

CASE STUDIES OF SUBSISTENCE AND TRANSITION

VICOS, PERU

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This paper is an analysis of a case in transition by a population of Andean Indian farmers from less than subsistence production, incapable of even feeding themselves, to more than subsistence farming -- commercial agricultural producers on a modest commercial scale. In order to place our discussion in regional context, we need first to describe briefly the characteristics of agricultural production in the Andean area. By the Andean area, we mean principally the mountain areas of Bolivia, Peru, and Ecuador, plus the fertile Pacific coastal plain west of the Andes.

#### Production Units

Several types of production units engage in agriculture in the Andean region, which has been farmed for thousands of years<sup>1/</sup> so that the present ecology is one that has been seriously affected by human exploitation. Many areas, e.g., the densely populated high altitude plateau and principal agricultural valleys of Bolivia,<sup>2/</sup> have been virtually completely deforested.

Only a few of the various types of production units found in the Andes are truly subsistence farms. The types range along a continuum of productivity from those that cannot feed their resident farming population (so that members of farm families

must resort to wage labor off the farm so as to earn cash with which to purchase supplementary foodstuffs) to those which produce tremendous surpluses of agricultural commodities beyond local consumption capability that are sold externally, often outside the country on the world commodity market.

Beginning at the more productive end of the continuum, we may identify first of all the "factory in the field,"<sup>3/</sup> as a highly capitalized, technologically complex and relatively efficient agricultural enterprise operating on an extensive land base. There are at least two geographically specific forms of such enterprise in the Andean region.

#### Plantations

The plantation is one of these forms. Plantations are characteristic of the Pacific coast littoral of tropical Ecuador and Peru, and the relatively recently developed portions of the lowland jungles of eastern Peru and Bolivia. They typically cultivate row crops with high yields of products in demand on the world commodity market -- sugar, cotton, rice, bananas, and coffee. These products bring in significant sums in foreign exchange credits to both Ecuador and Peru.

#### Ranches

The ranch is another of these geographically specific forms. Much of the Andean mountain complex rises so high in altitude that cropping is not possible over broad expanses, but forage plants do grow there. Thus specialized stock production

enterprises have been developed in a number of high-altitude areas. They produce significant portions of the national commercial wool clip and mutton, llama meat, goat, etc. Both the plantation and ranch forms of field factory produce primarily to sell outside the production unit. Immediate consumption production is secondary to the main business of growing plants or animals for external sale. Both forms are characteristically organized as corporations, and obtain short term operational capital from commercial banks. Both hire wage labor for relatively specialized tasks aided by mechanization, and occupy a strongly paternalistic position in terms of supplying the labor force with housing, educational, and medical facilities. The labor force is typically unionized.

#### Medium Farms

A variety of "medium farmers" occupies the next lower position of the continuum of production. These farm units typically exploit a smaller land base than the ranch or plantation. They are, for the most part, privately owned and owner operated with the aid of farm laborers employed for cash wages as on plantations and ranches. They are capitalized, but less heavily than plantations or ranches. They also produce primarily for external sale, but include agricultural activities carried on to sustain the farm population. The range of crops grown by medium farmers is, therefore, considerably greater than that grown on plantations. Medium farmers are more reliant than larger producers upon crop loans from government agricultural

banks than upon commercial banks. They depend more on agricultural extension service personnel for technical advice than upon the company agronomists hired by plantation managements, and their children attend public schools rather than company-financed schools.

### Peasants

Less productive than the medium farmers are a vast multitude of several millions of peasant farmers. The peasantry is made up of independent small-land owners, or farmers who hold lands within special legal entities called Indigenous Communities in Peru and Bolivia, and Communes in Ecuador. The peasant farm is not, of course, capitalized in any conscious sense. It is characteristically small, often extremely tiny, as a result of fractionalization of titles<sup>4/</sup>. The technology employed in its exploitation is traditional and typically brings little non-human energy into play in carrying out farm tasks, so that they are physically arduous and time-consuming.

Technological differences aside, Andean agricultural and livestock production suffers from time to time what are called "bad crop years." These are periods when natural phenomena affect agricultural production. Hail storms, droughts, excess rainfall causing landslides that destroy the crop at the same time that they give rise to serious erosion, etc., are recurrent problems. In this respect, one agronomist has written that "if there are abundant rains and warmth in the Andes, there is a good crop year on the Coast, as that of 1961-1962; but if

there is drought and cold in the Andes, the crop year is bad on the Coast" in Peru.<sup>5/</sup>

Some Indigenous Communities retain communally owned lands, some of which are exploited by individuals under assignment or lease, others of which are exploited by community labor. Except for this last characteristic, these lands generally fall into the same category as peasant production units.

The Andean peasantry constitutes today, after the abolition of serfdom in Bolivia, the greatest single reservoir of unskilled or semi-skilled labor in the region. Quite typically, the peasant who cannot grow sufficient food to subsist his family must find alternative sources of income. He hires out by the day on nearby plantations or ranches, or in accessible towns, in order to earn cash with which to purchase additional food, clothing, and an occasional luxury.<sup>6/</sup> If industrial or mine employment is available, the peasant becomes a worker.<sup>7/</sup> Alternatively, the less-than-subsistence farmer signs up as a sharecropper on a neighboring plantation, ranch, or manor, in order to gain additional cultivable land or pasturage rights,<sup>8/</sup> or rents woodcutting rights,<sup>9/</sup> or specializes in some branch of cottage industry or traditional artisanry in order to capitalize on his surplus labor and bring in cash. This means making hats in Chinchera<sup>10/</sup> and Araque;<sup>11/</sup> baking bread in Chupaca;<sup>12/</sup> weaving cord sandals in Pomasqui,<sup>13/</sup> canvas and cotton goods in San Juan;<sup>14/</sup> blankets in Carmen Alto,<sup>15/</sup> Quinchuqui,<sup>16/</sup> and Punyarc;<sup>17/</sup> ponchos in La Bolsa, Iluman,<sup>18/</sup> Carabuela and La Compañia, shawls and yard goods in Atrato and Peruche,

mats in San Miguel, San Roque,<sup>19/</sup> and Majipamba;<sup>20/</sup> baskets in  
Santiaguillo;<sup>21/</sup> dressmaking in Sicaya;<sup>22/</sup> pottery making in Peoche<sup>23/</sup>  
and Cotocollao;<sup>24/</sup> pottery, brick and tile in Tanitan;<sup>25/</sup> stone-  
working in Amantani.<sup>26/</sup> It means carrying on petty trading expedi-  
tions, turning a profit buying and reselling manufactured  
goods and agricultural commodities,<sup>27/</sup> or hiring out as a burden-  
bearer,<sup>28/</sup> or migrating seasonally to plantation zones to work in  
harvests requiring numerous hands, such as cotton,<sup>29/</sup> rice,<sup>30/</sup> and  
coffee.<sup>31/</sup> Sometimes it means settling permanently on a plantation  
as a hired hand,<sup>32/</sup> or moving into special occupational niches  
which happen to be open in towns, such as butchering.<sup>33/</sup> The  
peasantry also provides the bulk of rural-urban migrates who  
have been gradually abandoning the farms of the Andes and bursting  
the cities in the area at their seams.<sup>34/</sup>

### Manors

Least productive of the Andean agricultural units are the  
traditional manors. This is generally true for both types of  
production unit found within the manor. The manor field farmed  
with obligatory labor of the serfs (or the manor flocks pastured  
by the manor serfs in the special case of high altitude estates),  
yield little. They are destined primarily for external sale  
after the owner's family is subsisted, if the estate is in  
private hands and the family resides in a provincial city near  
enough to it to make provisioning feasible. The prerevolutionary  
latifundia in Bolivia were, it is said,<sup>35/</sup> "invariably self-  
supporting," producing a small surplus to sell in the cities.

Manors are not, however, typified by the kind of capitalization that Simon Patino poured into his Pairumani showplace. Unskilled hand labor constitutes an unproductive substitute for mechanization and technification of agricultural practices. If serf labor costs were charged against sales returns, many manors would operate at a loss.<sup>36/</sup> Instead of employing rotation grazing on fenced, seeded pastures with professional shepherds, typical paramo or puna high altitude range management consists of little or no attention to tufted grasses native to the area overgrazed by too many serf-owned as well as manor livestock. Even on the Ecuadorian coast where cattle graze cultivated but rarely fertilized pasture down to guinea-grass and elephant grass, exploitation remains extensive.<sup>37/</sup>

The subsistence plots assigned to the manor serf population are farmed with the least capital, the most traditional simplest technology,<sup>38/</sup> for the most limited objectives of any Andean farms. The productivity of the serfs' plots is so low that very frequently the manor serf population must go outside the manor to seek labor for wages with which to purchase food-stuffs to make up for the deficit in family production.

#### Andean Farm Productivity

It must never be forgotten that the serf, unproductive though he may be, always reserves certain kinds of farm production for external sale, even under starvation conditions. Let us cite a simple example. When the Cornell Peru Project

undertook to change the culture of one Andean manor population, that of Vicos, it was necessary to teach the Indian serfs to eat eggs and cheese. The serf population did not know what chicken eggs tasted like except as medicine for certain illnesses<sup>39/</sup> even though 85% of the households raised farmyard flocks. Eggs were always in demand and could be sold for cash or bartered almost like money. So eggs produced in Vicos were almost all sold outside the manor, and constitute the principal article of commerce.<sup>40/</sup> Even though fresh cows were always milked and cheeses made, these were also sold or traded during the Sunday market.<sup>41/</sup>

Vicos lies in a mixed farming area with extensive high altitude pastures where manor management and serfs alike grazed livestock. The serf diet was, however, a very nearly vegetarian one<sup>42/</sup> save for the few families owning enough cattle to afford to eat beef regularly.<sup>43/</sup> Animals comprised the principal form of investment and saving by the serfs who preferred to invest in goods which could move off the manor should the serf flee intentionally or be evicted. Animals also comprised the principal source of ready cash for serfs, to finance emergency expenditures,<sup>44/</sup> such as the purchase of grain to sustain themselves during the famine of the winter of 1949-50.<sup>45/</sup> Thus livestock was raised for external sale rather than home consumption. Kitchen herds of guinea pigs provided the main source of animal protein in the serf diet, augmented from time to time when a large animal died and the meat was salvaged, or

one was slaughtered for feasting during a religious festival. All other animals not held on pasture were sold outside the manor.

At the same time the Vicos serfs sold livestock to raise cash, they spent part of their money purchasing cereal grains for their own consumption. The manor was a grain importing agricultural unit, not just under famine conditions, but regularly. This paradox characterizes not only Vicos, but also the Andean region. Bolivia grew about 39% of the wheat tonnage it consumed in 1949 (that entered into commercial channels) and imported 61% by weight.<sup>46/</sup> Wheat imports into Peru regularly cost that country more foreign exchange than its imports of automobiles, trucks, buses, delivery vans, pickups, jeeps, ambulances and fire engines.<sup>47/</sup> Peru grew not quite 30% of its wheat consumption tonnage in 1961, importing just over 70%. The value of domestic wheat was, moreover, even lower relative to imported wheat, at 25.6% of the total value.<sup>48/</sup> Wheat production has hardly improved at all in Ecuador even though the introduction of chemical fertilizers has greatly increased potato yields -- from 85,000 to 208,000 metric tons between 1951 and 1954.<sup>49/</sup>

If even the least productive of agricultural units in the Andes produces some things for external sale, then the key to agricultural development in the region is not the kind of agricultural enterprise per se, but the degree to which agricultural production units enter into the commercial exchange system.

One measure of this sort comes, again, from Vicos. In 1951, only 7.7% of the serfs on that manor owned 11 head or more of livestock, counted in cow-units.<sup>50/</sup> The fact that 328 families of 363 owned some cows<sup>51/</sup> did not mean that they owned enough cattle to sell a cow oftener than very rarely. The truly and regularly productive portion of the serf population was quite small.

### Peasant Productivity

At the next higher level of productivity, the peasantry, the level of productivity appears to be only slightly higher than among manor serfs, as far as available data indicate. Even in the lush eastern lowlands of Bolivia, cattle hides and alcohol constituted the primary exports until modern transportation became available in the mid-1940's, and farming was mainly a matter of subsistence diet.<sup>52/</sup> The independent Andean peasant farmer has been so little studied that our remarks on this type of farming will necessarily be based largely on studies of members of Indigenous Communities. Our characterization of the peasantry is based upon a 2.2% sample (38) of the 1,662 Indigenous Communities officially registered by the government of Peru (see Table I), supplemented by information from 12 other farming communities. Anthropological studies of these settlements, not specifically directed toward exploration of the question now under discussion, have recorded that all those in our sample sell or barter outside the community at least one type of food produced locally. Some stock raising

communities located at elevations above the limits of agriculture <sup>53/</sup> or above the limits for certain crops <sup>54/</sup> trade animals and animal products for agricultural commodities in order to achieve a more varied diet, while some Indian farm populations caught in a particularly repressive network of social subordination to Mestizos have been forced to barter their products instead of selling them for cash, receiving a third or less of the cash price. <sup>55/</sup> 36% of the sample communities report (a recorded) three different types of agricultural commodities outside the community, while 38% sell one or two commodities outside (see Table 2). As might be expected of a regional economy in which livestock constitutes the most easily marketable agricultural commodity, 80% of the sample communities export animals or animal products (see Table 4), but one must keep in mind that highland livestock is "small in size and light in weight, with very low yields of meat, milk, wool..." <sup>56 /</sup> The number of communities exporting live animals for slaughter, fresh and dried meat, is greater than the number of exporters of any other commodity, 62% (see Table 3). Such figures clearly support our assertion that no Andean farming community lives in a purely subsistence economy.

More accurate as an index of development, of course, is the proportion of the total farm population in any given community which produces for export. A milk-powdering plant built near Cochabamba remained idle for several years because the surrounding area produced no surplus after the agrarian

<sup>57/</sup>  
reform. Information on the proportion of surplus producers is not available for many communities. In a hat-making Indian hamlet on the Peruvian shore of Lake Titicaca, only 5% of the families are considered well-to-do because they produce an agricultural surplus for sale from land holdings larger than usual <sup>58/</sup> in Chinchera.

The prevailing view of the peasant farming community is that of a settlement of agriculturalists, all of whom produce at least some surplus over family subsistence needs for sale. Indeed, in the Cuatro Ojitos colony in eastern Bolivia, commercial sales are reported to be from 60% to 90% of family production, <sup>59/</sup> peasant consumption ranging from 40% down to 10% of the harvest in perhaps the nearest approach of reality to theory.

The typical ethnography of an Andean settlement reports the number of small general stores in the population studied and outlines production activities in general terms without actually defining what proportion of the farm families in fact produces a surplus and sells it outside.

A monograph on a coastal farming community in Peru reports family production in generalized terms; each family is reckoned as possessing at least two fresh milch cows, the wife is considered to earn cash income half the days of the month vending maize beer or buying and reselling vegetables. Poultry is sold as is garden truck. <sup>60/</sup>

Where the proportion of farmers producing a surplus for sale in a given area has been reported, it turns out to be, on

the other hand, much less than 100% of the farm families in the Andean highlands, although seldom as low as in Chinchera.

In a farming community in central Peru studied by Cornell Peru Project anthropologists, Carcas, only 11 of 101 families, or 10.9% regularly sell produce outside the community.<sup>61/</sup> In a relatively developed peasant community on the Peruvian coast studied twenty years ago, family productivity ranged widely even though all families appear to have been already involved in commercial activity. In Moche, about 3.4% of the families were estimated, however, to produce 32.5 times as much milk per day as the typical dairyman.<sup>62/</sup> Their 10-milch cow herds coincided closely with the Vicos definition of wealth as 11 cow-units. Thus the bulk of commercial production came from a few families. In the Andes themselves, there are, on the other hand, farm communities where only a small proportion of the families even feed themselves from their fields, so members of most households must labor for wages with which to purchase food to make up the production deficit. In a Puno population also studied twenty years ago, only 13.6% of the families harvested enough to feed themselves or produced any surplus. All the rest produced less than their own subsistence needs.<sup>63/</sup>

Economic development in the Andean region has not come and is not yet coming from or through the traditional highland peasantry. Agricultural development in this region has occurred and is occurring primarily through the medium farmer and the large plantation or ranch.

The peasant migrant into the Amazon basin appears to be in transition from the traditional production deficit of the highlands to a fuller life, if not yet to a very significant commercial production.

In the area of colonization of the Peruvian sector of the Amazon basin around Tingo Maria, simple subsistence farmers were estimated to constitute half the farm families in 1962.<sup>64/</sup> Many of these jungle settlers came from Andean mountain areas where Indian landholdings typically consist of four or five tiny plots scattered at distances of three or four kilometers from one another that total perhaps a single hectare all together. In the Tingo Maria area, they enjoy a much richer subsistence economy, with a whole hectare planted to maize, another to yuca (a starchy tuber), with a few banana plants, orange trees, vegetable garden, and a farmyard flock of chickens and a pig or two.<sup>65/</sup> Important as such farm units are for the improvement of the standard of living, health and well-being of the settlers themselves, they make no contribution directly to the more general socio-economic development of the nation and region. The medium farmers cultivate a sufficiently large land base to escape the economic confines of minifundium, the general characteristic and developmental curse of the peasantry.

## Andean Farm Tenure Units

The distribution of land ownership is in general very unequal in Peru and Ecuador, varying from extreme latifundium to extreme minifundium. Great estates "dominate the landscape" in the Andean valleys, while tiny plots "crowd up the mountainsides."<sup>66/</sup> In general terms, 1.4% of the farmers in Peru -- large landlords and leasors -- control 62.8% of the cultivated area, while only 25.4% of the cultivated area holds 94.5 % of the farmers who hold less than 25 hectares. Medium farmers (26 to 249 hectares) hold 11.8% of the land.<sup>67/</sup> Minifundium characterizes all three major geographic zones of Peru according to the Agrarian and Housing Reform Commission.<sup>68/</sup> The coast has 35,964 properties averaging 1.39 hectare each. The Andes have 16,436 properties averaging 2.10 hectares each, and 8,362 properties in the jungle average 4.96 hectares apiece. This phenomenon is most accentuated however, in the central and southern Peruvian Andes, where 64.6% of the properties have areas of less than 5 hectares, with an average of 1.62 hectares each.<sup>69/</sup>

Only 705 properties in Ecuador, a mere 0.17% of the total in 1954, took up 37.4% of the farm land holdings of 1,000 hectares and more which averaged 3,180.1 hectares in size. Holdings larger than 200 hectares comprised only 1.1% of all those in Ecuador, but covered 56.7% of the country's farm land. At the opposite extreme, over a quarter of a million holdings constituting 73.1% of the total number, took up only 7.2% of the farm land, and averaged only 1.7 hectares each. Medium farmers

( with holdings between 5 and 200 hectares) occupied 25.8% of the farm units comprising 35.8% of the total area. The inequality of land distribution is even greater in the Ecuadorian Andes than on the coast. In the highlands, 81.7% of the holdings occupied less than 5 hectares, averaging only 1.6 hectares each, and covering 11.3% of the farmland. On the other extreme, 0.7% of the holdings occupied over 200 hectares, averaging 1,032 hectares each and covering 58.4% of the farm land.<sup>70/</sup> In Bolivia, the agrarian reform program has established legal maxima for various types of agricultural enterprises in various parts of the country, from 35 to 80 hectares for the small property from the alti-plano to the sub-tropical zone, from 350 to 600 for the medium property, and 150 to 2,000 for modern enterprises.<sup>71/</sup> Since peasants in some valleys seized properties as small as 3 or 4 hectares,<sup>72/</sup> it remains difficult to tell just how far the former latifundia of Bolivia have been reduced.

### Peasantry

It has been asserted that any land holding smaller than 5 hectares cannot maintain a family at even a low level in Ecuador, especially in the Andean highlands, so that the owners of such farms are in fact laborers because they depend upon working for others to subsist.<sup>73/</sup> The density of rural population rises as the farm population increases, and cultivable land is lost by unchecked erosion. In one Ecuadorian Indian town, members of the present generation can expect to inherit 0.1485 hectare, compared to their parents' 0.1757 hectare, their grandparents'

0.2681 hectare, and their greatgrandparents' 0.6401 hectare.<sup>74/</sup>

These generalizations may certainly be extended to Peru, and with modification to Bolivia.

Yet the typical Andean peasant farms an area smaller than 5 hectares. Peasant farms in an Indian hamlet on the Peruvian side of Lake Titicaca range in size from one-half to 5 hectares.<sup>75/</sup> In one Peruvian coastal valley oasis, Viru, 20 years ago 80% of the properties on the Irrigators' Register consisted of less than 5 hectares, descending in size to one-fifth of a hectare.<sup>76/</sup> This was still the situation in this valley in 1964.<sup>77/</sup> In the Tingo Maria Amazon basin colonization area, the subsistence farmers cultivate two to four hectares.<sup>78/</sup> In the eastern Bolivia area where highland colonists reportedly sell 60% to 90% of their agricultural production, plots average slightly less than 4 hectares per family.<sup>79/</sup> Settlers at Cuatro Ojitos and Yapacani appear to be increasing their plantings at the rate of 1 hectare per farmer per year,<sup>80/</sup> but those at Cotoca only half an hectare annually, having achieved a total cultivated area averaging only 2.1 hectare per family during the 1961-62 season.<sup>81/</sup> In the Todos Santos and Villa Tunari sectors of the Chapare colonization area, settler families cultivating an average of 3.54 hectares in 1962 were adding 0.7 hectare per year to their farms.<sup>82/</sup> Farms in the San Luis colonization area average from 2 to 2 1/2 hectares.<sup>83/</sup> A sample of the settlers in 11 colonies in the Santa Fe, Caranavi, and Carrasco sectors of Bolivia cultivated an average of 2.8 hectares per family in 1962,<sup>84/</sup> while farmers in the

Chipiriri sector averaged 4.8 hectares.<sup>85/</sup> These figures suggest that in the course of a few years many highland colonists in these areas will subjugate more than 5 hectares and really pass out of a peasant style of farming into truly commercial medium farming.

### Medium Farmers

Medium farmers may be reckoned as cultivating from 5 to 100 hectares, a unit frequently labeled a "fundo" in Peru.<sup>86/</sup> In the lower range of medium farmers, "family farms" of 5 to 10 hectares may be distinguished in coastal Peru, at least.<sup>87/</sup> In eastern Bolivia, the quinta is usually 8 to 10 hectares, less than half cultivated, and never more than 20 hectares.<sup>88/</sup> This distinction between farm units between 5 and 10 hectares in size is also useful in Ecuador.<sup>89/</sup>

In a coastal irrigation project Peru opened to settlement in 1929, the 404 lots comprising the 3,679 hectare project are now farmed by only 196 proprietors (average 18.7 hectares) despite a 15-hectare limitation imposed in 1935.<sup>90/</sup> A parallel concentration of land ownership is already underway in the Cuatro Ojitos colony in eastern Bolivia, which started in 1957 with uniform assignments of 20 hectares.<sup>91/</sup> Some colonists have been selling their 20 hectares to others when they give up the struggle, while others have lowered their aspirations and sold half their original areas to more ambitious and successful colonists. The same process is occurring in the Cotoca colony where the International Labour Organization Administration fixed 9 hectares as

the original equal plot area<sup>92/</sup>.

The farm consolidators are members of the rural middle class, standing socially and economically between the peasants and the proprietors of the great estates. They invest in the education of their children in accord with middle class values. They exhibit their solvency by driving pickup trucks. They may, in areas where high unit value cash crops can be profitably grown, enjoy an annual income up to nearly \$5,600 (S/. 150,000) in Peru.<sup>93/</sup> They may live in the capital city, leaving their fields to be cultivated by permanently settled peons, both in the coastal valleys<sup>94/</sup> and in the less densely settled mountain valleys<sup>95/</sup>. In Peru's Tingo Maria colonization area, medium farmers constitute approximately 35% of the farm families<sup>96/</sup>. Although 9% of Ecuador's highland holdings are between 10 and 200 hectares in size (and 33.6% of those on the coast are), "there are very few family-sized farms in Ecuador" because owners of farms large enough to maintain a family comfortably play the traditional owner's role of supervising hired labor.<sup>97/</sup>

#### Latifundium

According to the Peruvian Commission for Agrarian and Housing Reform,<sup>98/</sup> the number of properties classified as large and very large, whose size varied from region to region, was as follows:

<u>Geographic Zone</u>	<u>Large properties</u>	<u>Very Large properties</u>
Coast	692 (100-500 H.)	181 (over 500 hectares)
Andes	258 (200-500 H.)	99 (over 500 hectares)
Jungle	905 (100-1000 H.)	300 (over 1000 hectares)
Totals	1855	580

The largest fincas of the Camba area in eastern Bolivia reach 50,000 hectares in area.<sup>99/</sup>

The "factories in the field" large-scale plantations and ranches constitute only a very small percentage of the farm families in the Andean region, but they cultivate or graze a significantly high proportion of the total agriculturally exploited area. This concentration of ownership is, of course, now more pronounced both in Peru and Ecuador than in Bolivia. In Peru's Viru Valley, 4 proprietors owned 75% of the irrigated area inscribed in the Irrigator's Register 20 years ago.<sup>100/</sup> Their plantations constituted only 1.7% of the irrigated properties on the register. Their reported areas averaged 805 hectares per plantation, but their actual areas were considerably greater. In this same valley in 1964, properties of 100 hectares and over constituted 87.8% of the total area cultivated, and belonged to only 3.4% of the proprietors even after several estate divisions. On the other hand, 77.6% of the proprietors owned barely 3.6% of the cultivated area, an extreme example of minifundium. Within this large group of very small holders, 31.5% possess only 0.5% of the cultivated area, holding less than 1 hectare each. Between these extremes in size of land holding,

the family farms (5-10 hectares) and the medium holdings (10-100 hectares) constituting 19% of the proprietors occupied 8.6% of the cultivated area.<sup>101/</sup>

In Peru's Ica Valley, 94% of the landowners in 1940 had less than 6.88 hectares each, and together held only 16% of the cultivated area, while at the other extreme, 68% of the area was held in estates of 111 hectares or larger size.<sup>102/</sup>

In Huamanga Province, Ayacucho Department, Peru, 28.3% of agricultural land belongs to 1.3% of the landowning population (hacendados); 71.7% of the land belongs to 81.9% of the landowning population; 16.8% of the total population is landless, living as peons on lands of the haciendas.<sup>103/</sup> In Huanta Province in the same department, 15.6% of the agricultural lands are in the hands of 0.5% of the land owning population; 84.4% of cultivated lands are owned by 85% of the land owning population; 13.8% of the agricultural population is landless, living on hacienda lands. In La Mar Province of this department, 22.4% of agricultural lands are owned by 0.2% of the total landowning population; 77.6% is in the hands of 86.4% of the small and medium sized property owners; 13.4% of the remaining population is composed of serfs living on haciendas.<sup>104/</sup>

In Cotopaxi Province, Ecuador, 82.7% of the farm units are reported to cover less than 5 hectares. Another 8.1% fall into the "family farm" category of 5 to 10 hectares; and 8.2% of these cultivation units are between 10 and 100 hectares in size. Only 0.96% of the units are larger than 100 hectares,

yet these 256 units cover 60% of the area farmed, while all the units of less than 20 hectares (94.6% of the farm units) cover only 10% of the area cultivated.<sup>105/</sup> The total surface area of 70 manors in public ownership in this country averages 1,857 hectares each. but manors of 9,350 and 9,586 hectares are included in the range.<sup>106/</sup>

Near the bottom of the socio-economic group of owners of plantations are many of those engaged in coffee and tea production on newly subjugated jungle lands in the Amazon basin. In the Tingo Maria area, about 10% of the farm families operate true plantations, or large sized holdings in the process of being converted into true plantations. These production units contain a minimum of 100 hectares, the minimum plantation size. They operate with credit from the national agricultural development bank. They hire numerous migratory laborers from the Andean highlands, but sometimes lose half their coffee crop for lack of sufficient harvest hands.<sup>107/</sup> The process of consolidation has enabled some farmers to accumulate over 100 hectares of land in the La Esperanza irrigation project on the Peruvian coast which started with colonists on 15 hectare plots.<sup>108/</sup>

At the more prosperous and spectacular extreme of plantation characteristics, the large, highly capitalized and industrialized plantations on Peru's west coast include one family agricultural complex that reportedly cultivates 32,213 hectares.<sup>109/</sup> There are at least four other enterprises cultivating more than 10,000 hectares each: 12,399, 11,163, 10,145, and 10,707 respectively.<sup>110/</sup>

Two hundred coastal plantation owners cultivate a reported area of 338,266 hectares<sup>111/</sup>, an average of 1,691 hectares per plantation. The preponderant role these plantations play in Andean agriculture may be deduced from figures on their participation in the world commodity market. Sugar exports comprised 12.9% of all Peruvian export value in 1961,<sup>112/</sup> compared to 30% some 20 years ago when half a dozen firms dominated production<sup>113/</sup> and one boasted that it refined over 1/3 of all the sugar made in the country.<sup>114/</sup> Cotton exports brought 16.4% of the value of all Peruvian exports in 1961.<sup>115/</sup> These proportions are lower than in earlier years because of a spectacular increase in offshore fishing which has raised Peru to a foremost world fishing nation. Edible fish, fish oil and fish meal exports comprised 14.4% of all Peruvian exports in 1961.<sup>116/</sup> Another plantation and medium farm crop, coffee, made up a significant 4.6% of Peruvian export value in 1961.<sup>117/</sup> The major single Peruvian export is copper. Ore, concentrates, blisters, sheets, etc., exported made up 21.9% of the value of Peruvian exports in 1961.<sup>118/</sup> Thus one mineral, three fisheries products, and three agricultural commodities constituted 70.2% of Peru's 1961 exports. Yet this agricultural production comes from the relatively small part of the nation's acreage under plantation management.

Peruvian agricultural production in 1960 followed this pattern:

Commodity	% Per Hectare
Food crops (potatoes, maize, barley, etc.)	73.8%
Industrial food & fiber crops (cotton, coffee, sugar cane, grapes, etc.)	23.2%
Industrial crops (sugar cane for alcohol, coca, jute, etc.)	2.7%
Other	.3% $\frac{119}{120}$

Food crops are grown mainly in the Andes and by the small farmers of all three zones. Livestock production for slaughter predominates in the Andes, and milk production predominates on the coast. Low yields per hectare are notorious, confirming the backwardness of cultivation techniques employed by the small farmers.  $\frac{120}{121}$  In Ecuador, on the other hand, dairying is important in the Andes near the major cities. There a man will consider himself well off if he has a dairy farm near Quito, Latacunga, Piobamba, Cuenca, Loja, Cayambe, or Tulcan.  $\frac{121}{122}$  The larger the land holding in Ecuador, the higher proportion of it is rangeland. In the highlands, units under 100 hectares cultivate more than half their area, but 65.9% of holdings between 100 and 500 hectares are pasture, 80.8% of those from 500 to 1,000 hectares, and 86.7% of those from 1,00 to 2,500 hectares, and 93.8% of the holdings over 2,500 hectares were grazed in 1954. The same breaking point was recorded on the coast, but pasture occupied 55.3% of the 100-500 hectare units, 57.4% of those from 500 to 1,000 hectares, 52.9% of 1,000 to 2,500 hectare units, and 60.2% of those over 2,500 hectares.  $\frac{122}{123}$

Ranch sizes are, of course, much larger than row crop plantation sizes. A much smaller sample of the more or less modernized

high altitude ranch operations in Peru -- 24 cases for which approximate areas have been reported <sup>123/</sup> -- utilizes a land base of 2,883,290 hectares, or an average of 120,137 hectares per ranch.

The concentration of land ownership in Peru is indicated by the fact that at least 8 of the 24 ranch owners are also among the 200 coastal large plantation owners.

Figures cannot be given for manor size. The number of manors in Peru and Ecuador is another figure that we would like to cite, but cannot. Estimates for Peru have varied from 1,198 <sup>124/</sup> to 3,777 <sup>125/</sup>.

TABLE 1. PEASANT AGRICULTURAL PRODUCTION FOR SALE IN MOUNTAIN  
126/  
 PERU

Column Key

- 1 = slaughter animals and dried meat  
 2 = hides and wool  
 3 = cheese and milk  
 4 = fresh vegetables  
 5 = potatoes and other tubers, including oca and ollucu  
 6 = cereal grains  
 7 = peppers (aji, rocoto)  
 8 = timber or firewood  
 9 = eggs  
 10 = chickens or other fowl, or guinea pigs

Community	1	2	3	4	5	6	7	8	9	10	Total
1. Carcas	+	-	+	+	+	+	-	-	+	+	7
2. Mito	+	+	+	-	+	+	-	-	+	+	7
3. Accopata	+	+	+	-	+	-	-	-	+	+	6
4. Chupaca	+	+	-	-	+	+	-	-	+	-	5
5. Camicachi	+	-	+	-	+	+	-	-	+	-	5
6. Palca	+	-	-	+	+	+	-	+	-	-	5
7. Acobamba	+	-	-	+	+	+	-	-	-	-	4
8. Palcamayo	+	-	-	+	+	+	-	-	-	-	4
9. Llambilla	+	-	+	+	+	-	-	-	-	-	4
10. Tupe	+	+	-	-	-	-	-	-	+	+	4

Table 1 (continued)

Community	1	2	3	4	5	6	7	8	9	10	Total
11. Mayobamba	+	+	+	-	+	-	-	-	-	-	4
12. Huayre	+	+	+	-	+	-	-	-	-	-	4
13. Amantani	+	-	-	-	+	-	-	-	+	+	4
14. Allauca	-	+	-	-	+	+	-	-	-	-	3
15. San Pedro de Cajas	+	+	-	-	+	-	-	-	-	-	3
16. Castrovirreyña	+	+	-	-	+	-	-	-	-	-	3
17. Huancaile	-	-	+	-	+	-	+	-	-	-	3
18. Huanec	-	+	-	-	+	+	-	-	-	-	3
19. Huaychao	+	+	+	-	-	-	-	-	-	-	3
20. Muquiyauyo	-	-	+	-	-	-	-	-	+	+	3
21. Paucartambo	-	-	-	-	+	-	+	+	-	-	3
22. Pucara	-	-	-	+	+	+	-	-	-	-	3
23. Huaylas	?	+	-	-	-	+	-	-	-	-	3
24. Chaupi	?	?	-	-	-	?	-	-	-	-	3
25. Pichqachuri	?	?	-	-	-	?	-	-	-	-	3
26. Qayao	?	?	-	-	-	?	-	-	-	-	3
27. Qollana	?	?	-	-	-	?	-	-	-	-	3
28. Santa Barbara	+	+	-	-	+	-	-	-	-	-	3
29. Huayllay	+	+	+	-	-	-	-	-	-	-	3
30. Chinchera	+	+	+	-	-	-	-	-	-	-	3
31. Cuyo Chico	-	-	+	+	-	-	-	-	+	-	3
32. Huancaya	-	-	+	-	-	+	-	-	-	-	2

Table 1 (continued)

Community	1	2	3	4	5	6	7	8	9	10	Total
33. Rimac	+	-	+	-	-	-	-	-	-	-	2
34. Sicaya	-	-	-	-	+	+	-	-	-	-	2
35. Yungalla-Primo	+	-	+	-	-	-	-	-	-	-	2
36. Chaquicocha	-	-	-	-	+	+	-	-	-	-	2
37. Hualcan	+	-	-	-	-	-	-	-	+	-	2
38. Taquile	-	-	-	-	+	-	-	+	-	-	2
39. Huarochiri	+	-	+	-	-	-	-	-	-	-	2
40. Choclococha	+	+	-	-	-	-	-	-	-	-	2
41. Hualcaralla	-	-	+	-	-	-	-	-	-	-	1
42. Andarapa	-	-	-	-	-	+	-	-	-	-	1
43. Lupo	-	-	+	-	-	-	-	-	-	-	1
44. Lurinsayac-Anansayac	-	-	-	-	-	+	-	-	-	-	1
45. Suni	-	-	+	-	-	-	-	-	-	-	1
46. Pararin	+	-	-	-	-	-	-	-	-	-	1
47. Ayamarca	-	-	-	+	-	-	-	-	-	-	1
48. Ichupampa	+	-	-	-	-	-	-	-	-	-	1
49. Chinchero	-	-	-	-	+	-	-	-	-	-	1
50. Cajacay	-	-	-	-	-	-	-	fut	-	-	1

TABLE 2. DEGREE OF PEASANT COMMUNITY PARTICIPATION IN THE  
COMMERCIAL MARKET ECONOMY

Number of Agricultural Commodities Sold	Number of Communities	Per Cent of Communities
Only 1	10	20 %
2	9	18 %
3	18	36 %
4	7	14 %
5 to 7	6	12 %

TABLE 3. PROPORTION OF PERUVIAN PEASANT COMMUNITIES SELLING  
AGRICULTURAL COMMODITIES OUTSIDE, BY TYPE OF COMMODITY

Agricultural Commodity	Per Cent of Communities Exporting
1. Slaughter animals and meat	62 %
2. Grains	40 %
3. Potatoes or other tubers	48 %
4. Cheeses and milk	40 %
5. Wool, hides, or leather	40 %
6. Fresh vegetables	16 %
7. Fowl or guinea pigs	12 %
8. Eggs	20 %
9. Timber or firewood	8 %
10. Peppers	4 %

TABLE 4. PEASANT FARMING COMMUNITIES EXPORTING ANIMALS AND ANIMAL PRODUCTS FOR EXTERNAL SALE IN PERU (N=50)

Wool and Hides	Meat and Animals	Cheeses and Milk	None
4 %	14 %	14 %	20 %
22 %			
	12 %		
14 %			
40 %	62 %	40 %	20 %

TABLE 5. PEASANT COMMUNITIES EXPORTING STAPLE AGRICULTURAL COMMODITIES (N=50)

Vegetables	Tubers	Cereals	None
4 %	22 %	16 %	32 %
2 %			
	14 %		
10 %			
16 %	48 %	40 %	32 %

TABLE 6. JUNGLE SETTLER AGRICULTURAL PRODUCTION FOR SALE <sup>127/</sup>

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Column Key: 1 = vegetables, 2 = fruits, 3 = yuca, 4 = coca,  
5 = maize, 6 = rice, 7 = sugar cane, 8 = coffee, 9 = eggs,  
10 = fowl.

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Colony	1	2	3	4	5	6	7	8	9	10	Total
1. Tingo Maria, Peru	+	+	+	+	+	+	-	+	-	-	7
2. Tambopata Valley, P.	-	-	-	-	-	-	-	+	-	-	1
3. Cuatro Ojitos, Bol.	+	+	+	-	+	+	+	-	+	+	8
4. Yapacani, Bolivia	-	-	-	-	+	+	-	-	-	-	2
5. Cotoca, Bolivia	-	-	-	-	+	+	+	-	-	-	3
6. San Luis (6 colonies)	-	-	-	-	+	-	-	-	-	-	1
7. Todos Santos (7 col.)	-	+	+	+	+	+	-	+	-	-	6
8. Villa Tunari (6 col.)	-	+	+	+	+	+	-	+	-	-	6
9. Chipiriri, Bol.	-	+	-	+	-	+	-	-	-	-	3
10. Santa Fe sector	-	+	+	-	+	+	+	+	-	-	6
11. Carrasco sector	-	+	+	-	+	+	+	+	-	-	6
12. Caranavi sector	-	+	+	-	+	+	+	+	-	-	6
13. Santa Clara, Ecuad.	-	+	+	-	+	-	+	-	-	-	4

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TABLE 7. AREA CULTIVATED BY SETTLERS IN EASTERN BOLIVIA.

Hectares Cultivated by Sample (72 of 675) in 1961-1962 Season <sup>128/</sup>

Hectares	Cuatro Ojitos		Todos Santos		Villa Tunari		Chipiriri		Santa Fe*	
	Nº	Ha.	Nº	Ha.	Nº	Ha.	Nº	Ha.	Nº	Ha.
0.5	1	0.5	2	1.0	8	4.0	6	3.0	17	8.5
1.0	4	4.0	4	4.0	19	19.0	14	14.0	70	70.0
2.0	16	32.0	11	22.0	51	102	39	78.0	87	174
3.0	12	36.0	14	42.0	36	108	49	147.0	63	189
4.0	17	64.0	2	8.0	29	116	18	72.0	29	116
6.0	14	84.0	9	54.0	41	246	51	306.0	42	252
9.0	8	72.0	1	9.0	7	63	16	144.0	7	63
13.0	1	13.0			3	39	12	156.0		
18.0							3	54.0	1	18
Average	4.24		3.26		3.54		4.76		2.8	

\* Caranavi and Carrasco sectors.

TABLE 8. PEASANT AGRICULTURAL PRODUCTION FOR SALE IN MOUNTAIN  
 ECUADOR AND BOLIVIA <sup>129 /</sup>

Column Key: 1 = slaughter animals, dried meat, or lard.  
 2 = hides and wool. 3 = cheese and milk. 4 = fresh vegetables  
 or fruit. 5 = potatoes and other tubers. 6 = cereal grains  
 including green corn. 7 = peppers. 8 = timber or firewood.  
 9 = eggs. 10 = chickens, other fowl, guinea pigs.

Community	1	2	3	4	5	6	7	8	9	10	Total
1. Nayon, Ecuador	-	-	-	-	-	+	-	-	-	-	1
2. Punyaro, Ecuador	+	+	-	-	+	+	+	-	+	+	7
3. Cotocollao, Ec.	-	-	-	+	+	+	-	-	-	-	3
4. Pilacumby, Ecuador	+	-	-	-	-	-	-	+	-	-	2
5. Chimbo Canton, Ec.	+	-	-	+	-	+	-	-	+	+	5
6. Pillapi, Bolivia	+	-	+	-	-	-	-	-	+	-	3
7. Aiquile, Bolivia	+	+	-	-	+	+	-	-	-	-	4

This sample is too small to permit significant comparison with the Peruvian pattern, other than in very general terms. The emphasis on sales of animals and animal products is similar, but agricultural commodities appear somewhat more important in this small sample.

This, then, is the national and regional context in which some 1,800 Indian serfs of the manor of Vicos struggled for a livelihood in 1951. They barely survived by dint of hard work outside Vicos during the four days of the week they did not have to work for the manor. For their own subsistence agricultural technology was so inefficient that their potato crops were failing because unprotected plants succumbed to blight.

### VICOS UNDER THE MANORIAL SYSTEM

Lest the thought that the Andean manor is a tremendous expanse of land occupied by few people confuse the reader, we wish to make it clear here that an outstanding characteristic of manors such as Vicos is overpopulation, in terms of agricultural carrying capacity permitted by the traditional farming technology. The principal value of the Vicos manor to its exploiters was its large serf labor force rather than the land itself.<sup>130/</sup>

The 1952 Vicos labor force of 363 men (or grown boys or adult female substitutes) was obligated to labor three days each week, or 156 days per year, for the manor management in return for a token payment of 20 Peruvian centavos per day, and the family house lot and farm plot or plots. This labor could be applied anywhere the manor management wished, within Vicos or outside, on fields or in factories. The manor management could and did rent out the serfs to labor on other manors, receiving payment in cash that was pocketed as pure profit, or in kind

convertible into such cash. None of this profit went to the serfs who performed the actual labor. They were hired out with approximately as much voice in the matter as oxen hired out to do a neighbor's plowing.

Given such circumstances of management interest in a large labor supply, it is not surprising that there were 363 families in Vicos at the beginning of 1952 when the Cornell Peru Project intervened there.<sup>131/</sup> These families occupied approximately 85% of the area of cultivable land in the Vicos manor. Only some 15% of the cultivable area was farmed for the profit of the manor management.

The in theory subsistence plots of the serfs, that in fact did not support them because of the failures in their technological control of the natural environment, were extremely fractionalized. While the manor management in legal fact controlled all of the lands of the manor, and could eject a serf at any time, or re-assign serfs to different plots, in social fact this power had seldom been exercised. Most serf land tenure resulted from the operation of a traditional system of customary serf land tenancy law. No one of yet has succeeded in counting all of the particular little plots into which the minifundium cultivated by the serfs of Vicos has been divided through the years. It has been estimated that there are upwards of 10,000 individual identifiable cultivated plots in Vicos today. The new peasants of Vicos cultivate a few square meters in four, five, or six areas at distances of from a few yards to several kilometers from their farmsteads.

This miniscule agriculture, or gardening, to place a more accurate label upon it, is in fact the predominant form of agriculture in the Andean region, at least in number of farmers employed. It is the least productive form of agriculture, but absorbs the energies of the great bulk of the farm population.

It should be kept in mind that manor serfs, judging from the Vicos example, farm with a traditional and simple technological kit that provides little control over the natural environment beyond that attained several thousands of years ago during the beginning stage of the Neolithic Age in the Old World. The serf farms in profound ignorance of most, if not quite all, of the advances in farm production technology that have occurred during the past century. He has been shut off from technological change by the cultural barriers of illiteracy and speaking only an Indian language, as well as the social barriers of serfdom.

The serf lacks knowledge that selected seed could correct deficiencies of deteriorated local seed stocks, because he lacks knowledge of genetic inheritance of traits and even the Spanish to learn about genetic processes. The pressures of hunger drive him to dig potato tubers to eat long before they are mature, reducing his ultimate harvest, and tending to bring about the saving of selectively smaller seed for the next season's planting.

The serf lacks knowledge that fungicides can protect seed potatoes in the furrow, and that insecticides can halt potato plant diseases, being unfamiliar with the subvisible world of disease agents, for lack of microscopes and even magnifying lenses.

The serf may not lack knowledge that fertilizers besides animal manure exist, but he does lack knowledge that he might be able to afford to purchase them and apply them to his own fields.

The serf lacks knowledge that slow irrigation with heavy field soaking can increase production, being accustomed merely to open the ditch at the top of the field and let the water rip. Erosion is a concept foreign to the serf's comprehension in terms of reduced soil fertility and crop yield, and he has no conception of how to prevent or control erosional processes.

The serf lacks knowledge that crop loans might be obtained to purchase such modern aids to agricultural productivity, and he certainly lacks the confidence that an Indian serf might qualify for a loan from a Mestizo-operated bank. Even more seriously, the serf lacks knowledge of the market outside his immediate neighborhood where the demand that would absorb commercial production must be found.

Quite aside from his sheer ignorance, the serf is an inefficient farmer because of lack of motivation. Virtually the only property of value that a manor serf can accumulate is livestock, and a few changes of homespun clothing made in traditional local style. In legal theory, at any rate, all land within the manor belongs to the management, and a serf may be ejected therefrom at any time at the pleasure of the management. This is particularly true in the absence of any written contract governing management-serf relations. Yet the profit to be gained from serf labor leads manor managers to attempt to keep all serfs

on their manors rather than to eject them, save on those high altitude manors in the process of conversion into modern ranches. There, the traditional serf shepherd population is in fact being forced off the land in several instances, and professional shepherds hired on salary to pasture much larger flocks than before. Pastures are being improved and fenced, and grazed in rotation by manor animals, while serf livestock is done away with.

The serf builds his own house, but the lot it occupies is assigned to him by the manor management, and remains its property. There is, therefore, little motivation for the serf to invest labor and money for materials in constructing a very good house.

Animals may be owned by serfs, on the other hand, and pastured on manor lands at most manors, although often only upon payment of a grazing fee in cash or labor. Animals bring social prestige to their owner, and economic power as well. For being always in demand at the urban market, animals may be sold at virtually any moment for ready cash. The serf who has cash, or can obtain it by selling livestock, attains a significant amelioration of his condition within the manor socio-economic system -- as long as he escapes either the notice or the wrath of the management. For with cash, the serf can dominate other serfs who lack livestock. He can lend them cash to meet emergencies such as curing fees, funeral expenses, marriage costs. Such a loan between serfs places the debtor in a position of socio-economic subservience to the lender. The debtor must respond to the lender's calls for assistance in his agricultural tasks, or risk

being unable to obtain future loans. The livestock owner is also sought after by poor serfs without oxen to plow their fields who seek to borrow such animals.

Finally, of course, cattle tend to reproduce and increase in numbers, which provides an analog to bank interest on savings, and cattle are self-transported commodities. If the serf should be thrown off a manor, he can hope to take his cattle with him, even though his house, his fields, his trees, and even his tools remain behind.

The manor system of agriculture seems to entail at least two other phenomena of importance in agricultural development, indeed, in the agricultural contribution to the national economy. Manors typically have a set of local serf authorities charged by priest and manor management with responsibility for every-day religious instruction of the serfs, and even with some rituals. These religious authorities are also typically held responsible for carrying out certain kinds of maintenance -- repairing and decorating the manor chapel, bridges, even roads. Other repairs are carried out by the serfs during their days of obligatory work for the manor management. If neither the management nor the series of serf authorities takes a serious interest in the physical maintenance of the manor, it may fall into serious disrepair. Serfs who have little or no acquaintance with motor vehicles and seldom even ride in one tend to let farm-market access roads develop a fatal line of hard-ridged ruts. Terraces constructed in prehistoric times may fall from lack of simple annual maintenance.

In addition, the efficiency of the manor production unit is seriously impaired by the systematic and often even desperate theft by the serfs. If the manor grows an edible cash crop, particularly, its produce is subject to being halved before reaching the market by serf looting.

As long as serf women enjoy the right to glean the manor fields already harvested by the men paying their obligatory labor, it is little wonder that the men manage to rebury half the potatoes they dig up for their wives to uncover during the gleaning. The same process occurs at planting time when the manor seed goes to sow serf fields, when manor seedlings are transplanted, etc.

While women are shelling maize for the manor management in its warehouses, it is not surprising that the folds and pockets of their voluminous woolen skirts become filled with corn kernels.

Such thievery by manor serfs is usually carried out in terms of a conception of the economic sphere of life as a relatively fixed quantity. This means that the serf regards himself as competing with the manor management for a nearly fixed amount of agricultural production harvested from the manor fields. The cultural focus of the small-scale subsociety is upon doing the other fellow out of part of his share for one's own benefit, rather than upon increasing the productivity in order to augment the share of each and all. The conception extends not only to the manor management, but also to other serfs. This theft from serfs by other serfs is quite common. Manor

managers are constantly besieged by serfs seeking adjudication of disputes over ownership of animals thought to have been rustled, damages to be assessed against the owner of animals that strayed into a field and damaged a standing crop, etc. During the harvest season, serfs build small thatched huts in the fields to sleep there at night so as to guard against loss of their ripening grain to man as well as birds.

Within this estringent cultural context, the manor serf lives with certain minimal needs for purchasing items not produced on the manor.

Chewing the leaves of the coca plant mixed with slacked lime is a typically Indian trait throughout the Andean highlands save Ecuador. Coca only grows in tropical or subtropical habitats, however, so that it is imported into the higher altitudes where it is consumed. Serfs who chew coca have to pay for it.

Salt is not readily obtainable in more than a few areas of the Andean region -- a few rock salt mines, Pacific coast salt drying pans, and high altitude salt lakes in Bolivia and Ecuador. Most manor serfs must purchase salt.

The ignorance of the manor serf is so profound, that often he must purchase his clothing. The farm wives on such manors simply do not know how to sew on machines, nor can they afford to purchase sewing machines. They buy cloth and pay seamstresses in nearby towns to make their clothing, although this follows a traditional and distinctive local pattern.

Such necessities force the serf to produce at least a small amount for sale on the external market in order to obtain cash with which to purchase coca, pepper, salt, distilled liquor, cloth, festive bread, and services.

As already indicated, the most important single source of serf cash income is the sale of livestock. This includes the sale of chickens and other barnyard fowl where they are successfully raised by serf wives, and the sale of their eggs especially. It includes the sale of cheese.

Cash is also earned by serfs working outside the manor for daily wages, usually quite low because of labor surpluses, and the traditional social dominance of those who hire labor. Inevitably, the necessity for able-bodied serfs seeking wage labor outside the manor leads to neglect of the serf subsistence plots, to their being farmed by women and children at something less than maximum efficiency. So productivity remains low for another reason in the vicious circle of serf servility.

#### PARTICIPANT INTERVENTION

The Cornell Peru Project stepped into the kind of manor serf agricultural and social situation just outlined at Vicos in 1952. The Cornell Peru Project has been on the one hand a bilateral endeavor of Cornell University and the Peruvian government through first the Peruvian Indian Institute and later the National Plan for Integrating the Aboriginal Population to improve the standard of living of the Vicos population. On the

other hand, the Project has been a joint scientific endeavor designed to study the independent variables involved in increasing agricultural and human productivity starting from the base just outlined.<sup>132/</sup>

This was accomplished in the first place by establishing the bilateral organization known as the Cornell Peru Project with scientific objectives as well as practical ones, with the participation of a prestigious North American institution of higher learning, and of officials of the national government of Peru.<sup>133/</sup> This form of organization carried with it a fundamental importance to which we shall allude later on.

Change was achieved in the situation of the Vicos serfs in the second place by leasing the manor itself for a five year period. This placed the Cornell Peru Project in the position of manor manager for five years, so it was able to institute sweeping innovations from a status with powerful leverage. In fact, the reader may conclude that the Cornell Peru Project was able to change the serfs of Vicos because it was in a position of power over them. This is true in a limited sense, but there is another sense in which the power wielded by the Cornell Peru Project has been even more important.

Allow us to distinguish here between those forms of power that are backed up by severe deprivations<sup>134/</sup> and those that consist of some type of influencing.<sup>135/</sup> The manor management always enjoys the right to employ severe sanctions: Andean manors operate with private jails, with whipping posts, forceable

seizure of person and property of serfs, and with the national police at the beck and call of the management, plus the national court system cooperating with it as well.

The Cornell Peru Project as the management of the Vicos manor could indeed have exercised severe sanctions in order to force the serfs to change. It did not in fact do so. The Project chose to persuade the serfs to change by a process of explanation and enlightenment that exposed serfs to new experiences and afforded them new knowledge on which to build new perceived needs and desires, and with which to structure novel ways to satisfy needs and desires.

The Cornell Peru Project promptly abolished a number of forms of extra, unrecompensed services which the Vicos serfs regarded as most irksome -- stableboy, houseboy, nursemaid, cook, etc. Yet serfs were required to continue working the obligatory three days a week, to which they did not especially object, in order to carry out a gradual transition and to provide a demonstration and training experience in new agricultural and social practices; and to produce new investment capital.<sup>136/</sup>

Thus, when innovations in agricultural technology were introduced on the manor's commercial fields, the serfs had to adjust to them.

On the other hand, the Cornell Peru Project resorted to persuasion to insure that these innovations would be applied by the serfs to their own fields, and not simply be ignored as things the rich and slightly crazy gringos understood and could afford

to do, but that poor, ignorant, Indian serfs could not. The Cornell Peru Project offered to make improved seed, fungicides, insecticides, fertilizer, etc., available to those serfs who wanted to try them on their own subsistence plots, through a sharecropping arrangement.<sup>137/</sup> The serfs, subject to repeated crop failures, were accustomed to obtaining new seed from local merchants upon fairly disadvantageous terms. The Cornell Peru Project offer permitted them to keep a considerably larger share of the harvest, but charged them enough to convince them the Project was making a serious offer, and was not foolish.

A member of the Project staff devoted nearly full time for several months to daily visits to seventeen cooperating serf farmers during the first season's agricultural extension activities under the sharecropping program. This was repeated during four agricultural seasons.

Enlightenment has continued after the first five years of direct Cornell Peru Project instruction in modern agriculture through the supervised credit program of the Peruvian Ministry of Agriculture and Agricultural Development Bank which lends Vicos money for crop production each year.

Efficiency has reached the point where knowledge of modern potato production techniques is generalized in Vicos among its new peasants who are now purchasing their own lands.

As a matter of fact, the increase in agricultural productivity in Vicos can be measured in rough socio-economic terms. We noted early in this discussion that in 1952 7.7% of

the serf families at Vicos owned 11 or more head of livestock -- that is, a sufficient number to enjoy significant economic freedom of decision, and power over less well-to-do serf families. In a recent crop year, some 22.<sup>138/</sup>~~3%~~ (103 of 461 families) sold potatoes from their former subsistence fields on the national wholesale market through the community farm enterprise. These families averaged a cash income of S/. 961. These families sold other potatoes, and other families sold additional tubers on the local and regional markets. Thus agricultural produce has taken the place with livestock as a major source of cash income, and for many more Indians. Thus Vicos mountain peasant agriculture has moved not only toward commercialization, but also toward that type of crop specialization characteristic of the relatively well developed coastal valleys. The Ica Valley, for example, had 81.8% of its cultivated area planted to cotton in 1956, 6% to grapes, and the rest to a wide range of food and forage crops.<sup>139/</sup>

Although the Cornell Peru Project did not choose to wield power backed by severe deprivations within Vicos, toward its serfs, the fact that the Project occupied such a potentially powerful position is of fundamental importance in another way. It excluded other would-be wielders of power backed by severe deprivations from Vicos for a period of time sufficient to permit the former Indian serfs to achieve sufficient social and economic power and enlightenment to be able by and large to defend their own interests. By establishing its power domain<sup>140/</sup>

over Vicos, the Cornell Peru Project thereby excluded other power domains that had traditionally borne down upon the manor serfs. Only by firmly establishing its legitimate power over the Vicos serfs could the Cornell Peru Project open up for them the degrees of freedom of choice and action necessary if they were to achieve meaningful liberty.<sup>141/</sup>

The Cornell Peru Project power domain excluded from Vicos the traditional type of management. This was a leasor who had submitted the highest bid at a public auction for the right of exploiting the Vicos lands and serfs for a period of years. Traditional managements were concerned with obtaining the greatest possible short-term profit, and not with the conservation of either the human or natural resources of the manor. The Cornell Peru Project power domain permitted the conservation-minded scientific management to introduce forestation as well as to teach the serfs how to augment their agricultural productivity. The Cornell Peru Project power domain also excluded in large measure literate non-Indian mercantile exploiters of rural Indians.

This has allowed the former serfs of Vicos to develop through gradual enlightenment and the experience of democratic management of their own community farm enterprise and affairs, into a technologically efficient peasantry contributing significantly to Peruvian national productivity. They have also gradually established relationships with national institutions such as ministries and courts that are direct and like those of other

citizens of the country, in place of manorial control of nearly all save market activities.

The Vicos community farm enterprise operates with crop loans from the Peruvian National Agricultural Development Bank, much like any good plantation owner. It contracted for independent truckers to haul its produce to market from 1957 to 1962, when it purchased its own heavy duty truck to insure it can ship to the wholesale market when price quotations are highest. Over one hundred peasants annually market their own personal potatoes through the community farm enterprise, obtaining a cash income of nearly \$40 from this source alone. These potatoes are grown on fields that could not support the serfs of 1951. The Vicos peasants today subsist on their own third grade potatoes, and the third grade potatoes harvested from the community farm enterprise fields, which are divided among the workers. Only first and second grade tubers are marketed. The community farm enterprise also grows sufficient grain to meet the local demand, selling at nearly token prices, thus destroying a large part of the market for grains formerly enjoyed by town merchants who charged high prices to the impoverished serfs.

Many Vicos serfs sell their produce on the regional market, catching tramp trucks on the highway to carry their products to the departmental capital city of Huaraz. Many keep a social anchor out against adverse occurrences, maintaining the extant fictive kinship ties with local dominant group merchants. The notable aspect of this continued web of social relations is that

the Vicos peasants today produce enough not only to supply this demand, but also for the regional and national markets.

The Vicos peasants today sell agricultural produce for cash, and purchase commodities for cash. Thus they have escaped from the traditional subservience of interpersonal dependence. Subservience in the Andean region has been expressed in terms of personal service. Cash permits the serf or peasant to commute personal services into money. Thus the poorer serfs of Vicos have increasingly won their freedom from the few well-to-do serf cattle owners, as they have earned cash from their own fields. Now the Vicos peasant can pay cash for fertilizer, without supplicating the cattle owner to stake his animals in the poor man's fields. Thus the Vicos peasant can hire plow oxen when needed ( and sometimes obtain the aid of the tractor donated to the community by members of the National Farmers Union), instead of begging for them at the owner's convenience.<sup>142/</sup> Thus the shift from serfdom to peasant status has been a salutary one in interpersonal relations within Vicos.

At the same time, this shift has won the formerly impoverished individual not only greater equality among his fellows, but also more respect from the Mestizo population outside.<sup>143/</sup> After the Cornell Peru Project initiated sewing instruction on machines in 1960,<sup>144/</sup> the increasing purchasing power of Indian hands permitted the acquisition of over 20 brand new Singer machines by Vicos families, and direct purchases of yard goods in the city of Huaraz, sometimes at wholesale prices. Thus one

more traditional aspect of Indian subservience -- dependence upon Mestizo seamstresses and tailors -- steadily diminishes along with the necessity for seeking menial wage labor so as to earn cash to buy clothing.

#### CONCLUSION

If such a social and economic transition could occur widely in the Andean region, its serious agricultural problems might be solved. If the agrarian problems of the Andean republics would be effectively solved, then the entire population of the region could move ahead into the industrial, more affluent and in many respects more egalitarian society emerging on the coast and in some jungle colony area, <sup>145/</sup> much more rapidly, surely, and economically than has heretofore been possible. The Vicos case, although it is only one optimistic drop in the Andean bucket of Andean despond, is significant because it demonstrates that a head-on, scientifically planned and executed strategic attack on the problem of serf and peasant less-than-subsistence production can succeed. The transition from less-than-subsistence to surplus production for the commercial market can be made in place within a few years by enlightening the farmers themselves, by providing serfs with increased incentives to produce in their own interest by land tenure reforms that convert them into peasants. This can be accomplished without venturing into expensive irrigation projects that accomodate a few score farmers at best, nor problematic resettlement ventures,

nor assuming (unrealistically) that extension inputs on plantations automatically trickle out to Indian serfs and peasants across rigid ethnic, social, and even linguistic, barriers: nor forcing great numbers of farmers off the land before they are educated for industrial employment and urban life. The Vicos case holds regional significance because this experience has proved that socio-political techniques are already at hand to solve many of the socio-economic problems most characteristic of the Andean area, through the application of modern technological knowledge.<sup>146/</sup> The Vicos case appears significant outside the Andean region to the extent that less-than-subsistence production constitutes a national development problem in other countries plagued by food deficits arising from social structures of gross inequality, with peasants or serfs in subordinate positions with little motivation to produce and minimal access to modern technological skills.

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