations.

Health of Children. Women have an over-riding concern for the health of their children. They are aware of the fact that many of their children die. However, because their theories of disease origin are often different from that of "modern" medicine, the adoption of sanitary practices will not be necessarily linked to disease and would not be as high as might be expected. For example, boiling water has such great cost in fuel, time and convenience that given the lack of belief in the germ theory, women will not adopt the practice.

Economic Patterns. The fact that fields are scattered and the peasants have animals as well as fields means that people cover a wide geographical territory in their daily round of activities. The improvement of sanitary facilities in agricultural villages, therefore, may not be adequate

for daytime needs of agricultrual workers who include men, women and children. The provision of public toilets and other sanitation facilities in market places, on the other hand, will meet a great need on certain days when there is a great increase in population density in market towns.

Rural-Urban Migration. Women who migrate to cities to work as domestics or to become traders, as well as men who work in various types of urban jobs, also become bearers of changes in sanitation and water practices when returning for periodic visits to rural communities for holidays such as Christmas, Easter, or the national holidays (fiestas patrias). These people become cultural brokers who have been exposed to soaps, detergents, flush toilets, recreational swimming, showers, tubs and indoor plumbing. These features are associated with urban life, a much more prestigeous way to live than its rural counterpart. This is a major motivating factor which is increasing adoption rates of modern health and sanitation practices. It may be important to know that those change agents can be used in projects to reinforce new behaviors which projects are attempting to introduce.

Communal Labor. Not all small towns have a legally constituted comunidad campesina (peasant community). For this and other reasons such as barrio (neighborhood) rivalry and other forms of factionalism, communities vary a lot in terms of internal cohesion. The basic work group which could be called upon to implement a self-help project and the strength and reliability of that work group will also vary considerably depending on the internal social organization of the village. The decision-making process is one of consensus arrived at in public assemblies. Officials (autoridades) in these communities may be extremely limited in their abilities to implement projects which have not met with the approval of a consensus, usually arrived at after lenghty public discussion over a period of weeks or months.

The difficulty of implementing sewage projects may be linked to an inability to reach a consensus on the importance of that way of removal of human wastes from the environment. The lack of modern sanitary facilities and sewage systems should not be construed as a lack of a system for dealing with excreta. In Andean highland communities, animals, particularly dogs and swine eat human exreta and are kept, in part, to provide that service to the household. In addition, the cool and relatively dry climate inhibits the growth of micro-organisms which at a lower altitude would be a more serious source of

disease. These two factors combine to minimize the spread of disease through the fecal-oral contimination channels.

Language Use. The dominate use of Quechua by women in these communities presents a serious barrier to communicating with them, the households' water and sanitation decision-makers. It is important to measure the degree to which projects have been able to overcome that barrier in reaching the target populations. The exclusive use of Quechua, on the other hand, by outside change agents may be viewed as depreciating and condescending by rural residents who are used to using Spanish in the public sphere an in dealing with outsiders. Sensitivity to this issue by project members is a factor to be looked for in project evaluation.

Household Structure. The physical structure of village residences promotes a multiple use of spaces especially in the inner patio. The patio of most homes serves as the major area for cooking, small animal husbandry, storage, visiting, bathing and even sleeping, under the overhang in the best times of year. This multiple use of space is efficient for the needs of such households. Water or sanitation practices which would require the setting aside of segregated or private areas exclusively for hygiene might be viewed as highly costly. The building of a latrine which occupies a large proposition of a small patio would be difficult for most families to justify. Household resources, already strained by poor economic conditions in the agricultural sector and the economy in general cannot be expected to have a lot of leeway for costly imported items. The introduction of such a simple practice as washing hands before cooking, in fact, involves a complex of behaviors, including the convenience of basins, soaps, towels and storage facilities to the water source. The associated goods cost money which require cash purchase, and cash, in these communitires is relatively difficult to get.

Education. Knowledge about sanitation and modern practices is present in most villages through cultural brokers. The use of educational or training strategies to accomplish the adoption of innovation in this sector, linked to these projects, is important to note. When Peruvian, urban, middle-class outsiders go to these communities as health agents or teachers, they often do so with a tragic mixture of consescention and ignorance about local, rural conditions. Rural residents have learned to respond to such outsiders with resignation and passive resistance. They are likely to give overt agreement to theories and

practices which are imported by such agents from the outside, but in practice are very selective in experimenting with and adopting innovations. Knowledge and positive appreciation of rural conditions is greatly lacking among official change agents.

A summary of recommendations for evaluation field work procedures will be found at the end of this report.

PURPOSE

This paper is prepared to provide a PPC evaluation team which is reviewing CARE-implemented water, sewage and health projects in Ancash and La Libertad, Peru, with information on socio-cultural and economic patterns in highland (sierra) portions of those departments. Since most of the CARE projects covered in this evaluation are located in the Callejones de Huaylas and Conchucos, this paper will focus on information relating specifically to those valleys. Since 1952 many anthropological studies have been conducted in the Callejón de Huaylas. However, the data base for the Callejón de Conchucos and the Chimbote areas (also sites of sub-projects) is very limited. Therefore, this paper reflects that limitation.

INFORMATION-GATHERING PROCEDURES

This report was prepared by reviewing published works, Ph.D. dissertations, government and international organization documents and statistical abstracts. In addition, the author interviewed approximately ten social scientists and other long term residents of the region to obtain their perceptions concerning aspects of the evaluation, especially about specific observations referring to water use, excreta disposal and sanitary conditions in various sierra communities. These procedures were conducted over a period of twelve working days between October 30, 1980 and November 14, 1980. Most of the data is on Ancash due to the lack of much published information on La Libertad. Brush's community study of Uchucmarca (1977) is, however, in La Libertad.

GEOGRAPHY AND ECOLOGY

Geography. The area in which evaluation will take place includes portions of the departments of Ancash and La

Libertad. The department of Ancash has surface area of 36,308 square kilometers and covers areas of costal, sierra and lowland jungle (see FIG. 1). As of 1978, population was estimated at 726,665. The altitude in the sierra portions ranges from 2000 to 22,000 meters above sea level. The valley floor of the Callejón de Huaylas ranges from a little over 3000 to 2000 meters in altitude. The capital of Ancash is Huaraz, a city of approximately 40,000 inhabitants, located at the southern end of the Callejón at 3050 meters above sea level. The Santa river, which forms the Callejón, has created one of only three major arable intermontane valleys in the sierra of Peru (the other two being the Mantaro and the Cuzco regions). In terms of general prosperity the Callejón de Huaylas is neither as wealthy as the Mantaro valley nor as poor as the Cuzco. The Mantaro region is unusually well off due to its proximity to Lima for marketing its agricultural and mineral products, while the Cuzco region is considerably poorer due to loss of agricultural production as a result of endemic drought.

The Callejón de Huaylas is a significant and spectacular part of the Santa riverine system, often referred to by the tourist agencies as the "Switzerland of Peru." Towns and villages are strung out along the river banks of the valley floor, with a few located along the lower reaches of its major tributaries. Agricultural lands are situated on the slopes and foothills of the two mountain ranges, the Cordillera Negra to the west and the snow-covered Cordillera Blanca to the east, forming the valley. The so-called left (west) bank is very sharply inclined, dryer and less irrigable than the right, which is somewhat more gradual in slope and therefore more densely populated. The Callejón de Conchucos is a valley in the western part of Ancash, formed by the Mosna river which flows into the Marañon in a northwestern direction. It is linked to the Callejón de Huaylas by a gravel road which passes through Recuay, to the south of Huaraz. It is a narrower and more isolated valley than the Callejon de Huaylas, which is linked to Lima by a paved highway.

The Department of La Libertad had a surface area of 23,241 square kilometers. As of 1978, a source reported its population as 606,368, of which its coastal capital, Trujillo, accounted for well over half, around 350,000 inhabitants.

Ecology. In the northern sierra, typically, the weather is dry, meaning rains every other day or so, from December to April. However, rainfall has been extremely limited

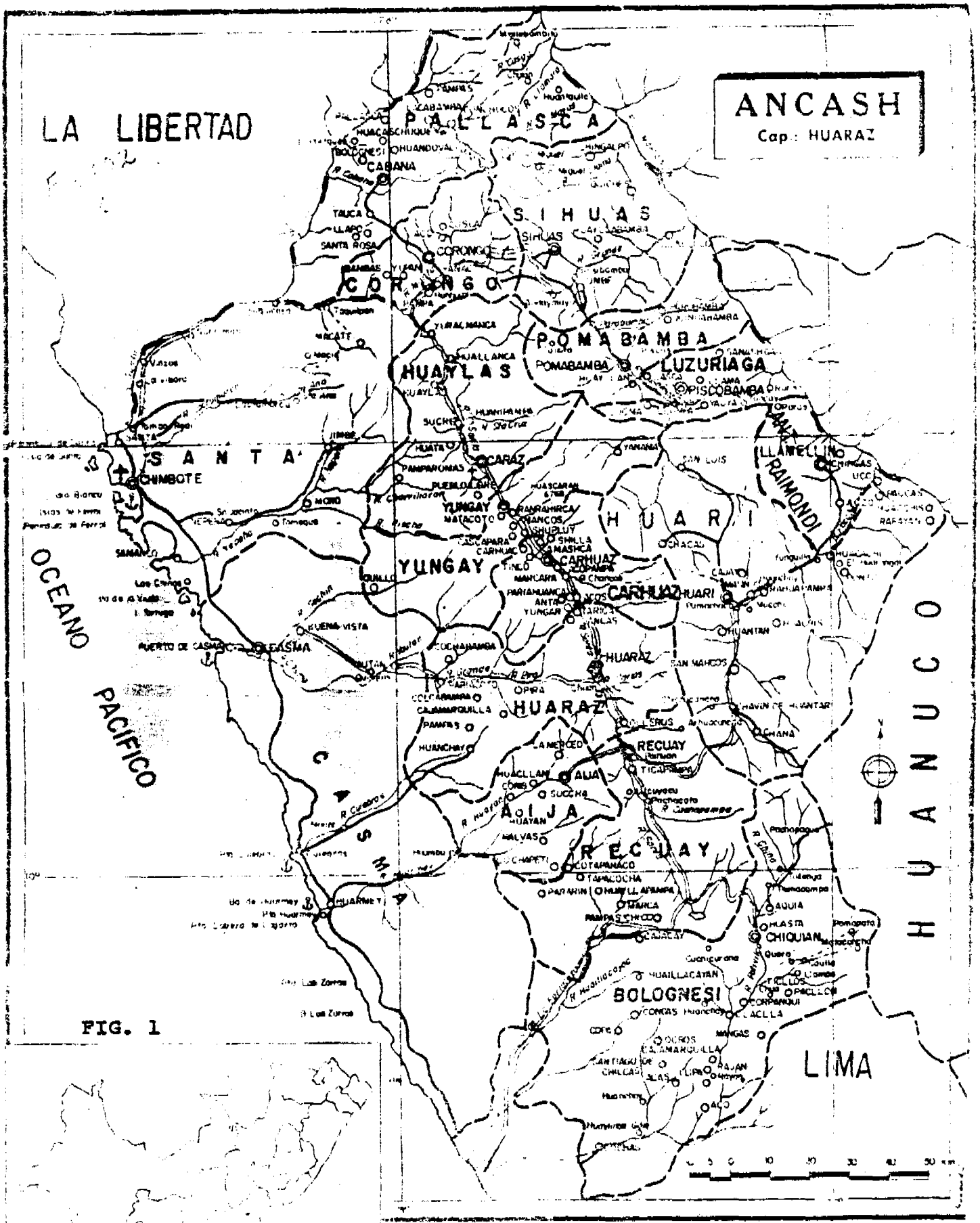


FIG. 1

Reprinted from: Pedro Felipe Cortazar ed., Documental del Peru: Departamento de Ancash. Series I, Vol. 2, Lima, 1966

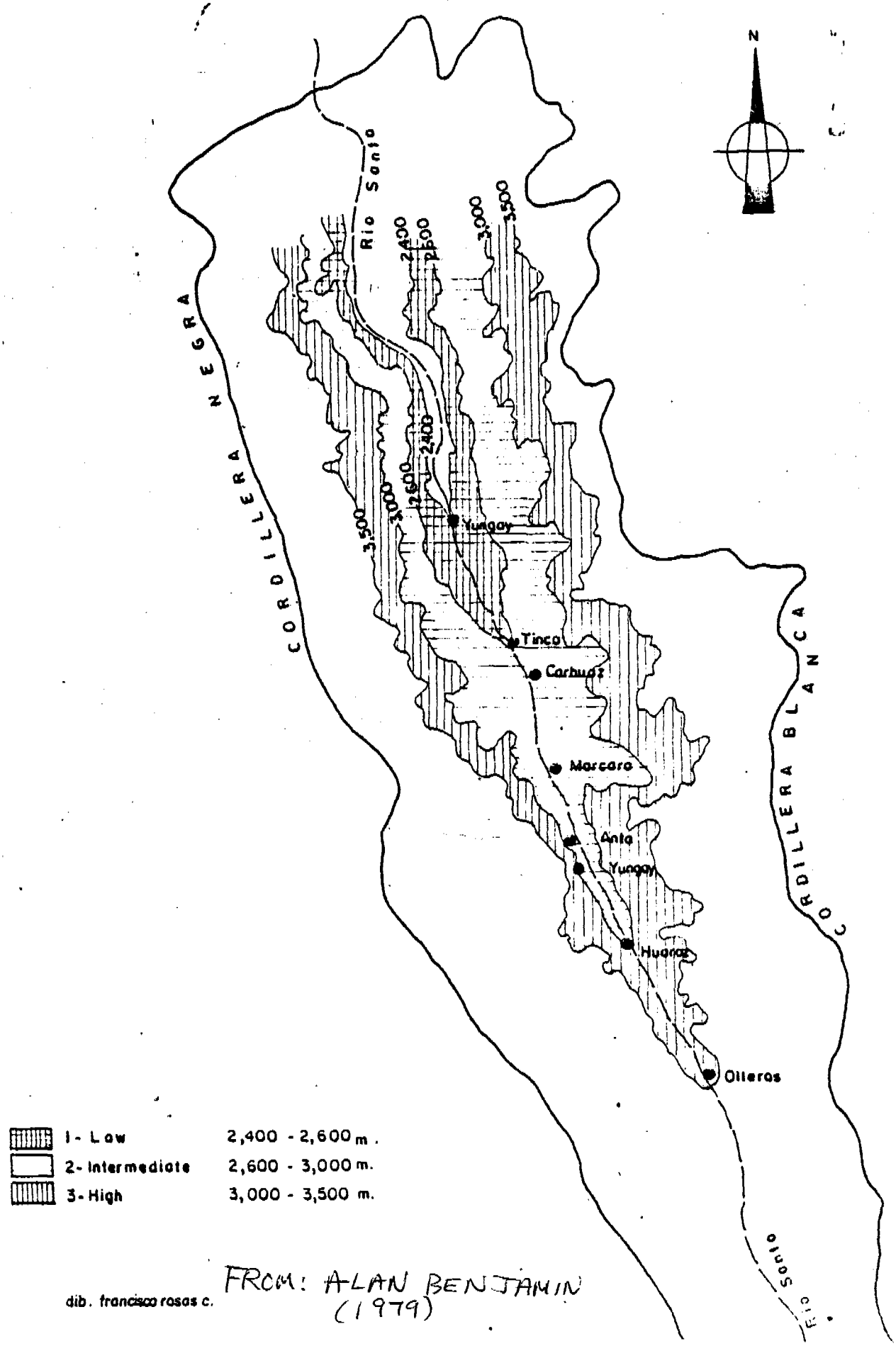
ioppw, s.a.

during the past two years. Huaraz, at approximately 3050 meters altitude has a usual temperature range from freezing to approximately 68°F or 26° C.

Water is an extremely limiting factor on expanding agricultural production and livestock raising to additional lands. Frosts, in the southern portions of the Callejón de Huaylas and in the higher zones of arable land (above 3200 meters) prevent a greater degree of multiple cropping. Frosts do not usually occur below 3000 meters altitude. There are glacial lakes and streams of glacial run-off through-out the eastern side of the Callejón de Huaylas, originating in the Cordillera Blanca. This water source is less effected by short term climatic changes. These streams allow a high degree of irrigation agriculture on the east bank (right side), while dry farming (rainfall dependent) is practice on the west. Doughty reports that in 1979-1980, agriculture in non-irrigated lands near Huaylas in the northern end of the Callejón was greatly reduced by drought (1980).

The ecology of the Callejón de Huaylas (in its southern more broad portion) was studied by a team of agricultural economists from CIMMYT, who were looking at maize producers in 1976-1978. Benjamin (1979: p.7) reports three agro-climatic zones for the valley: low (2,400-2,600 meters) above sea level, intermediate (2600-3000 meters) and high (300-3500) (see FIG. 2). He reports that availability of irrigation and socio-economic complex made up of farm size, crop commercialization and variety of seed used were the key factors influencing farm decision-making. Rain-fed farmers were found mostly in the high agro-climatic zone on the west bank of the valley, where rainfall was reportedly more plentiful. He also reports that there were three distinctive categories of farmers by farm size and crop commercialization: (1) small farmer-peasant averaging 1.6 hectares (less than 3 hectares); (2) medium sized farmer-peasant, commercial, averaging 2.9 hectares (3 to 7 hectares); and (3) large farmer and agrarian reform communal property, averaging 26.3 hectares (more than 7 hectares). Benjamin reports that small farmers are distributed in the intermediate and high zones, while medium sized farmers are found in the low zones (where they have bought out smaller farmers to produce truck garden crops for Lima via the new paved road). Large farms were found in the two upper zones. In the Callejón de Huaylas, maize was a very important subsistance crop, since 80% of maize surface is cultivated by small farmers. (This differs from the higher Mantaro and Cuzco regions where many parts are too high for successful

FIG. 2: AGRO-CLIMATIC ZONES IN CALLEJÓN DE HUAYLAS.(1)



FROM: ALAN BENJAMIN (1979)

maize cultivation.) Benjamin also reports that off-farm income is extremely important for small and medium farm families. The males work as agricultural wage laborers for others in the planting and harvesting season, migrating to industrial jobs in the two slack periods of agricultural demand: August to September and February to March.

Benjamin also states that approximately a third of the male farmers devote more time to off-farm activities than on-farm activities. (See below for a discussion of migration.)

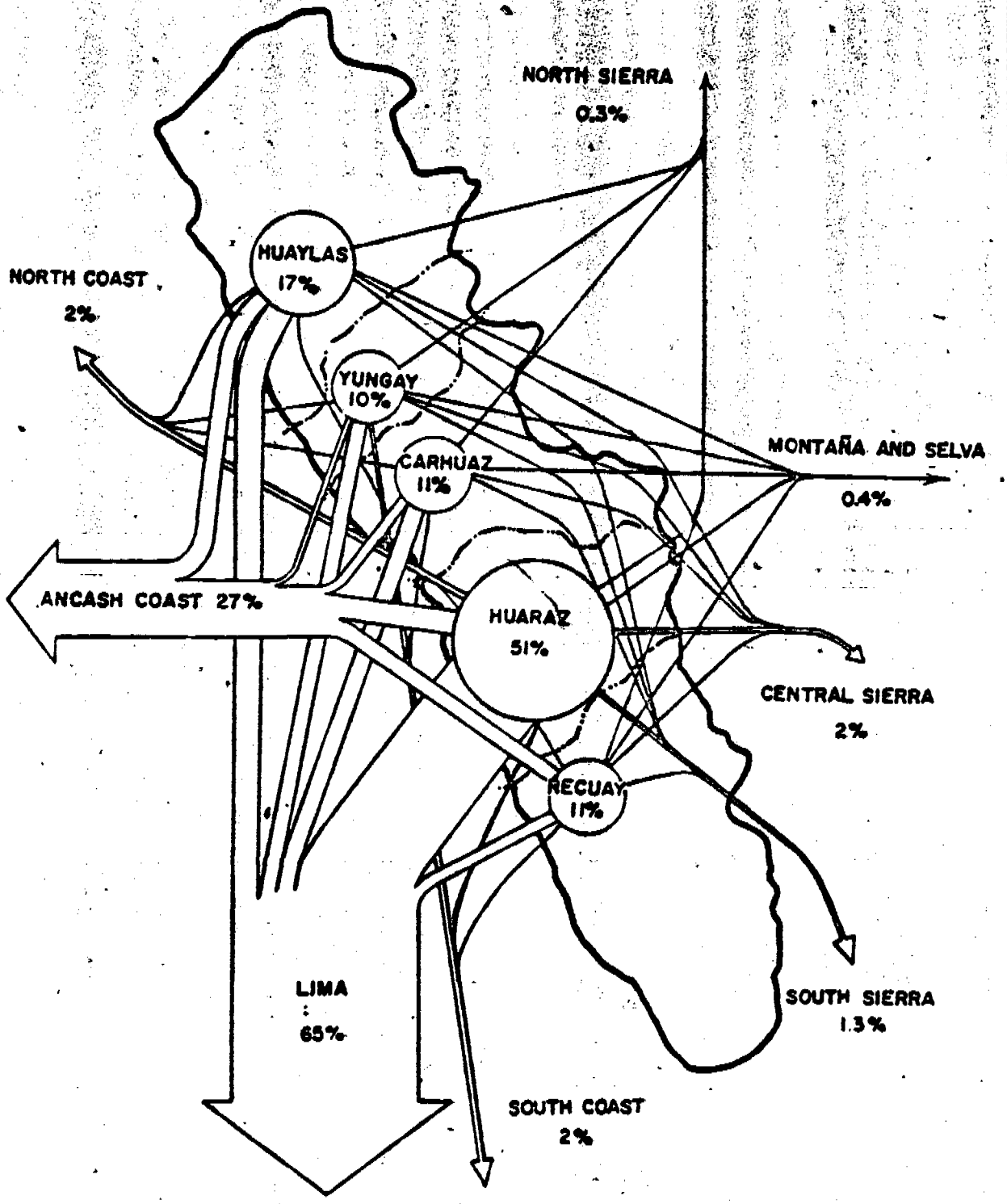
DEMOGRAPHIC TRENDS

General Statistics. Peru has a rapidly growing population totaling over 17 millions by 1979 by most estimates (USDC/BC: p. 181). Its growth rate is estimated to range between 2.5% (Ibid.) and 2.9% (USAID Mission to Peru, CDSS FY 81).

Over 100,000 people live in Callejón de Huaylas, out of a total Ancash population of approximately 750,000 (This statistic is rather shaky and an attempt to get more recent and better population data from local sources is advised.) The loss of tens of thousands of lives in the earthquake of May 31, 1970 drastically reduced the population size of the valley. Some estimates are as high as 70,000 deaths. Dudasik reports a slightly higher birthrate for the valley at 39/1000 population (1978: p. 104) than for Peru as a whole 38/1000 population (USDC/BC: p.181). According to the Bureau of the Census, birthrates for Peru as a whole have been decreasing slightly from 40/1000 population in 1972 to 38/1000 population in 1975.

Migration. The Callejón de Huaylas has experienced a high degree of outmigration (emigration) in recent years, largely destined for Lima (see FIG.3). The majority of migrants are reportedly male. This trend seems to hold true for steps in the migration process. The smallest communities are losing the most adult men. Dudasik reports this for Marián, a village only 3 kilometers from Huaraz (1978): p. 108). However, small rural villages probably tend to lose young people (post primary school of both sexes, although predominantly male) to regional centers for employment opportunities and schooling. In my experience in the central sierra, many young people try to escape to the towns as soon as there is an excuse, such as advancing schooling, to get away from the heavy and boring chores which are often their responsibilities such as animal tending and searching for wood fuel.

FIG. 3: DIRECTION OF EMIGRATION CALLEJÓN DE HUAYLAS



Data source: Peru, *Censo Nacional de Población, 1961* N.K.W.

REPRINTED FROM Nyle K. Walton, HUMAN SPATIAL ORGANIZATION IN AN ANDEAN VALLEY: THE CALLEJON DE HUAYLAS, PERU (Ph.D. dissertation, 1974) p. 100

Stein reports that the small towns, district and provincial capitals included, have experienced a decline in population, over the past few generations, although he presents no statistical data to support his contention. (1974:3) He points out that rural areas, in the Callejón de Huaylas, like Vicos, have exprienced no population decline, while towns such as Marcará and Carhuaz which were largely destroyed in the disaster of 1970, have lost many survivors. Furthermore, Stein attributes small town--Huaraz and small town--Lima migration to the socio-economic reforms of the Velasco government which greatly favored urban industrial classes over rural ones, especially townsmen and rural landlords (1974: 3). Stein points out that industrialization has been emphasized by national policy at the expense of rural sectors through such economic policies as allowing pre-expropriation decapitalization of rural enterprises, indeminification of expropriated proprietors which allowed them to re-invest in the safer urban sectors, passage of highly advantageous labor legislation which greatly benefited urban industrial workers, and severe price controls which required famers to produce foods for market below cost resulting from subsidized imported foods for urban consumers. These policies resulted, says Stein, in the elimination of investment in agricultural activities for all levels of land tenure, and the great reduction of investment in agricultural research and extension activities.

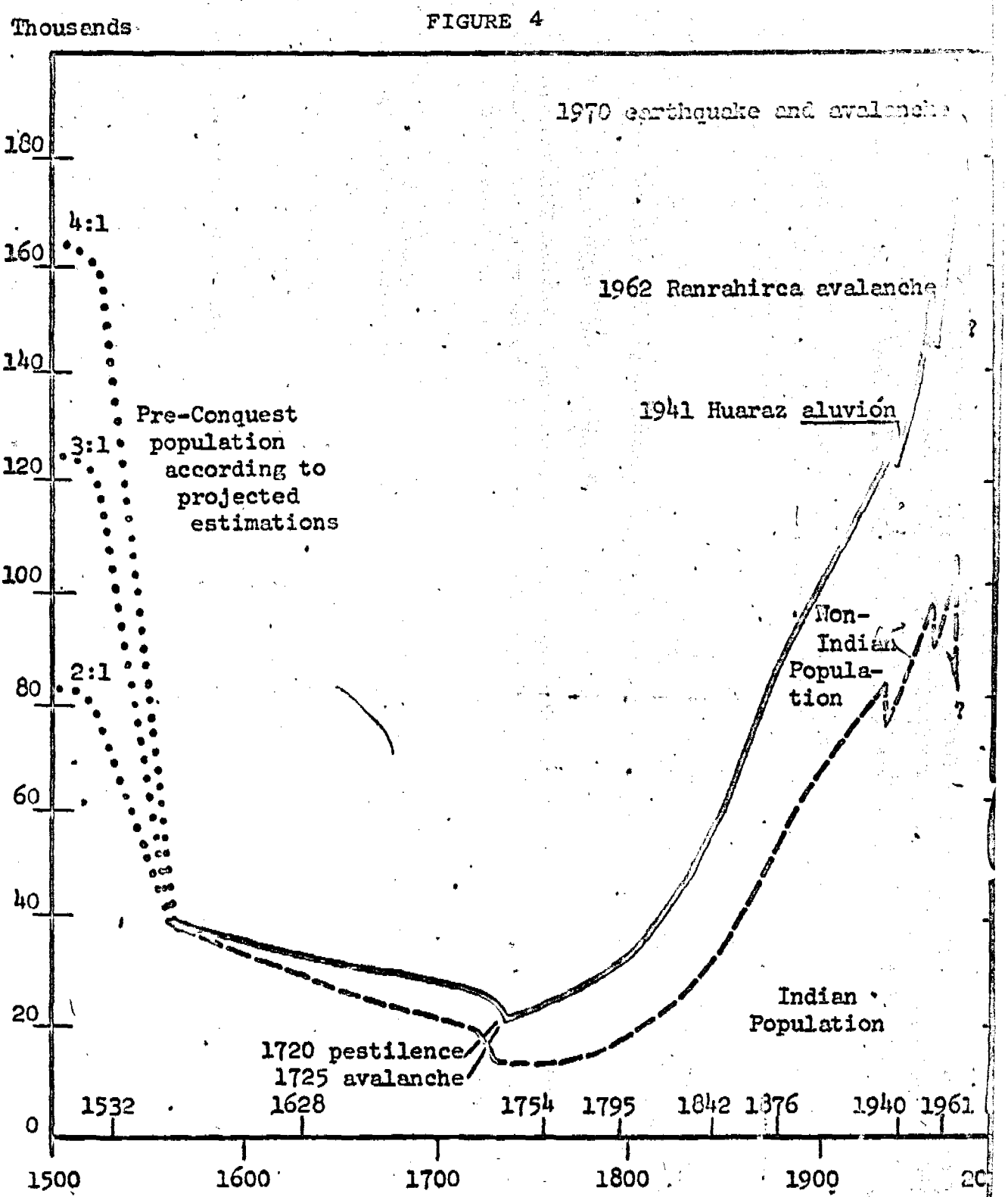
Age Proportions, Because of migration patterns, existing statistics are inadequate to describe the age pyramid differences among community nucleuses of different sizes. However, for Peru as a whole, 43% of the population is under age 15. (CDSS FY 81). Because of what we know about birth rates, we would expect a larger young population in rural sierra areas, accounting for infants and children. (We would also expect a larger proportion of women.) Nationally, only 4% of the population is over 65 years of age. We would expect these people to be mostly found in urban costal areas due to the stress of high altitude on the elderly causing a higher mortality and emigration rate. Dudasik's study supports these conclusions using data from the village of Marián. (1978: pp. 106-108).

Household Size. Dudasik reported that household size for the Callejón de Huaylas as a whole was approximately 7 members per household. In Marián, he found it substantially reduced: 4 members per houselhold. This finding might indicate that in general, households in small communities in the highlands are impacted greatly by outmigration, which in turn influences household size. Mayer's study

of a sierra community in Cerro de Pasco, a contiguous department to Ancash, emphasizes not size of household, but its composition. He found a significant number of households withoug a male head, but none without adult women (and only 3 men lived alone). He also found that a third of the households in his study had more than one adult woman, while nearly half have only one male. (1974: p. 57). He suggested that the labor of men could be replaced by hired help, but the labor of women in farm management, child care and food processing was irreplacable. He also found that houselholds with absent males had a higher socio-economic status than those with men present and those without any men at all (1974: p. 75). This correlates strongly with Benjamin's finding that off-farm income is extremely significant. Mayer reports that most absent men (59%) were employed in blue collar (industry, mining and construction), skilled trades and white collar jobs (1974: p. 75), while the rest were involved in agricultural labor elsewhere, self-employement or schooling. Women migrants, Mayer found, were a third in number of men and had fewer opportunities in a more restricted list of occupational categories. Most of them (54.9%) were engaged in trade and agriculture, while the rest worked as domestics, went to school or lived with relatives. This statistic in itself tends to show that most modern sector jobs tend to favor men. While Mayer's study is not precisely on the study area of this evaluation, the region is similar to Ancash, with the possible exceptions that mining is not a significant occupational category for Ancashino migrants, and coastal plantation agriculture at large sugar plantations is more significant in Ancash. In many ways, however, the work of men in a company mining town like La Oroya (in Junin) and a coastal plantation like Paramonga is both socially and economically similar. The employer is a total institution; the employee has much competition for employment.

Health of Children. Children are strikingly unhealthy in Peru and especially in the sierra. Specific statistics for the study region were available, but can be assumed to be similar to general statistics for rural Peru. In general, 48.4% of deaths are children under 5 (CDSS FY 81). Of those, 60% are attributable to "malnutrition-related" diseases, spread by poor sanitary conditions. Malnutrition reduces resistance and poor sanitation ensures infection (Harrison 1977: p. 411). The statistics on infant mortality (under age 1) are complex, but indicate a high rate, whatever figures one uses. Peru has an infant mortality rate of between 130/1000 live births (USDC/BC: p.181) and 148/1000 live births (Hobbs and

FIGURE 4



POPULATION TRENDS
CALLEJÓN DE HUAYLAS, 1532-1970

Various data sources

NKW

Reprinted from Nyle K. Walton, Human Spatial Organization in an Andean Valley: The Callejón de Huaylas, Peru (Ph.D. Dissertation, 1974, University of Georgia) 280 p. • p. 23.

Arriaga, 1980). The USAID Mission to Peru estimates that in the most deprived regions such as the southern sierra, infant mortality is around 200/1000 live births (CDSS FY 81). The generally poor health of children and their poor survival rate contributes to family decisions to have large numbers of children, a rate suspected to be twice as high in the sierra as on the coast. However, overall, Peru's fertility seems to be gradually declining from 6.04/woman in 1962 to 5.61/woman in 1975 (USDC/BC: p. 183). A caveat should be issued here that several statisticians have called the quality of Peru's quantitative data into question, including Hobbs and Arriaga (1980).

ECONOMIC PATTERNS

Peru in general has been characterized by a largely rural and agrarian population which is becoming increasingly urbanized. Much of the push for migration can be found in an understanding of land tenure and carrying capacity of land. The growing rural population of the highlands is rapidly reaching its carrying capacity; that is, it cannot support the population growth with the relatively scarce agricultural lands of the sierra.

Land Tenure. The reforma agraria (agarian reform) was an attempt to redistribute land in order to redress the extremely unequal and discriminatory land tenure patterns which prevailed in pre-revolutionary Peru. The reform operated on the hypothesis that the limiting factor to economic justice was ownership of resources. However, according to Matos Mar in an article in Caretas, a Peruvian news magazine, in 1979, the reform influenced the lives of a small percentage of farmers, around 20%, implying that 80% were not influenced. However, statistics from pre-revolutionary Peru indicate that 93% of the arable land was owned by the upper 10% of the population, while 0.1% of the land was owned by the remaining 80%. In the light of these figures, 20% experiencing improvement can be a very significant change (ALLDATA: PERU).

Nevertheless, the basic imbalances remain, with large state-owned cooperatives, managed by technocrats from the outside, taking the place of elite-owned latifundia. Futhermore, the state lacks capital to invest in these enterprises which were frequently decapitlized by their prior owners before expropriation. Therefore, farm size remains small for the average farmer. See above discussion of farm size under Ecology. The economic decision-making of small farmers differs from that of medium and large farmers in Peru and in the Callejón de Huaylas in particular, as discussed above (Benjamin, 1979).

The Callejón de Huaylas was an area with early experimentation with communal ownership of large estates which happened in Vicos under the sponsorship of the Cornell-Peru project in the 1950s and 1960s. A young anthropologist who worked on the Vicos project, Mario Vasquez, became the head of the reforma agraria under the Velasco government. (He now is an employee of a United Nations entity in Central America.) When I visited the Callejón de Huaylas in 1977, I visited Vicos. One resident said that the communally owned transport was ruined, that there was much dispute about the allocation of choice fields and that cooperation in general had broken down. An outside observer reported that the Vicos community had been discriminated against during the agrarian reform in favor of the state-owned enterprises, simply because it was privately owned. This made the residents bitter.

Agricultural Practices. Small farmers in the sierra of Ancash grow a complex of crops including maize, wheat, potatoes and barley in roughly the same proportions. Medium farmers specialize in maize and a few other marketable crops. Benjamin also reports that the use of animal manure was at lower levels in the Callejón de Huaylas than in the Mantaro or Cuzco areas. Higher levels of chemical fertilizers were used when affordable. Medium farmers tended to take entrepreneurial risks by advancing planting dates of their maize to get better prices. Maize is now grown year around, where it used to be a seasonal crop. Associaterd cropping is common among small farmers, especially the maize-bean complex. The Callejón de Huaylas, because of lower frost risk, has higher infestations of plant insects and diseases reported for maize. One possible reason for the low usuage of animal fertilizer would be the impact of the 1970 earthquake and the agrarian reform on animal populations. Oliver-Smith reports the fairly rapid and extensive slaughtering of animals for food by survivors of the avalanche and earthquake in the Yungay region of the Callejón (1974). Another factor, the decapitalization of latifundia, involving the slaughter and sale of animals by prior owners, has been allegedly a reason for the lower animal population in Peru since the reform was instituted. If this allegation is valid, this is probably true for the study/region as well as Peru in general.

Small farmers who are, in general, less involved in selling crops, rarely use technological packages from "modern" agricultural sector. Brush reports for Uchucmarca in La Libertad that subsistence agriculture is completely unmechanized and does not include elements such as

fertilizer, herbicide and insecticide (1977: 91). In the Callejón de Huaylas, an area particularly stricken with crop diseases, according to Benjamin (1979), the use of insecticides is limited to farm operators who have the cash flow generated by their involvement in market activities. This is generally true of other available-for-purchase elements such as fertilizers.

As a result, the practice of letting lands lie fallow is common when appropriate, especially among subsistence farmers and some small commercial growers. Brush reports that fallow practices vary with the crop produced, availability of rain and/or irrigation waters, altitude and crop rotation. Tuber crop fields, dryer areas and high zone fields are more likely to be fallowed. Fallow plots are left unplanted for from 5 to 15 years in Uchucmarca, according to Brush (1977). Mayer reports for the Central Sierra an average fallow period of 12 years for potato fields. Land devoted to lower altitude crops, such as corn and other cereals are generally not allowed to lie fallow, even among subsistence farming strategies, according to Brush. The use of chemical fertilizers reported by Benjamin and the good linkages to urban markets found in the valley floor of the Callejón de Huaylas, bypasses the necessity of fallowing bottom lands there, but would probably be found in intermediate and high zones. Dudasik reports that in Marian, fallow lands are frequently used as pasture (1978: 112).

(Postscript on Land Tenure: Several scholars have decryed the system of tiny land holdings as a system which exploits small farmers (Stein 1974: 4: Walton 1974: 62-3) while Mayer (1979) points out the adaptive advantages accruing to small farmers by diversifying risks through dispersion of micro-holdings throughout a system of discontinuous ecological zones.)

Household Division of Labor. Since most households, (excluding residents of provincial capitals Huaraz, Yungay and Caraz) in all provinces of the Callejón de Huaylas are self-identified as farmers (Walton 1974: 55), it is interesting to look at the activities of household members. First, it is important to understand some general information about the division of labor in the region.

General Patterns: The basic division of labor in rural communities (meaning an integrated area with a town of village nucleus and rural hinterland) is determined by social class. Older studies [i.e. Barnett (1960) and Snyder (1960)] use the racial categories of Indian and

Mestizo (or its Quechua equivalent mishti meaning white) to describe a pattern of social division where Mestizos controlled land and access to markets and governmental services, while Indians provided manual labor. Stein (1974) prefers to call these classes "countrymen" and "townsmen," and he points out the nature and degree of post-Velasco change in rural social structure for the central part of the Callejón de Huaylas near Vicos in the following citation:

> "...although the power of townsmen in the rural sector is somewhat reduced, townsmen still exercise an extraordinary degree of 'vertical control' in the heights as petty patrons of small-holdings, as intermediaries in economic transactions, as local and regional authorities, and more recently as representatives of proliferating national agencies who make regular trips from their district, provincial and departmental seats into the rural sector to inspect the progress of their rural clients and to announce new rules and decrees. Townsmen are subject themselves to increasing control of the nation, especially Lima, the seat of the system of internal domination of Peru." (1974: 4-5)

Stein, therefore, feels that little social change in a structural sense has arisen from the agrarian reform in the Callejón de Huaylas. Thus, it seems that the rural residents are the clients and employees of the town residents. (When we say rural residents, here, we mean residents of smaller population aggregates as well as dispersed households.)

Village and Rural Households. Within households, however, there is a sexual and age grade division of labor, in villages and rural hinterlands alike. Women are involved in child care, meal preparation, food processing, carrying water for use within the house, artisan production, especially spinning, knitting and weaving, laundry, housecleaning (especially firetending and sweeping), agricultural tasks such as weeding and harvesting, small animal tending in the kitchens, large animal tending (occasionally) and marketing activities of artisan goods, and small crops surpluses. Men are involved in all agricultural tasks, especially felling trees and brush for clearing, plowing and harvesting, wage labor in towns and in rural areas for cash supplements and in-kind contributions to household income, contributions to communal labor projects, large animal herding, artisan production, negotiation for sale of crops with intermediaries and other dealings with the

outside world, especially those that require a command of Spanish. Children are helpers in many household and agricultural tasks, often assigned according to gender. In addition, children act as apprentices in artisan activities and help gather firewood, haul water and tend animals, when they are not in school. Girls as young as five help with food processing, meal preparation, and infant care. Boys and girls both help with gathering wood, hauling water and tending animals. Boys sometimes accompany their fathers to the fields. Children also serve as sentinels in ripening fields, sleeping overnight in little huts of grasses, twigs or cornstalks, called chozas. Women and girls also can be found in agricultural tasks at times of intensive labor shortage, especially harvest, planting and when men are absent from the household. At one limestone quarry I visited in Junin in 1979, all males in a kinship group from age six up were working on some tasks ranging from blasting, removing, shoveling, hauling to breaking rocks. The elderly, as mentioned above, are generally absent from rural communities, primarily due to high mortality. Older adults pursue gender-distinguished tasks as they are able. From time to time, one will see old people carrying burdens or tending animals. Children are also increasingly encouraged to attend school, and when they finish primary school in the local village, those with ability, interest and the money for uniforms and books, go to town to attend secondary school. (Secondary school may begin at 4th or 5th year.) On these trips, these older children, who are also literate, become very important links with the outside world, doing specialized marketing, running errands, maintaining ties with influential kin, and dealing with town-based institutions.

Other Income-Producing Activities. Most sierra families need a steady source of cash, besides agriculture (Samaneigo 1974; Mayer 1974). As Mayer notes for the Mantaro valley, "no Mantaro family can live without a steady source of cash: the self-sufficiency strategy in agriculture can only be pursued if there are other sources of cash available to the family " (1971: 89). Families and individuals unable to operate in both worlds are forced into commercial agriculture or are driven out of agriculture altogether into the rural wage labor or urban migrant labor markets. Only the better-off families are subsistence-based: that is, they grow crops only to feed themselves and pursue taste rather than market preferences in farming practices. Mayer emphsizes the extremely fluid nature of the economic strategy system, allowing households to shift from year to year from one strategy to another, depending on the availbility of work elsewhere (1979: 91).

Animals. Peasant-herders in the high zones often grow subsistence crops to feed household members, while their major income-producing tasks are animal husbandry related, keeping sheep, llamas and alpacas. However, many households which do not specialize in animal husbandry keep animals to improve the possibilities of cash flow in their households, a stored, moveable and relatively non-perishable resource. Cattle, poultry, swine and guinea pigs (cuyes) are also kept, especially at the lower altitudes. Animals may be slaughtered to get cash for a particular purpose.

Rural Wage Labor. According to Brush, in areas like Uchucmarca in isolated La Libertad, there are two kinds of non-reciprocal labor: labor for cash called jornal and labor for an in-kind payment called minga. The majority of these arrangements is under the category of minga in isolated areas, with payment in crops rather than cash (Brush 1977:). Often jornal arrangements are combinations of cash, liquor (aguardiente), coca leaves and lunch (merienda). From my experience, this definition of jornal is common throughout the sierra. According to Brush, the crop payments are usually worth more than jornal payments, but sources of cash are scarce. In an area with better internal transportation, this situation may be more favorable for laborers when there might be competition among employers for scarce outmigrating labor. On the other hand, employers might import laborers from more povery-stricken, desperate southern regions such as Puno or Ayachucho. (This was a pattern in Junin.)

Artisan Crafts. According to Pierce's interview, before the earthquake, artisan crafts in the area were generally unavailable for sale. They were made in the home for household use, or for gifts to kin on ritual occasions. When a purchaser desired a craft product requiring special skill, he/she would make a contract with an artisan and give a downpayment for materials as a guarantee to the artisan. Now, artisan entrepreneurs show their wares regularly in the Huaraz market, where I observed the following products in 1977: stonework, woven goods (saddle bags, ponchos), chairs and basketry. I would guess that raw wool, fur and leather goods would be seasonally available from highland llameros. None of the artisan production of this area is well-known nationally nor has much external market, unlike the central and southern sierra. There are no towns I know of which specialize in a particular skill such as San Pedro de Cajas in Junin which is known for pictorial tapestries. It would be interesting to find out if these activities

are growing and becoming more commercialized with greater linkages to the national capital via the post-earthquake paved road. One would expect successful artisans who accumulate some working capital to relocate in towns to facilitate marketing. I observed this pattern in Junin.

(Postscript on Rural Wage Labor. It should be emphasized that the rural sector of Ancash has a history of providing workers for coastal agricultural plantations such as Paramonga.)

Urban Wage Labor. The seasonal migration of sierra residents to towns and cities was a long standing pattern which has been greatly increased since the 1970 earthquake. Dudasik reports the phenomenon of a "disaster boom economy" in Huaraz which resulted in the monetization of previously isolated barter-oriented peasant villages such as Marián on the outskirts of Huaraz. The "boom" was created by the funding of jobs in clean up and reconsturction projects for manual laborers who in general were drawn from the ranks of the rural peasantry (1978). Since many of the reconstruction jobs used building materials which were imported from the outside, the workers required new skills and understanding of more sophisticated building projects, including the use of reinforced concrete and other "materiales nobles" (top quality building materials as opposed to adobe) required by funding sources. Walton reports that the survivors among the townsmen, who were the hardest hit by the disaster in terms of lives and property lost, resented the migration of rural Indians into the towns of the Callejón (1974: 204-5). The sharp pre-earthquake segregated settlement pattern of rural Indians and urban mestizos became no longer true with what Walton called the "ruralization" of the towns. The townspeople told Walton that they believed "that the Indians were spoiled by the government dole of food and housing materials," after the earthquake. (Ibid.) It should be noted there that no housing reconstruction project were undertaken by any relief agencies in rural areas. Therefore, anyone who wanted help had to migrate to the towns. However, Walton pointed out that the real issue, in his estimation, was that the "Indians no longer felt compelled to give free labor to the towns" and that Indians were "demanding more official help, and getting it" (1974: 207). Dudasik's study also demonstrates that Huaraz's businesses experienced a spurt of sales which as of 1975 had surpassed pre-1970 sales statistics, illustrating the nature of the spread of the boom's effect into many areas of economic life there.

Migration to coastal cities is also important. Some migrants earn money in the rare industrial jobs, unskilled

construction jobs, vending activities on the streets, or even in petty thievery. The Thieves Market in La Parada in Lima's run-down downtown district is full of the products of the forrays of the under-employed into the criminal subculture.

Mining. Mineral extration activities are less important in Ancash, than in some other parts of Peru such as Junin, but there are some areas which have more mining or quarrying than others. In the study region, Recuay province shows greater mining activities than other areas (Walton 1974: P. 55; see FIG. 5.) The Callejón de Conchucos was the site of an ancient civilization which influenced much of what is now Peru having its headquarters at Chavin. That civilization was known for ancient stone working crafts, and the museums of the region have examples of the stellae and gargoyles of feline figures characteristic of that culture's artisitic style. Today in the markets of the region, one can find copies of the ancient stone work for sale to tourists.

Mining activities outside the region may attract some migrants from Ancash and La Libertad. However, it would not be expected to be a large percentage.

Marketing. Marketing of agricultural surpluses and artisan carfts through intermediaries or directly in stalls (puestos) at markets or fairs is an increasingly common way of generating cash for the rural household. The fair circuit, where a market rotates through seven locations in each week throughout the region, is relatively new to the Callejon de Huaylas, due to the recent improvements in roads which encourage the formation of micro-bus companies to service rural towns and villages. Most retail marketers are probably women. The more capital intensive wholesale operations (intermediarios or mayoristias) are usually men. Women also operate restuarants and food-sales stands at fairs, fiestas and markets which generate cash income for household expenses.

RURAL LABOR ARRANGEMENTS

Contractual. Coastal plantations, at one time, recruited laborers through contracts for specific periods of time including the costs of travel to and from the site of work. The greater ease of travel and the greater knowledge of the rights of workers has made workers increasingly hesitants to enter into such contracts. One would expect to find little of this type of arrangement at present.

FIGURE 5

PROPORTIONAL OCCUPATIONAL STRUCTURE BY PROVINCE*
CALLEJÓN DE HUAYLAS, 1967

Province	Number of Families	Percent Agriculture	Pastoral	Mining	Total Rural	Percent Crafts	Trade	Unclassified Labor	Total Urban
Huaylas	4,943	81.3	3.3	0.2	84.8	4.6	4.6	6.6	15.2
Yungay	3,367	84.4	2.3	0.0	86.7	3.8	6.0	3.5	13.3
Carhuaz	5,691	85.8	2.4	0.0	88.2	5.2	3.2	3.4	11.8
Huaraz	7,822	82.8	3.0	2.1	87.9	6.6	2.0	3.5	12.1
Recuay	2,668	59.5	12.1	19.9	91.5	2.5	2.8	3.2	8.5
Total	24,491	80.9	3.8	2.9	87.6	5.0	3.3	4.1	12.4

*Population of the three largest towns, Huaraz, Yungay and Caraz, is excluded.

Data source: Alberto Columna Isasi, "Los Centros Poblados del Callejón de Huaylas," Cinco Estudios acerca del Callejón de Huaylas (Lima: Instituto Indigenista Peruano, 1967), 82.

Reprinted from: Nyle K. Walton, Human Spatial Organization in an Andean Valley: The Callejón de Huaylas, Peru (Ph.D. Dissertation 1974, University of Georgia) p. 55.

Cooperative Labor. There are many ways in which rural residents enter into agreements to aid one another with their labor. Brush describes a "generalized reciprocity" known as volundad or ayuda among the people of Uchucmarca La Libertad--something we might call "neighborliness." This behavior, of pitching in and helping with whatever work there is to be done without explicit thought of the eventual return is mostly limited in Peru to close kin. Within the household, there is considerable crossing over gender lines of responsibility to aid other members with their tasks (1977: 104). A second type of cooperative labor can be termed "balanced reciprocity" where a specific service is offered in exchange for a specific return. The Quechua term for this is huasheo and the services are roughly equal in value (1977: 105). A third kind of cooperative labor arrangement is that which is required by membership in a comunidad campensina. Membership in the peasant community gives members the right to use land in the community. In return, a member must participate in periodic work obligations, especially the construction and upkeep of trails, roads, bridges and community facilities, such as water systems. The work party, itself, is called a faena. These work parties are organized as social events with music and refreshments (Brush 1977: 59). More affluent or absent members who wish to retain their membership can pay a fine often in food and drink for those who work.

Another type of cooperative labor exchange is the exchange of land and labor in sociedad, partnership, a kind of sharecropping. An owner of an unused plot agrees to let a worker who wishes to cultivate more land than he/she possesses use his field, providing seed and the services of oxen. The worker provides his/her labor. The yield and extraordinary costs are divided between the two partners. Another type of labor, similar to the faena, which was traditionally expected of rural residents, was called la republica. Until recent years, according to Stein, it was customary for Indians to provide gratuitous labor for town projects, whether or not the workers were beneficiaries of them. The sorts of projects covered were the construction and maintenance of public buildings, roads, bridges and irrigation systems. The labor tribute was levied as a kind of tax on the labor of rural residents. This sort of labor is deeply resented by many Indians whose relationship to large landowners in the pre-revolutionary days was similar to that of serfs to manor lords. Indeed, the type of labor tribute described by Stein (1974: 4) is almost identical to patterns common in colonial Peru and feudal Europe. The difference between the faena and

la repubulica is that the former is decided on by an assembly of comuneros, similar to a town meeting, while the latter was assessed of rural residents by the authorities in the towns. Walton's report above of Indian refusal to provide services to towns probably refers to la republica rather than faena labor.

Employer-Employee Relationships. These relationships are discussed above under Rural Wage Labor. The jornal, daily wage payment, sometimes including liquor, coca and lunch, and the minga, or in-kind crop payment, were the two basic forms of payment.

TRANSPORTATION LINKAGES

There are two major paved roads in the study area, the Pan-American Highway which runs along the coast north and south, and the Pativilca-Caraz Highway, built after the earthquake with relief funds. In terms of regional integration, it should be noted that major arteries link the localities to the national capital rather than together in regional entities. The road to the Callejón de Conchucos cuts off to the right of the Pativilca-Caraz Highway between Ticapampa and Recuay. It is not paved, and is not easily passed in inclement weather. In fact, during the rainy season, the paved road to Huaraz was cut by gushing mountain streams due to the lack of sufficient culvert capacity in its construction. In 1977, I was stopped at one of those streams, as residents and truck drivers cut away a part of the road to allow the stream to pass unhindered, without further undermining the asphalt. The relatively high number of hamlets 64% of the total of over 1600 aggregations contained approximately 90% of the population in 1961 (Walton 1974: 59). The need for frequent, closely spaced settlements is related to the lack of affordable transportation for people and goods to larger commercial centers. Most people in the smaller settlements relied on food transport for meeting their daily needs. With a paved road in the Valley, regular transport services have probably increased. However, many smaller towns, especially those at the higher altitudes remain relatively isolated. To summarize, transportation linkages are very important in influencing social and economic patterns in particular localities.

OTHER SOCIO-CULTURAL PATTERNS

The previous discussion of population patterns and trends and the economic patterns of the sierra portions of the

area gives an idea of the broad structure of basic intra- and inter-community relationships. However, for an effective and accurate evaluation of village water, sanitation and health projects, the evaluation team will find it useful to take into account several other patterns which influence construction, use maintenance and replication of such projects. Specifically, this part of this report will deal with language use, household structure, education, and rituals and taboos.

LANGUAGE USE

The sierra of Peru is an area where indigenous languages especially Quechua and Aymara are widely spoken. As one moves north, however, the use of Aymara becomes practically non-existent and the use of Quechua very limited, as a rule. Ancash, in the north-central sierra, is an exception to that rule, since it is an enclave of Quenchua-speaking people who have but recently become more widely bilingual. Data from the 1950s indicated that the town-mestizo vs. rural-Indian social and economic barrier was reinforced by distinctive patterns of language use. Stein described it as follows.

> Townsmen, of course, are literate and speak Spanish, which characteristics separate them from illiterate and Quechua-speaking countrymen whom they refer to as "Indians." Townsmen also speak Quechua, and may speak it almost exclusively at home, but tend to deny or hide their skill when they fear being "put down" for it. Mangin says that they avoid speaking Spanish with servants and members of lower classes because they do not wish relations of equality with them. (1974: 8)

In other words, traditionally, mestizos maintained the isolation and dependence of Indians by observing the communication barrier.

According to recent studies, Bode (1974), Oliver-Smith (1974) and Dudasik (1978) all report a wider use of Spanish in the Callejón de Huaylas. Bode says that almost all people in the departmental capital of Huaraz know some Spanish but communicating in Quechua was equally effective (1974). Dudasik reports for Marian that while the men are functionally bilingual, the women are likely

to be monolingual in Quechua. Oliver-Smith stated in an interview that for optimal effective communication in small

villages and rural areas of the Callejón de Huaylas, Quechua was very helpful (1980). Doughty reported in the late 1960's that the most well-liked and effective of the Peace Corps volunteers in Vicos was a young woman who took the time to learn some Quechua to aid her in her school teaching. When the Peace Corps was removed, she was specifically asked to return. (Doughty n.d. 156-157). Brownrigg reports that Ancashino Quechua is substantially different from that spoken in southern Peru, Ecuador and Bolivia, so much so as to be mutally unintelligible.

In summary, Quechua is widely used in the study area, and is likely to be the exclusive language of women in small villages hamlets and rural areas. The use of Quechua by outsiders can be viewed as either an expression of respect for the local culture or as a symbol of the isolation for the rural folk. The Quechua of the region is distinctive and not viewed as intelligible by speakers from other areas.

HOUSEHOLD STRUCTURE

The household is a very basic unit of work and mutual aid for sierra residents. However, the notion of self-sufficiency of the household contained in the concept of rural peasantry is not a correct understanding of how households function in highland Peru. Brush (1977) points out that households are mutually dependent on one another for various types of aid and support, making the community the unit of self-sufficiency rather than the household.

The physical structure of the household reflects the multifunctional nature of the setting. In small towns and hamlets, the front door of the house opens directly on the street, and often the walls of the house are shared (attached) between neighboring structures. There is usually a side entrance which leads into the patio area in the back of the house. People bring horses into the patio, in isolated communities, which rely on horse-back transportation, for the purpose of unloading burdens from them such as crops, firewood or saddles. The horses are kept, however, in pastures at some distance from the house. The house itself usually consists of an entryway reception area and one or two bedrooms. These rooms open onto the patio where the kitchen building is often a separate structure, or perhaps a leanto on the side of the main house. The patio is essentially a walled backyard where the major part of family daily life takes place. There is usually an overhang from the house roof which

covers at least a part of the patio area. This overhang would shelter for drying wet blankets and saddles, or clothes during the rainy season. Another part of the patio will usually have a little garden with a few herbs and vegetables such as cabbages. A good part of the patio and kitchen will be devoted to firewood storage. The patio is also used for tethering an animal temporarily--such as a horse for an early morning journey, or an animal being fattened for killing. Often the patio is used for sorting, drying and processing crops such as corn and wheat. There is usually a loft above the house which is accessed by stairs outside the building or by ladder from inside the house. The main purpose of the loft is food and seed storage. It may be floored with wattle and daub or wood planks. The kitchen is kept separate from the house due to danger of fire. Cuyes (guinea pigs) are kept in the kitchens to protect them from animals (dogs, wild animals) and the cold. Dogs are not allowed in the kitchen because the cuyes are there and because they are viewed as dirty. People do not view dogs as pets or family members, but as watch animals, a part of the outdoors and nature. The patio will also house chickens, dogs, and, in some parts of Peru, rabbits. These animals have no special cages in most homes--unless one is talking about the urban middle class or elite. (Steve Brush, personal communication, 11/19/80).

Life Cycle Changes. In all societies a cross-section of households at any given point in time will give a statistical description of types of households, but that type of a study will not necessarily show how a person or a family goes through what Goody has called the developmental cycle of domestic groups (1956). Mayer's study of a Peruvian sierra community (1974) indicates that the study of that cycle shows some interesting pattern with respect to the relationship between people and resources. Mayer describes five 12-year cycles of a farmer's life during which time he acquires access to increasing parcels of land through inheritance and marriage, and finally retiring to a more subsistence type of strategy towards the end after parcels are passed on to offspring and other kin. Snyder (1960) described a different pattern for young girls from that of young men in the town of Recuayhuanca near Vicos in the Callejón de Huaylas. Young girls are kept close to home for the first twelve years where they learn the female gender role through imitation and apprenticeship. At age 3 or 4 they actively begin to participate in infant care and carrying water from springs, gradually learning tasks of greater and greater

responsibility as they get older. At approximately twelve years of age, many of them would enter domestic service, to relieve their parents of having to feed and clothe them. According to Snyder, this work was very burdensome.

> Domestic service involves a work day of fifteen to sixteen hours, occupied mostly with food preparation, and washing clothes, carrying water, sweeping and waiting on table. (1960: 205)

Many of these girls would be kept at domestic service long after they wish to cease working because their employers would refuse to pay them for long periods, promising to pay later if they stayed longer. Marriage was one escape from this servitude.

Marriage. Most households are formed based on the fact of the union (de facto or de jure) of a man and woman which results in offspring. When the children are very young, the family members in the household would be a nuclear family with the possible addition of a spinster aunt, a grandmother or visiting cousins who have no place to live. With the pattern of male emigration, many male heads of households are absent for periods of time ranging from a season to years. During this period, the woman will act as head of household and manager of family activities. Some unions end in permanent separations.

Trial Marriage. According to ancient custom among the highland Indians of Peru, many families practice a form of trial marriage. A young couple will be encouraged to spend time together gradually approaching a real living together situation. Often parental recommendations and advice are important in the mate selection process.

Legal and Religious Marriage. The legal and religious (Catholic) forms of marriage ceremonies are practiced rarely by highland Indians. The paperwork for such rituals is extremely expensive, requiring trips to capital cities, the filling out of forms and many other tasks which are beyond the capabilities and interests of rural peasants, who are neither literate nor able to pay for such services. The paperwork required for both civil and religious weddings are equally difficult. The religious ceremonies are often impossible for lack of clergy as well. Mass ceremonies are sometimes held.

In summary, because of the difficulties involved, most rural residents initially do not go through the formality of legal or religious marriage. Rather they practice a

kind of consensual union based on long indigenous traditions of gradual mate selection through a trial marriage process. Women as well as men can initiate separation.

Household Activities. The house is the center of all family activities except agriculture. The fields are for the most part dispersed in different ecological zones in the open country surronding the town, village or hamlet. In the Callejón de Huaylas, the vast majority of the inhabitants live in population clusters rather than in dispersed farmsteads. The fields, for the most part, are located at some distance from the house. Many times, the chacras (fields) are so far that workers do not return to the house for the midday meal. In certain areas, some fields are located at such a distance that an overnight trip must be made to plant, cultivate or harvest crops. These trips would usually be made by men and boys.

Child-rearing. Babies are swaddled and carried on their mother's backs in mantas (carrying cloths) until the mother learns to recognize slight physical signs of urination and defecation as early as 5 or 6 months of age. At those ages, children are not swaddled so tightly, but are continued to be carried on their mother's backs until they are ambulatory. Infants and small children wear shirts, sweaters and rags until they are ambulatory. Then, they sometimes run around with bare bottoms or are dressed in rags until toilet training when they begin to wear dresses and long pants. Babies and small children are usually breast-fed until two years of age. Solid foods are introduced gradually during the first year. Children are taught the appropriate tasks for their gender primarily by imitation of their elders. Little girls begin as soon as they can walk to carry dolls or bundles on their backs in small mantas. By age five or six it is not unusual to see a small girl carrying an infant on her back. Women and children forrage for firewood on excursions near the home. (Brush reports that in Uchucmarca men made additional special trips for high quality firewood to certain zones--usually more distant--to obtain firewood in quantity. Residents of zones too high for trees or completely bare of trees and brush from previous assaults rely on dung for fuel.)

Food Preparation - Diet and Kitchen. Rural residents generally have a diet based on potatoes, maize, beans, wheat, field peas, barley, oca (an Andean tuber) and broad beans. The diet is occasionally supplemented by animal protein in the form of mutton, pork, guinea pig, and rarely, chicken or beef. During rainy months trout

are caught in streams (Brush 1977: 176). Potatoes are prepared in various forms, but are usually boiled. Bitter potatoes which are poisonous in their unprocessed state are made into chuno, freeze-dryed potato starch. Potatoes are also sun dryed after boiling (papa seca). The most common way of preparation is boiling. The potatoes are always boiled with their skins on. Peeled potatoes of the native varieties absorb so much water when boiled that they explode and do not retain their solid form. Wheat and barley are often prepared in some kind of soup. They are also prepared by toasting over the fire to make a kind of granola called machica. Maize kernels and broad beans are also toasted before eating. In the rainy season, corn-on-the-cob is eaten (choclo) and made into humitas and tamales, husk-wrapped steamed corn dishes. Broad beans are prepared fresh at that time also. In the highlands, the native fruits guindas (a berry) and tunas (cactus fruit) are available in season. Some European fruit trees have been successfully cultivated in the highlands, but they are not a major dietary in-put for most peasants. Lowland tropical fruits are occasionally available in the markets of Huaraz, but are too costly for most rural residents to afford as more than a very rare treat. The kitchens of simple rural homes consists of a room or small building in the patio area where several rocks are left on the floor and a fire of wood or dung built among them. The walls of the kitchen often have a small shelf for a few condiments such as salt, or a small bottle of hot peppers. There are pegs for hanging clothes and a few utensils. Sometimes one will see a picture of a religious figure or saint. Utensils, pots, pans and dishes are few. According to M. A. Brush (1980) the housewife will usually keep a large jar of water near the hearth which is used for washing hands occasionally, adding to the soup or stew, or adding to the freezing wash water to make it more bearable for the hands. A corn beer called chicha is made at home. Food preparation is mostly done by women and children, but as Brush (1977) pointed out, there is considerable crossing over of gender lines of responsibility to help in food preparation tasks. According to M. A. Brush, men rarely, if ever, help with water hauling activities (1980).

In villages without running water, water hauling took substantial amounts of time and energy of women and children. In villages with running water at faucets on the street corners, such as Uchucmarca, women in particular are reportedly pleased at the improvement in their lives. Water storage for kitchen and washing purposes was not reported by any interviewers. (It is a practice on the coast where water trucks sell water by the drum to residents of desert squater settlements.)

Crafts. The household is the location for practicing native crafts, especially weaving and other hand work. Looms are usually set up on the patios under the overhang. Spinning is usually done with a hand spindle. The spinning wheel is relatively unknown. In communities in Junin which specialized in weaving, all kinds of appropriate technology for spinnning at high speeds had been invented. However, it is extremely common to see women in native dress, with a baby and bundle on her back walking down the street or road in the highlands spinning as she goes. (She will probably be watching a couple of sheep as well.)

Animals. The presence of animals in the household is discussed above. Animals are allowed in the patio and the kitchen, but not in the bedrooms or foyers. Only cuyes which need the warmth of the fire are allowed in the kitchen. All other patio animals remain outside.

Clothing. The rural peasants usually do not own much clothing. The USAID Mission to Peru Project Paper of September, 1980 on Rural Health and Sanitation reported that some children had their clothes sewn on in such a way that the clothes could not easily be removed. Women are more prone to wear the traditional multi-layered full skirts and slips, mantas and village-specific hats, while men and children will more likely wear non-descript factory made "modern" clothes. Women usually knit hats, sweaters and leggings for babies when they can afford the materials. Men wear ponchos when working in the fields or tending herd of animals, but it is increasingly uncommon to see mean wearing tradtional ponchos in the streets of towns and cities.

Bathing. Bathing is, by all reports, an extremely rare event in sierra households. Weekly or bimonthly sponge baths are probably all that adults and older children do. Younger children are probably bathed more frequently. In areas near Huaraz and Chongos where there are mineral springs, public bath house facilities are available and are regularly used by a minority.

Elimination and Toilet Training. In interviews with Pierce (1980), S. Brush (1980), M. A. Brush (1980) and Brownrigg (1980), a general pattern of elimination in the streets followed by the removal of the feces by roving pigs seems to be general in the area. A definite problem with the introduction of latrines has been demonstrated

historically in the area through Peace Corps and earthquake relief efforts. Children, when toilet trained, and generally encouraged not to do it in the house, but are not instructed specifically where to go. Many people go in vacant lots or fields which are informally known as being set aside for the purpose. The usually position is squatting rather than sitting. Dudasik indicated a motoric problem with the introduction of sitting style latrines in the earthquake relief efforts, as well as a lack of education as to how to use them. At first, he reported, they were well received, but later they were abandoned by all, Peruvians and foreigners alike, due to misuse.

The pattern of going in fields may be viewed as a reuse or fertilization pattern, although there was no specific report of this belief.

EDUCATION

Informal. Most education is informal in rural villages and hamlets of the sierra, with people learning from watching and copying thier elders, rather than being taught explicitly in a formal, classroom setting. This is especially true of health and sanitation practices, since schools do not have any better facilities than other structures in the villages.

Formal. The arrival of village or hamlet level schooling is relatively recent. With recent government budget cuts across the board, expansion of the school system by the creation of more small rural school rooms is unlikely in the short run. This would have to be investigated further at the local level. Boys tend to stay in school longer than girls. In Vicos, prior to the Cornell Peru project, there were no high school graduates (Doughty, n.d.). Within ten years, several community members, all males, had graduated from secondary school at Carhuaz. The presence of the Peace Corps allowed for the staffing of rural schools which had previously had no teachers. The teaching aspect of the Peace Corps work in the region was the best accepted and most positive experience of their presence.

RITUALS AND TABOOS

The area of rituals and taboos brings a kind of symbolic unity to the culture of the regional society, according to Stein (1974: 10). What he means by this statement is

that many mestizos employ, believe in and subscribe to Indian or indigenous customs relating to heatlh, folk medicine and other ritual parctice.

> The majority of mestizos practice the second wake ceremony, held after burial, which is viewed as an Indian custom; mestizos employ the art of shojma (diagnosis and treatment of disease by means of rubbing a patient with a cuy) and other folk medical techniques; although coca is allegedly taken by Indians only, mestizos on occasion chew it or drink it in the form of tea ...(1974: 10).

Curing. The art of diagnosis of disease by rubbing the body with cuy, called shojma, is pan-Andean and is expected to be found in the study region.

Susto. Susto is a disease widely recognized in Latin American as having a psychic origin. It is believed to cause infant deaths through "soul loss" as a result of trauma such as loud noises or a fall or a close call with danger. It can also cause serious disease in adults who seem to lose appetite and weaken. There are many folk remedies in Peru for susto. One of the simplest is to take a raw egg in its shell, holding it in the hand and rubbing the egg's shell all over the body of the afflicted person. Then, the egg is broken into a glass of water. If the white of the egg is milky, the susto is believed to have come out of the affliected person into the egg. Another cure involved baths made from flower petals of the retama plant. Other more elaborate cures specify the time of day, the person who should to the curing (father of mother of the victim, and the use of salt and water. Another simple cure is to give the victim a quick drink of water to keep the soul from escaping, as soon as possible after the fright has occured.

Aguitas. Various teas made from herbs such as mint (yerba buena), yerba luisa, camomille, cinnamon, anise, and other plants including coca, are believed to have medicinal and health giving properties.

Birthing. The act of giving birth in the Peruvian sierra is an event which takes place in the home, attended by a local midwife or a close friend or relative (a comadre).

SUMMARY OF RECOMMENDATIONS FOR EVALUATION FIELD WORK

1. Because of the striking differences among communities of different ecological zones and/or degree of linkage to the departmental capital, Huaraz, and the national capital, Lima, evaluators are advised to seek a stratified sample of communities which represent these differences: valley floor, intermediate zone, and high zone; on paved highway, on major gravel road, on seasonally passable road, not accessible by vehicles.

2. Because of the distinctiveness of Picoy (Ancashino) Quechua in the region, evaluators are advised to obtain the services of an Ancashino interpreter, preferably female, since most of the monolingual speakers of Quechua will probably be female.

3. Questions about community participation in sewage projects mentioned in CARE reports should be carefully explored, since the loss of the cycle of traditional extreta reuse may be viewed as a high cost. That is, beneficiaries may view benefits as marginal and not worth the cost in labor. Also, labor may be provided primarily by men, while benefits may be viewed as primarily accruing to women and children.

4. Opinions of women should be carefully solicited separately from those of men (not in the company of men) since their frankness may be greater under such conditions. It should be remembered that adult women greatly outnumber adult men in the study area, and that therefore women are the majority of the target population. It is also pointed out that men due to work activities are often absent from the household and use sanitary facilities less.

5. Attention should be paid to conflict among various levels of community organizations, especially to how such conflict enlightens the history of the handling of community funds and decision-making regarding labor inputs. Muncipio organization is likely to be more hierarchical and easier to study than the more democratic asambleas of comunidades campesinas. Evaluation team is advised to make sure to get both sides. Ad hoc pro-agua potable comites are a long tradition, but may be prone to instability of managerial continuity. Evaluators are advised to interview former members and leaders, rather than only the incumbents.

6. Because of the intensity of foreign presence in the region, people are likely to be suspicious of the utility to them of information gathering efforts. It would be advisable to take small gifts to give to participants in the the study. Perhaps several items relating to water use, such as soap, shampoo, soap dishs, basins and toothbrushes could be offered to allow the interviewees a choice while at the same time obtaining information about their preferences. Their choices could be looked at as a part of the study results. They should also be asked (afterwards) why they made the choice that they did.

BIBLIOGRAPHY

Area Hand Book for Peru

Barnett, Cliff R.

1960 An Analysis of Social Movements on a Peruvian Hacienda. (Cornell University, Ph.D. dissertation, 1960)

Benjamin, Alan

1979 The Argo-Economic Context of Maize Production in Three Valleys of the Peruvian Sierra. CIMMYT Economics Department, Mexico, DF, March 1979 (typed 2nd draft version, Xerox).

Bode, Barbara O.

1974 Explanation in the 1970 Earthquake in the Peruvian Andes. (Tulane University, Ph.D. dissertation, 1974)

1980 Personal communication

Brownrigg, Leslie A.

1980 Personal communication

Brush, Margaret A.

1980 Person communication

Brush, Stephen B.

1980 Person communication

1977 Mountain, Field and Family: The Economy and Human Ecology of an Andean Valley. University of Pennsylvania Press, 1977, 199 p.

Carlos, Samaneig O.

1974 Location, Social Differentiation and Peasant Movements in the Central Sierra of Peru (University of Manchester, Ph.D. dissertation)

Cortazar, Pedro

1966 Documental del Peru: Volume 2, Departamento de Ancash, Primera Series, ioppe S.A. Lima

Doughty, Paul, et al.

n.d. [1967] No title. Study of Changos and Vicos Peace Corps Evaluation. Xerox. 194 p.

Doughty, Polly

1980 Personal communication.

Dudasik, Stephen W. Jr.

1978 The Sociocultural Effects of Natural Disaster in a Peruvian Highland Community. (University of Florida, Ph.D. dissertation, 1978)

1980 Personal communication.

Elmendorf, Mary and Patricia K. Buckles

1978 Socio-cultural Aspects of Water Supply and Excreta Disposal. World Bank PU Report No. RES 15. September 1978, 54 p.

Ferroni, Marco

1978 Personal communication.

1976 Toward a Food Policy for Latin America's Urban Areas: Lima as a Case Study. Department of Agricultural Economics, Cornell University, Ithaca, NY, March 1976 (Mimeo)

Harrison, Paul

1977 Basic Health Delivery in the Third World. New Scientist. February 17, 1977, pp. 411-413.

Hobbs, Frank B. and Eduardo E. Arriaga

1980 A Critical Estimation of Infant Mortality Estimation Techniques Applied to Peruvian Data. Paper presented at the annual meetings of the Southern Regional Demographic Group, Tallahassee, FL. October 15-17, 1980.

Mayer Enrique Jose

1974 Reciprocity, Self-Sufficiency and Market Relations in a Contemporary Community in the Central Andes of Peru. (Cornell University, Ph.D. dissertation)

1979 Land Use in the Andes: Ecology and Agriculture in the Mantaro Valley of Peru with Special Reference to Potatoes. Centro Internatinal de la Papa Lima, Peru, 1979.

Oliver-Smith, Anthony

1974 Yungay Norte: Diaster and Social Change in the Peruvian Highlands. (Indiana University, Ph.D. dissertation, 1974)

Pierce, Margaret A.

1980 Personal communication.

Snyder, Joan

1960 Group Relations and Social Change in an Andean Village. (Cornell University, Ph.D. dissertation, 1960)

Stein, William W.

1974 Countrymen and Townsmen in the Callejón de Huaylas. Peru: Two Views of Andean Social Structure. Council on International Studies, Special Studies No. 51, State University of New York at Buffalo: 1974, 78 p.