

The information concerning the quantities was obtained, as in most field studies, by questioning informants, not by measuring actual yields. In the case of the beans, rice, and corn the informants had fairly good notions of the quantities involved. This is less true of the vegetatively reproduced crops. The figures I give come from the end-of-the-year census I made in the conuco of Pino Tumbao.

a. Beans. The common red bean (Phaseolus vulgaris) is a daily item in the diet of the vast majority of the inhabitants of the Dominican Republic. Called habichuela by the Dominicans, no midday meal is complete without a plate of rice and beans. In the literature on the diet of the Dominicans, the importance of the bean is frequently underrated.⁴³ Because meat is so rarely eaten in the sierra, the daily portion of habichuelas is one of the greatest sources of protein for the serrano family. The importance of beans is attested to by the fact that they are one of the items which the serrano will purchase daily if there are none currently available from his conuco. Beans were apparently not native to the island of Hispaniola, but I have been able to find no information on their introduction onto the island.

In some parts of the mountains beyond Monte Adentro, the farmers are reported to plant beans three times during the year on the same ground, the last planting (in December) giving an extremely low yield, but being made principally to provide seed for the principal planting on the new conuco

the following May. This strategy, though formerly applied in Pino Tumbao, is only on primary growth forest, and hence is now out of the question for the residents of Pino Tumbao. Here the serranos plant beans only once a year.

Where do these beans come from for planting? To save up part of the beans from one July harvest to plant them the following May is out of the question. The mountaineers lack the facilities and technology for preserving crops. Within four months after harvest, a tiny weevil (el gorgojo) begins to attack the beans. Thus the mountaineer is forced to dispose of his beans within months after the harvest. Thus for eight months of the year the beans which the serranos eat are brought into the hills from other parts of the Dominican Republic where there are several bean crops a year, and sold in the local bodega. In scarce times the beans cost as much as 25¢ the pound locally, and if the farmer buys beans locally to plant, he will have to pay in the neighborhood of this price. (After the harvest he will sell them for 10¢ the pound). By travelling to communities in the lower reaches of the piedmont region he can buy beans for between \$1.80 and \$2.00 the cajón (or from 12 to 17 cents the pound.). Thus if a family wishes to plant four cajones of beans (four and a half is the reported average), it will have to invest eight or nine pesos.

The price of beans is to some degree a prohibitive factor which results in a man planting fewer beans than the area of

cleared land could support. But the cost of bean seed would not be prohibitive in itself were it not combined with the uncertainty of the yields. Yields were consistently low in Pino Tumbao, some farmers reporting complete loss of what they had planted. Beans are a quick producer, but a delicate crop, one which frequently betrays its planter. The safest course of action is to restrict one's quantity and to count on viveres--the local name for vegetatively reproduced cultivates.

Thus the majority of serranos purchase the few cajones of beans which they plant. Others report working three or four days for other serranos--mending fences, weeding--and getting paid at the rate of one cajón of beans a day. There are other serranos or forest rangers who are willing to lend out beans for a less well off serrano to plant a medias: that is, the lender will receive half of the harvest. For people with the money, especially non-agriculturists, such as the forest rangers, this is a relative safe and convenient investment. The lender need not go through the labor of making a tumba, and some profit--at least 100%--is almost assured.

But the practice of planting a medias is not very popular. I have seen cases of refusal by farmers who had no money to buy their own seed. In general the historical situation of the serrano has made him more independent of arrangements such as that of planting a medias, than his lowland counterpart.

I know of no serrano who has borrowed money from the bank to plant beans. Those men who have large coffee groves do work with the Banco Agrícola occasionally (most of them are reportedly in debt). But the families of Pino Tumbao do not fall into this category. From a legal point of view all of the serranos are squatters, with no legal right to the land they are working, and with thus no collateral to offer for loans. (Coffee groves are recognized as being genuine property of the serrano, though he has no title to the land). Even if the man from Pino Tumbao has cows as collateral, there is the uncertainty as to the yields, which makes both the cultivator and the bank reluctant to invest money in dry-planted mountain beans. And finally there is the historically created reluctance of the mountaineer to ~~dear~~ enter into a debt relationship with an impersonal outside institution such as the Banco Agrícola.

The preferred days for the planting of beans in this part of the sierra are the fifteenth and sixteenth of May, according to several informants. But the actual planting is determined by the rain. The mountaineer waits until several rains have moistened the ground, and until the regularity of these rains indicates that the rainy season has indeed begun and the seeds which he plants will not be deprived of the rains which they need in the first weeks after planting. But at the same time, if the rains continue too long, they can damage new blossoms. Thus it is largely a matter of guess-

work when to plant, and the variation in the planting dates of different individuals may be associated with this. Most of the men planted beans in a two week period stretching between the middle and end of May of 1970.

Because of varying topographic conditions throughout the sierra, the onset of the rains varies from place to place, resulting in rather wide differences in the actual planting dates between regions which are geographically close to each other. In nearby parts of the sierra, the planting usually occurs in April; and this year some planted as late as June. But rain is not the only crucial factor for beans; as with most seed grains, they are sensitive to different degrees of heat and light, and thus must be planted within certain months. There is a critical period after which the cultivators are reluctant to plant beans. If the month of May passes, it is considered unwise to plant beans. "Las habichuelas de junio casi no producen." To plant beans in June is a risky endeavour. It is feared that the rays of the sun will be too strong for the budding plants in that month. The particular ideal dates which the serranös have arrived at appear to be the products of experience within a particular environmental niche. Conversations with farmers from other parts of the sierra, of different altitudes, indicates different ideal planting dates. Since there is such variation in dates of planting, caused by the climatic factors already mentioned, the serranos of Pino Tumbao have had the advantage of unplanned experiments, and have found

that all other things being equal, the fifteenth and sixteenth of May are the best times to committ the seeds to the ground.

One continually hears baffled complaints about the behavior of the weather in recent years. "El tiempo se ha negao," is the common expression referring to the unpredictabiliky of the rains in recent years. One of the principal dimensions along which serranos contrast the sierra with the rest of the country, is that the sierra is wet and cool. The rest of the country, on the other hand, is depicted as being hot and dry. But the "present" is contrasted to the "past" in terms of the present being much dryer. In the days of old, the rains fell in abundance. The weather now is recalcitrant. One year the sky will be stingy; the next year the rains will come too soon and in too much quantity, as happened in 1969. But in the overall balance the present is reported to be much drier than the past.

If the rains are scarce in May the cultivator is faced with a choice. He can let the month of May and the ideal planting days slip by, hopint that the rains will fall any day now. Or he can plant the beans in dry ground, hoping that the rains will fall any day now. The choice is a difficult one. He has to pay money to buy his beans, and is understandably reluctant to entrust them to dry ground, where they will be damaged or destroyed if not moistened within a few days. But on the other hand if the hot month of June is approaching, the beans will

produce poorly even if the rains should eventually come. Thus he is frequently pinned between the dryness of May and the heat of June. Many farmers plant in dry ground.

There is another choice to be made: whether to plant a second time in late August or early September to take advantage of the rains of September and October. This is not a question of whether to clear a new plot of land and build a new fence; there is simply no time for that. There is still the rice and corn which was planted in May and June on the first conuco. To weed and harvest these and at the same time make a new tumba for September beans is simply out of the question. The decision to be made is whether or not to weed the same patches where the beans of May were planted and plant more beans in the same place. In the sierra this is a risky endeavour under any conditions; beans are very demanding of the soil and it is taking a risk to expect the thin topsoil of the mountains to produce two crops of beans in the same year. In former years, when the men planted on monte, the risk frequently paid off. But few serranos will invest now in a second planting on a conuco that was made on fallow land. Thus there is only one annual bean crop in Pino Tumbao.

The choice of where to plant the beans is also important. Beans need exceptionally good soil. The best parts of the conuco are for beans. The mountaineers know that if nearby pine trees have been dropping their needles on the soil, beans will suffer. But it is good to plant

beans where other classes of trees stood. The soil will be softer and blacker with "vitaminas," the local name for the mineral nutrients which were contributed to the soil by decaying litter from the trees while they still stood.

Because beans are demanding, each bean crop really requires virgin soil. Beans planted on fallow land--even 20 year old fallow land--will give at best yields of eight-to-one in the sierra. Recognizing this the serrano who clears fallow land (as most of the men of Pino Tumbao did) will plant beans, but in small quantity.

The planting itself is always done by males, except in those rare households where there is no male above the age of fifteen. (There are less than 20 of these in the 512 households in Monte Adentro, and there is no way of being certain whether a male head-of-the-house happened to be absent in the days when the census was made, in which case he would not have been listed for that house. I know of only one household where the women had to do planting and weeding; by December, the husband was back again. The "matrifocal household," in which there is no coresident adult male, is a very rare phenomenon in the sierra.) Generally the women have no part in conuco activities up till the time of harvesting. As one farmer put it. "Hay mujeres que trabajan también, pero aquí en esta casa no, gracias a Dios." It is only in times of need that women will do the planting (or pre-planting activities).

Young boys from the age of ten on will be given small quantities of beans and taught how to plant them. They are free to use the harvested beans as they see fit. Occasionally a person will be hired to plant the beans of a household which for one reason or another cannot plant them themselves. The going rate is 30¢ per cajón. (It takes somewhat less than half a day to plant a cajón)

After the burning and construction of the fence, there will have been no further preparation of the soil, except for a pre-planting weeding which usually has to be done on fallow land, where the weeds are much quicker to reassert themselves. To plow the land is out of the question. Because many of the sites are on extremely steep slopes, or still contain the unremoved stumps (tocones) of felled trees, and very many trunks of larger trees, whose size prevented them from being consumed during the fire, it is physically impossible to plow efficiently.

But the nature of the soil in the tropics--soil, that is, that was covered with vegetation that had to be cleared--is such that plowing might not be so advantageous or necessary even were it physically possible. The principle functions of plowing in mid-latitude cultivation are the following:

1. Getting surface nutrients into the soil.

2. Aerating the soil.

3. Warming the soil (in spring).

4. Preventing moisture evaporation.⁴⁴

But tropical soils covered by vegetation are different in

their requirements for the following reasons:

1. They were protected from oxidation.
2. They were protected from baking hard by the sun.
3. They were also protected from the hard packing effect of direct rains.⁴⁵

Thus there is not a great service done to the soils by plowing. A few households, however, did rent oxen and plowed their land. This is done only on sites that are somewhat level in comparison to the majority of the sites.

But most of the serranos use only two objects in planting. Over his shoulder he slings a macuto, a small basket weaved either from quano or cana, two local varieties of palm leaf. In his macuto he has the small quantity of beans which he can comfortably carry around with him on the conuco. In his hand he has a flat, broad tool which greatly resembles in size and shape a large size butcher's cleaver, called the machete. Beginning at the bottom of the site, he digs a small hole in the ground using the machete as a shovel. Then from three to five beans are dropped in the ground. Using the machete as a scraper these beans are covered up. Most of the cultivators do not plant the beans in a row; they are planted a lo loco (helter skelter) about a foot from each other. The average household quantity of beans planted was four and a half cajones. With a modal household size of 5.9 persons and 12 pounds of beans to a cajón, this averaged out to approximately nine pounds of beans planted for every man, woman, and child in Pino

Tumbao. The beans are spaced so that one cajón will cover about one tarea of land. Since the average conuco size is slightly over 11 tareas, the bean crop usually spreads over about half of the conuco. One man working by himself at normal speed could plant slightly more than two cajones per day.

b. Rice. (Oryza sativa) Rice is not native to the island of Hispaniola. It was introduced from Asia, and in recent decades has come to supplant yuca as the principal staple in the campesino diet in the Dominican Republic.⁴⁶

Because of the mountainous terrain, irrigation is of course out of the question. The rice that is planted by the hill farmers is a variety of upland rice which, given adequate rainfall, will produce well without the seedbeds and irrigated paddies which characterize rice production on most other parts of the island.

Informants report that rice was always grown by them and their fathers in Pino Tumbao, but that for a brief period in the forties it had importance as a cash crop, which it has since lost. In Pino Tumbao rice is grown exclusively for home consumption,

Rice differs from beans in its ability to keep over the course of the year. Thus the farmer is not obliged to sell his rice crop within a few months--as they must do with beans, because of the weevil--and this is perhaps one of the reasons why beans have finally come to outweigh

rice as a source of cash income. The ability of rice to keep also means that the farmer can set aside rice from each harvest to plant in the following year. Most of the farmers in fact planted rice which had come from their own conucos in the preceding year.

Those that did have to buy it paid anywhere from eighty cents to one peso per cajón. (A cajón of unhulled rice contains nine pounds). Another arrangement is to work as a laborer on the land of a man who has rice, and receive one cajón of rice per day as payment. A similar arrangement was used by several mountaineers to obtain beans. Only unhulled rice is used as seed.

Rice is planted only once a year in Pino Tumbao. ^t It is always planted after the beans. Since the beans were planted in late May by most farmers this year, rice was generally planted in June.

On most conucos the rice is intercropped with the beans. Rice will be planted only on land which has been cleared that year. Whereas an occasional serrano may chance a second harvest of beans on the same land where he planted in May, this is not the case with rice. "Al arroz le gusta más la tierra nueva."

The practice of intercropping is explained by the serranos as a matter of necessity. They believe that if they planted each item in its own separate patch, keeping them separate from one another, they would grow better. It is claimed that the shade from the growing beans, for example,

harms the young rice which has been planted after it, and that the rice begins to adelantarse (make progress) only after the beans have been harvested in August and the plot subsequently weeded. But the lack of space forces them to intercrop and to refer metaphorically to the planted conuco as a moro (a dish in which rice and beans are prepared together in the same pot instead of each being prepared separately). The planted conuco is truly a jumbled melange to the untrained eye. But in reality the practice of intercropping is not necessarily harmful to crops. It may be done quite effectively in alternating short- and long-season crops.⁴⁷ There are certain crops which the serranos will not intercrop with others--for example, ayama--because of knowledge of harmful effects. Most of the intercropping which is done on the conuco is done in such a fashion that competition between the crops is minimized. This is the reason that rice will invariably be planted after the beans. By the time the rice is getting larger, the beans have already been cropped.

As in the case of beans and all the other crops, only the men customarily take part in the planting. In former times rice was planted with the use of a pointed stick sharpened by the colín. Holes were punched in the ground and one or two grains of rice carefully inserted. But this technology has disappeared, and the machete is used, in the same fashion as for the planting of beans. With a macuto of rice over his shoulder, the farmer digs

out a hole with his machete and drops from four to eight rice grains (which have not been hulled) into the hole and covers it up. The rice is not planted in rows, but helter-skelter as in the case of the beans.

Only one person reported planting more than 4 cajones. The average amount of rice planted per household was 2.7 cajones, which comes down to some 4 lbs. per capita planted. With the intercropping practices, one cajón of rice may cover as many as four or five tareas. Thus a farmer who plants three cajones of rice will have his entire conuco covered.

c. Corn. (Zea mays). Corn was reported to be on the island when the Spaniards came, but it was of minor importance in the agriculture of the aboriginals, whose principal crop was yuca. In general corn plays a very minor role in the diet of the Dominican Republic as a whole, and of the serranos of Pino Tumbao. In this respect they differ greatly from the corn growers of Tepoztlán and Chan Kom. The root of this difference is to be found in the origin of Hispaniola's pre-Columban aboriginals, whose economy was based on the primitive cultivation of vegetatively reproduced crops and a supplement of hunting and gathering. Though Arawak society had reached an advanced level of stratification, and agriculture had replaced hunting and gathering as the backbone of their economy, the agriculture remained based on yuca; corn never came to play the role that it had had

for untold centuries in the cultures of Central America.

Corn for planting is usually purchased at about seven cents a pound. Because it is a minor element in the diet, and the demand is thus low, the prices for corn are much lower than for rice and beans. Little thought is usually given to saving corn from one crop to plant during the next.

Corn always follows beans in its planting date, and usually follows rice as well, though on some conucos it preceded rice. June was the most typical month for corn planting in 1970. The corn will be planted on any part of the conuco. Unlike beans (and plantains, it will be seen), corn is not accorded special treatment in terms of being reserved for places where the earth appears darker and where there are ashes from the fire. The small quantity of corn that is planted is handled almost identically to the beans with the exception that the corn is generally planted in straight rows, some five feet from each other. The rows run straight up and down the slopes.

Though most of the families planted corn, the quantities were very small, the average coming out to about some ten pounds per household.

d. Yuca. (Manihot utilissima). Yuca is the name current in the Dominican Republic for manioc, the root plant which forms the backbone of many primitive American economies. It was cultivated by the pre-Columbian aborigines on the island

of Hispaniola. There are two varieties of yuca grown in the sierra; sweet yuca (yuca dulce) and bitter yuca (yuca amarga). The former is peeled, washed, boiled, and eaten. The latter, which contains poisonous juices, is eaten only in the form of casave, a type of dry, chewy bread baked from the grated residue of bitter yuca, from which the poisonous juices have been extracted. The two varieties appear identical when the untrained eye sees them on the conuco, but there are characteristics of the foliage and of the tuber itself which permit the farmer to distinguish between the two. Nonetheless the cultivator keeps them both separate on the conuco, as even mountaineers have been known to mistake the two.

Yuca is a central ingredient in the diet of the Dominican campesino. In recent years its primacy has been disputed by rice in many parts of the country; but in the sierra yuca still maintains a place as equally as important. There are probably few families in the sierra which do not eat yuca daily.

Because yuca is a hardy crop, it is not as sensitive to seasonal variations, and thus can be planted during most of the year. The mountaineers occasionally have difficulty recalling the month in which they planted their most recent stand of yuca.

Another important characteristic of yuca is the great leeway the cultivator has as to when it will be cropped. Yuca can begin to be harvested in the sierra about a year

after planting, but may be left for 18 or 20 months in the ground. The longer it stays in the ground, the larger the tuber grows. Thus there is a process of natural storage, by which a stand of yuca can be exploited bit by bit for the daily needsoof the household.

Yuca is propagated by stem cuttings. Unlike the grain crops, cuttings for planting are never bought. The principal source of cuttings are the stems of yuca one has growing on one's conuco. The neighbors are also a source of stems if none are currently available on one's own conuco. It is a very common practice for a farmer to approach a neighbor who is harvesting yuca and ask for cuttings from his plants. This is frequently mentioned as an example of helpful neighborliness, a quality which the serranos claim as one of their virtues, in contrast to the stinginess which they attribute to people of the pueblo and to campesinos from other parts of the country, especially those in San Juan on the other side of the sierra.

Because yuca is less demanding as to the quality of the soil, it is almost always planted twice on the same spot. As one yuca is pulled up, another stem cutting is immediately replaced. The only significant impediment to planting yuca a second time is an inadequate fence. The fence will have to last another year and a half if yuca is to be replanted; not every fence lasts that long, and much time will have to be dedicated to repairs.

Yuca is planted anywhere on the conuco, no spot being

considered of too poor quality. Though one person alone can plant yuca, frequently two or more persons are involved in the operation. First the stems must be transported to the conuco if they have been cut elsewhere. Once on the conuco the plants are slashed into smaller cuttings about eight inches long, with the colín. The next step is to make the holes; with the pick the older man will make shallow holes in the spots where the yuca is to be planted. (Occasionally a hoe is used instead of a pick). The younger man or the boy will follow behind the older man and place two cuttings in each hole. When all the holes have been made the serrano returns and carefully arranges the two cuttings in the hole, crossing one over the other. They are never buried very deeply. Another planting technology reported common, but not observed, was to plant one long cutting in a diagonal position, leaving an inch or two above the ground.

On the conuco yuca is rarely planted in rows, most frequently intercropped helter skelter with the other cultivates, "wherever it will fit."

In trying to give estimates as to the quantities planted, the farmers relied on large round numbers. There was a great variety reported, some households planting as few as three hundred, and others as many as four thousand cuttings. The average was 2,500 plants per household.

e. Plantains. In the Dominican Republic, as in other parts of the Caribbean, there are two commonly recognized types of banas: the guineo (which corresponds to the "banana" commonly eaten in the U.S.) and the plátano (a larger starchier variety of banana, which must be cooked before being eaten.) The latter is usually called "plantain" in the literature, though there is taxonomic ambiguity in the distinction⁴⁸ and Spencer does not use it in his work. In Haiti the distinction is maintained, as in the Dominican Republic, in terms of a different lexical item for the two different types (figue for banana and banane for plantain) but in Cuba both are called plátano.

Guineos are rarely planted by the mountaineer. The plantain is by far more highly esteemed than the guineo and is a very important item in the diet of the serrano. There are periodic shortages of plantains; and its importance is attested to in that it shares a place with rice and beans as the only conuco products which the mountaineers will regularly purchase from local merchants if none are currently available on their conucos.

Plantains are similar to yuca in that they are vegetatively reproduced and are commonly planted at different times during the year. Most of the plantains that are currently planted were planted in April, May, and June; their planting coincides with the fencing of the conuco in some cases. Since they are usually planted on the lower parts of the conucos, in the gullies, they can be

planted before the beans; there will be no danger of competition between these two cultivates.

Unlike yuca, plantains require very good soil. The best parts of the conuco are reserved for them, where the earth is seen to be darker, and where there were more trees before the land was cleared. Many farmers did not plant plantains this year claiming that the fallow land they had cleared was not suitable to plantains. In general the planting of plantains seems to be disappearing gradually from the hills, as fewer and fewer clearings are being made in virgin soil, and more and more cases of plantains that fail occur.

The suckers to be planted are never purchased; they are either cut from the trees on one's conuco of the preceding year, or they are obtained from a neighbor. The suckers are planted in rows of varying distance. The farmers in general keep a yard between each sucker. A hole in the ground is made with a machete (or occasionally a coa, a tool dating from aboriginal times) and the sucker is inserted into the hole. The earth is thrown back in, and any nearby ashes that are left over from the burning will be piled onto the earth covering the sucker.

Frequently plantains and coffee are planted side by side. The object is to provide the new coffee with temporary shade from the leaves of the plantains, until shade trees (usually quama or gina), also planted nearby, mature enough to provide the protection believed necessary for the coffee.

This practice is reported by Wolf in San José.⁴⁹

f. Sweet Potatoes. (Ipomoea batatas). This root crop is the last of the important cultivates planted on most of the conucos in Pino Tumbao. Though it is a vegetatively reproduced crop, it has a short growing period of only six months, and the same plant produces several batatas which can be cropped at different times.

It is commonly intercropped on a new conuco with yuca, rice, beans, and the other cultivates. But often the mountaineer waits and plants batatas after the grain crops have all been harvested.

The same great variation between households in the quantity planted as was seen with yuca occurs also with batatas. The per household average is about 900 cuttings planted.

g. Others. There are other products which are planted in small scale on the conuco. But the remaining cultivates are planted by few families and in small quantities: cebollín and cilantrico (used as condiments); mampuey, apio, yam, sugar cane, gautía, pineapple, tomato, chick-pea. But none of these figure in the normal diet.

Mention should also be made of two crops which are not planted in Pino Tumbao, but which are planted in other

mountain regions nearby; tobacco and peanuts. Neither of these popular small scale cash crops has been found successful in this part of the Cordillera Central.

In concluding this scene--planting--it is perhaps superfluous to mention that fertilizer is not applied to the conucos. Chemical fertilizers have been heard of, and it is known that in the lowlands many campesinos put fertilizer on their land--abono. But the mountaineer uses the ash from the firing as fertilizer. This is a practice which is frequently misunderstood by half-informed observers from the Temperate Zone. Schaedel, for example, considers the Haitian's practice of burning off his land as one example of his "reliance on nature" to do things instead of rolling up his sleeves and lugging all that vegetation off the site with his own energy. ("Reliance on nature" might have been a courteous way of saying "lazy."⁵⁰).

The following quote gives testimony to the validity, from a short-range, immediate-yield point of view, of this practice:

The advantages of the burn, expressed empirically in the traditional practices of various systems, can be demonstrated. Burning leads to an accumulation of potash (probably the most prized by-product of burning) and valuable phosphates are often released at just the right time--immediately prior to planting the crops that will need them... In view of these facts, it can be seen that burning is not only part of the shifting cultivator's technology--a device for clearing away vegetation--but also leads to an improvement in certain properties of the soil which...generally leads to increased yields during the period of cultivation.⁵¹

Scene 6: Weeding.

The criteria for scenic differentiation at this point became somewhat vague. Between the period when the grains or cuttings have been planted, and the time of the harvest of these cultivates, the weeding of the conuco will take place at least once, usually several times. Is this activity to be accorded the status of a separate scene? Or is the entire cropping cycle one scene? Since no great theoretical issue is at stake here, I have chosen to call weeding a separate scene, though it bears many features in common with the activity described in the Clearing Scene. The performance of the activity of weeding presupposes a change in the place; the appearance of unwanted vegetation in the midst of the crops.

Shortly after the planting, the weeds begin to make their appearance. The removal of these is essential to the optimum development of the crops; and this time-consuming activity is the principal occupation of the serrano on the conuco between the time of planting and the time of harvesting.

There are certain post-planting problems which are reported in other communities, but which do not occur here in Pino Tumbao. For example here there is no sign of the plant pests or diseases which plague cultivators in other places. And hence no time is lost in the combatting of these problems. Nor is there any serious problem with thievery. In many shifting cultivation communities the guarding of growing crops is an indispensable element in the cropping cycle, due to thievery. Not so in Pino Tumbao. There are

cases where yuca is stolen, but reports of this come more frequently from communities at lower altitudes and of higher population densities. In the rare conversations which I heard concerning crop thievery, the most common reaction was to shake one's head and say that hunger is the cause. It is not yet serious enough to evoke strong reactions from the community, nor to motivate people to devise ways to guard their crops.

There is, of course, one post-~~stepping~~ problem which confronts the serranos, over and above weeds; the problem of animal predators. ~~W~~ has been discussed in relation to fence-building. Most of the conflicts that occur in Pino Tumbao between neighbors occur around this issue. If a serrano has built a good sturdy fence and a neighbor's cow has knocked down part of it to get into the conuco, the owner of the animal will not have to pay damages to the owner of the conuco if it was the first time that the cow had done such a thing. There will be strong pressures for him to get rid of the cow, either by slaughtering it or selling it out of the sierra; but he will not have to pay damages. If, however, that same animal breaks into a conuco a second time, then the owner can be sued for damages, and the insistence will become greater that the cow be removed from the sierra. These affairs are usually arbitrated locally, with the alcalde and the neighbors attempting to get the litigants to reach an informal agreement

without resorting to calling in outside authorities.

But outside of the problem of animal predators, the post-planting pre-harvest period is taken up primarily by the occupation of weeding. There are two tools commonly used in this process; the hoe and the machete. Most of the weeds, which are out in the open, are removed with downward swipes of the hoe. Those weeds which are near trunks of unremoved logs are removed with the machete. The machete is used by the farmer as a shovel to overturn the weeds. The uprooted weeds are left to rot on the conuco. Weeding is usually not done when the ground is wet, as the soil will cling to the upturned roots, and the weeds may not die immediately.

The seriousness of the weed problem depends on the kind of vegetation which had covered the site prior to clearing. Herbaceous growth is a characteristic of fallow sites; land cleared from primary growth forest, on the other hand, is rarely bothered by weeds, and only one weeding will usually be needed for the entire cycle. But on fallow sites the case is quite different. So quickly do the weeds return to the burnt ground (especially after the rains begin) that the ground must be thoroughly weeded once before planting. During the weeks that are dedicated to fence making, after the firing of the tumba, the weeds take over the site before it has had the chance to become a planted conuco. Thus in many cases the temporal order of activities is partially reversed, weeding occurring before planting.

For the weeding activities, both before and after planting, mountaineers frequently rely on calling juntas

or burrिकासes. If the weeds are bad a man may be able to weed less than a tarea per day, turning the operation into a two week task for one man alone. This is one stage of the operation where the most commonly used labor-recruiting device is the junta rather than the less formalized request for the aid of one or two neighbors or kinsmen.

This operation of removing unwanted vegetation from the cropped conuco occurs also after the harvest of the different grain crops. The remains of the rice especially must be removed, to clear the ground for planting batatas. In harvesting the rice, only the top part of the plant is removed, the herbaceous stem being left behind. All this must be removed after the rice harvest (usually in November or December) as the conuco is probably going to be planted with some root crop now. A month of man-days would be a conservative estimate of the time normally put into weeding--before, during, and after cropping--in a given year.

Scene 7: Harvesting.

The final scene on the conuco is one characterized by the activity toward which most of the preceding activities have been logico-physical prerequisites. The specific activities all bear in common that edible and marketable cultivates are being placed into baskets and removed from the conuco

a. Grains.

The beans are ready to be picked two-and-a-half to three months after being planted. Depending on the abundance

of theyield, a plant (mata) may sprout anywhere from five to fifteen pods (vainas, cáscaras, or baquetas), each of which contains five or six grains. The cultivator knows that the beans are ripe for picking when the pods have started to dry up and turn a lighter color. The task of harvesting is to transfer the beans from the plants into sacks which will either be sold or kept for home consumption in the granero (a large bin in the kitchen).

For the first time women normally take part in the conuco activities when harvest time comes. Though most of the harvesting is done by the males of the household, it is not uncommon for the females to participate as well. Beginning at the bottom of the conuco, the pickers proceed upwards yanking out the entire plant with the right hand and placing it in the left. No tool is used. When the left hand can hold no more, the pulled plants are placed in a heap at the picker's feet wherever he may be. Small heaps of the uprooted plants are made all over the conuco. These small heaps are then gathered together at the bottom of the conuco (or in the rancho).

If the conuco has been made in the high sierra very far from the family bohío, a small one-room makeshift structure called a rancho will have been made on the conuco. The plants are all brought to the rancho. For two days following the harvest the plants are exposed to the sun near the rancho, so that they may be quickly entered if it

should begin to rain. When the plants have been dried out for two days, they are spread out onto a huge square straw mat (tendal) and beaten (se apalean) with long, heavy poles. The brittle sun-dried pods split and the beans pop out onto the tendal.

Usually this activity is done, not on the conuco, but in the patio of the family bohío. In this case the uprooted bean plants are placed in large plaited saddle baskets (árganas or cerones) and carried to the house. Comparatively few conucos are made so far from the family bohío that ranchos have to be built on the conuco.

The yield on beans is very low in Pino Tumbao. Because of its distance from the unworked land in the high sierra, almost all of the residents of Pino Tumbao had to rework land which they or their fathers had already worked before. On soil that was covered with primary growth, the yields can be as high as twenty cajones of beans for every cajón planted. But on fallow sites--even sites that have lain fallow for over fifteen years--the yields are about one fourth to one third that. Moreover many farmers report that their bean crop se perdió, was spoiled. Because beans are harvested all at once, fairly exact notions are had as to how much was harvested. From the figures in the end-of-the-year census which I made, a modal size household would harvest slightly less than two hundred pounds of beans. This means an astoundingly low yield of less than

five cajones for every cajón which this modal size household planted.

Rice is ready for harvest about six months from the date of its planting. Usually the harvest is small enough that the family can manage the cortada ("cutting" i.e. harvest) with merely the members of the household, or with the informal aid of relatives. Those that do call in help usually pay. The use of juntas is still frequent, but in the harvest of the grain crops the paying of wages has become more common. Working for wages for one's neighbors has not quite consonant with the ethos of neighborliness (cf. pp. 83-4). But the serranos have developed a compromise method of having the best of two worlds. The first day on which a group of neighbors harvest rice for a member of the community as a day of unpaid junta. But after the first day, it is expected that the owner of the rice will pay the workers. He will either pay a cash salary of 75¢ to a peso a day, or he will give pickers two cajones out of every eight they pick. The latter is the more common practice in the sierra.

The instrument for harvesting rice is usually a knife, though occasionally the bare hands are used. The pickers each have a macuto slung over their shoulders, and the rice is cut off below the grains. These bundles are then thrown ~~thrown~~ into the macuto and poured into larger baskets

and brought to the family bohío.

There the rice is removed from the espiga; similar to beans, what is brought in from the conuco is spread out on huge straw tendales and beaten with long poles. The effect of this operation is to free the individual grains of rice from the espiga. The chaff (paja) is then thrown away. The rice is then left in the sun for two full days, after which it is hulled (trillar). In the sierra this operation is done by the women by hand in a large homemade wooden mortar (pilón). The rice is hulled in small quantities, day by day, as the family consumes it. This operation has to be done twice, otherwise the rice retains a brownish color. Even with the two hullings by hand, the mountain rice never attains the whiteness of the factory polished rice which is eaten in the sierra during the latter part of the cropping cycle, when the home supply runs out. In actuality this home-hulled upland rice is more nutritious and much tastier than the factory-treated rice, from which many nutrients have been polished off. But this factory rice is considered más fino. Though rice had just been harvested by the mountain family with whom I lived (in December), the woman offered to purchase factory-polished rice for me, believing the mountain rice to be beneath what she considered the more delicate tastes of a lowland outsider.

The yields on the rice are very low in comparison to the figures which are given for former years, when planting used to be done on virgin soil. The average yield on most

conucos now tends to be around 1-30. The ideal yield is stated to be around 1-100, and it is asserted that yields in the forties generally reached and exceeded that quantity. The highest relative yield listed this year was a conuco on which three cajones produced 175--i.e. 1-58. The average quantity planted was seen to be slightly less than three cajones (27 pounds) per household, which gives an average per-household yield of some 90 cajones (810 pounds).

is
The growing season of corn five months. It can be harvested at that time, but it is frequently left on the stalks for longer lengths of time and harvested bit by bit. Corn that is harvested when it is new and soft is brought back still wrapped in the shuck. But corn that is left to harden is shucked right on the conuco, and the cobs are brought back to the bohío. No yields are possible on corn, as it is brought back bit by bit and fed to the chickens in the patio and only occasionally used for human consumption. The green parts of the stalk and the shuck are also brought back from the conuco and fed to animals.

b. Viveres.

Reference has already been made to the difference between the cropping patterns of the serranos and those of the Mexican and Brazilian peasants alluded to earlier. These

latter depend on one locally grown class of cultivate as an indispensable element in their diet; either manioc or maize. But the serrano has both types. Root crops and plantains are consumed in the morning and evening; grains (rice and beans) are consumed at the noontime meal. In periods where there is shortage of conuco products, the serrano will purchase both types (usually on credit) at the local bodega.

But though his diet is an amalgam of the two types of crops, he does not in the last analysis accord both the same place in his line of economic defense. The final standby will always be the home grown "vívere." (root crops and plantains). As is frequently said, "Cuando uté no tiene que comprar si vívere, uté tá bien." As long as you don't have to buy your viveres, things are still all right. A terrible period is one in which crops are so scarce that you're even buying viveres. The grain crops, rice and beans, have worked their way into an important position in the serrano economy, but they have not yet dislodged the viveres from the central position on the last line of defense. This phenomenon manifests itself clearly in conversations. Frequent reference is made to the treachery of the bean crop or the rice crop.

Yuca takes a long time to grow, from a year to a year and a half. But it has the advantage of being able to keep in the ground and to be harvested bit by bit. This,

of course, makes it practically impossible to get accurate crop yields. "Adi6, nosotro nunca llevamo cuenta d'eso!" "Heck, we never keep track of that," is the answer that can be expected to inquiries about yuca yields. But some estimate can be attempted. In one house where I enquired a very old man told me of the time when he once pulled from his conuco a yuca which weighed fourteen pounds. His son (who was himself over fifty) politely corrected him, saying that though such yucas might have been common in the past, nowadays you're lucky if you get eight or nine pounds from one mata. Most of the yucas which I saw weighed between three and five pounds, which is about the normal per-plant yield computed from the data given in the Handbook of Tropical and Sub-Tropical Horticulture.⁵² Thus, if half of the yuca which a family plants turns out well (and although it is a hardy plant it is unrealistic to expect it to do better than that on fallow mountain soil), a family which plants the average 2,500 cuttings (cf. p. 117) can expect at least 3,600 lbs. of yuca. This amounts to over 600 lbs. per capita per year.

Sweet potatoes are ready for harvest some six months after they are planted. They are usually not replanted twice on the same spot.

Plantains, on the other hand, take a year and a half. Because plantains are being planted less and less in the sierra, there are frequent shortages and most of the plantains

which are consumed in the sierra are brought in from outside. Because they are a central item in the diet, they will be purchased when none are available. But the high price of plantains brought in from outside is a matter of frequent complaint. The serranos pay five cents for two plantains; in the nearest towns they are sold for three for five, and more cheaply if bought by the hundred or by the carga (two hundred plantains). Those people that were able to make trips to these towns and purchased plantains in quantity. When relatives visit one another, small gifts are usually brought along. One of the most appreciated gifts was a bunch of plátanos. Taking advantage of the local shortage, trucks loaded with nothing but plantains frequently made trips up from Guaros, selling either to individual buyers or to the principal almacén located in La Leonor.

This shortage of plantains creates difficulties for the serranos. Because they are eaten at both breakfast and supper, a family of six would consume a minimum of 12 plantains a day—which would mean an expenditure of 30¢ a day on an item which once came from the conuco in abundance.

When all the crops are harvested, the conuco serial has in one sense come to an end. But it is of interest to follow for a short distance at least some of the products of the conuco and see how they fit into the economy of the mountaineers.

What is done with beans once they have been harvested and gathered into sacks? In general, though there is a market for beans, the low yields which now occur in Pino Tumbao prevent any large sales. Most of the people kept all or most of their harvested beans for home consumption. But because beans can now be planted only once a year, the present day serrano finds himself in the position where for more than half of the year he has to depend on an outside source (the store) for a central ingredient of his daily diet. Many a serrano has remarked with sad irony: "Hoy en día la bodega (store) es el conuco de nosotros." Thus the diminishing productivity of the land has edged the mountainer into ever greater dependence on sources of cash income. These activities are not related to the conuco directly.

But nonetheless some beans are sold. Those whose harvest is good enough retain sufficient beans to last their family between three and four months--the breathing period which the gorgojo gives them. And the rest is sold. It was seen that the average per-household yield was some 200 lbs. This means that the average quantity of beans sold per household will be from eighty to a hundred pounds. But the great variation between households results in some families harvesting only enough beans for their own family's consumption during two or three months, while others do indeed manage to sell over 100 pounds.

To whom do they sell and for how much? There are two ways of disposing of beans for sale. One way is to make the trip to the nearest pueblo with the beans and sell them retail there. The other way is to sell them to local middlemen. For obvious reasons, most of the serranos, living in the most inaccessible mountain regions of the Dominican Republic, opt for the second choice. Ordinarily the most important of the local buyers are the owners of the largest store, the almacén in La Sabanita. But over and above this, some of those few serranos who have the wherewithal become part-time comerciantes, buying the beans from their neighbors and transporting large quantities to the pueblos. The third outlet is the outside itinerant buyer (comprador) who comes up into the hills during harvest time. In the summer of 1970 this role was filled by a coffee buyer and credit merchant who decided to try his luck at buying, storing, and later selling beans.

When discussing the sale of their beans, the mountaineers are frequently apologetic about the sale: "We wouldn't sell if it weren't for the gorgojo (weevil)." In other contexts different cultivators criticized the practice of selling a large part of the harvest instead of keeping it for the family's consumption. It will be remembered that the production of crops for sale on the conuco is a fairly recent innovation in the sierra dating from the late forties. Unlike coffee and livestock--which are understood to be primarily cash oriented--beans are traditionally a crop that is grown for

the "defensa de la familia," not for sale. To sell one's bean crop smacks somewhat of taking food away from one's children for the sake of making a few extra pesos. Thus there is often implicit criticism among many older mountaineers of cash-cropping for the sake of cash-cropping. One occasionally receives an emphatic no when enquiries are made as to whether beans and rice were sold.

The price that beans will sell for varies with a) the quality of the beans, b) the distance of the beans from the nearest motot transportation, and c) the particular going price in the outside world.

Though there is no official criterion for differentiating between good beans and bad beans, the buyers make that distinction in setting the price they will pay the mountaineer for his beans. The good beans are large and red. The beans of poorer quality are smaller and of lighter color. A very frequent scene at harvest time takes place at the almacén and in the bodegas; a mountaineer rides in from the hills with one or two sacks of beans, walks into the store with a sample in his hand, and asks the store owner how much he will pay for them. The store owner takes them in his hands, examines them, shakes his head and winces, hands them back to the campesino and says "Namá doy dié." The owner turns to another customer and the campesino stands silently with a glum look. He may walk out of the store momentarily. But most often he comes back in and agrees.

He will receive ten cents the pound for beans from the store owner who may have charged him double that three months before when they were being bought for planting.

During harvest the beans are usually bought and sold not by the pound, but by the carga, containing 240 pounds, i.e. 20 cajones). The going price for good beans that were delivered to La Sabanita by the farmer--from where jeeps and trucks could transport them down to the pueblo--was thirty pesos the carga--i.e. twelve and a half cents the pound. The beans are delivered in sacks that are already sewn tight. Less the campesino use the ploy of putting good beans on top and bad beans underneath, the compradores and store owners have open metal funnels with thin points which can be jabbed into the bottom of the bag. Several beans will then come rolling out from the bottom onto the hands of the examining buyer.

But very frequently the mountaineer lives too far away into the sierra to easily transport his beans to La Sabanita. Realizing this many compradores roam the hills in harvest time looking for beans to buy. The price per carga will then be as much as six dollars less (two and a half cents the pound) because of the transportation cost the buyer will incur in moving the beans from the conuco to the vehicle pick-up site in La Sabanita. Thus those serranos who had conucos near the ridge at the top of the sierra were receiving from 23-25 pesos

per carga. The cost of renting mules to transport beans across the sierra is one of the principal costs to take into account. A pair of mules costs \$7.50, it being agreed by the renter that each mule will carry no more than 180 pounds--i.e. three quarters of a carga. This averages out to a cost of \$5.00 per carga, which is the price which the comprador generally subtracts from the price of the beans which are sold in the high sierra, paying that much less than he would have paid had the farmer transported them himself to La Sabanita. Thus the cost of extra transportation is borne by the mountaineer planter, not by the middleman. It is unlikely that any serrano made more than \$40.00 from his bean crop. Most were lucky to make ten pesos.

While on this track, we might also ask; how much does the comprador make on the beans? Balito, one of the compradores from outside the sierra, was buying beans for between twenty-one and thirty pesos the carga (depending on what part of the sierra the beans were located). He told me that he would probably sell them for \$40.00 in the pueblo. This was a very conservative estimate. Some simple mathematics demonstrates that his maximum potential profit was much greater. It was already mentioned that in yimes of scarcity and high demand--eg. at planting time--the mountaineers were paying as much as 25¢ the pound. This is the equivalent of \$60.00 the carga. Since Balito has the wherewithal to store beans and prevent the gorgojo

from getting at them, he could potentially sell them at this price, making a profit of more than a 100% over the price which he paid for most of the beans. Other informants reported that at the time the going price for beans sold in Santiago was \$50.00 the carga, about double that which most of the bean growers of Monte Adentro were getting paid.

From the above discussion it is clear that though the mountaineers plant grain crops, they have very little opportunity for making a reasonable cash profit on them. Not only are the conucos poor in productivity, but the isolation of the mountaineer places markets beyond his reach and leaves him at the mercy of the prices paid by the local businessmen or wandering compradores. Some of the specific mechanisms by which this operates have been pointed out.

The same general fact of life is true of yuca as well. Yuca is rarely sold in the sierra, it is grown primarily to be boiled and eaten. Most of the yuca grown is yuca dulce, yuca amarga is good only for making casabe. This very dry bread is well liked by most of the serranos. Despite its low earning potential, casabe is made by certain households in the sierra.

After the bitter yuca has been brought in saddle-baskets (árganas) to the place where it is to be prepared, the first operation is the peeling off (la decopotá) of the thick brownish-blackish peel covering the yuca. All of this peel must be carefully removed, or the casabe will retain an undesirable brown color. After the peeling comes the lavá, the washing of the yuca. Following that comes the

most difficult task, la quayá. The yuca is grated on a metal grate, the result of which is a mass of pulp called catebía. This pulp is put into a sack to which pressure is applied, often by boards, and the poisonous juices are squeezed out. The remaining pulp is then spread onto round clay ovens (burén) constructed especially for this purpose. The burén is a hollow clay mound with a flat top. There is an opening at the bottom through which firewood is placed, and the fire is lit at the bottom. After a short time the catebía bakes. The result is a large, round, thin, brittle torta de casabe, which must be removed from the burén with a wooden shovel (pala).

Casabe-making is one of the few activities by which women can make some cash. But the price paid for tortas of casabe varies greatly at different times of the year. The prime factor will be the availability of plantains; when plantains are available, there is less demand for casabe. Casabe is treated more as a diet supplement than as a staple. When plantains are available, a torta will bring in only about ten cents. In times of scarcity of plantains and root crops, the demand for casabe raises the price of one torta to 18 or 20 cents.

The low cash productivity of the casabe making enterprise can be seen in the following analysis. If a person were to pay workers for each stage of the process, his costs would be as follows: (the informants calculated wages in terms of how many hundreds of tortas are produced):

in the hills, they are occasionally brought into pasture, as, for example, when they calve. On this occasion they are brought into pasture that part of their milk can be used in family consumption. Moreover, a serrano will occasionally be raising a high quality cow (criando a medias) for some other person. Under this arrangement the serrano is responsible for the care of the cow, and when she has calves, half of the offspring (or the money from the sale of the offspring) belong to the serrano and the other half belong to the owner of the cow. When such a cow is de raza, of high quality, she will usually be kept in a cerca rather than be set free to forage on the hills.

In short, there are several reasons that motivate the serrano to prepare one or more pastures, usually with only natural grass, surrounded by a sturdy fence which prevents his animals from leaving and strange animals from entering. The beasts of burden are also kept in such pastures.

The preparation of such a site is quite simple. Pigs may be let in to consume the last of the root crops, to fatten themselves on the final scraps of the conuco. The fence is repaired by rginging in the small quantity of wood necessary to replace broken or rotten poles. And the mountaineer makes frequent chapeos; with the colín he slashes down any ligneous or brush vegetation which begins to grow, and leaves only herbaceous vegetation in the site. Within a few months the cerca has begun to take on its proper appearance.

Occasionally the mountaineer will broadcast yaraqua grass, to promote a better class of vegetation. I know of one case where a farmer has several cercas, but keeps only the distant ones in condition. (Una cerca de condición). The one next to the family bohío has not been given much care, as visitors frequently ask to keep their animals there, and the fruits of his labor go to the animals of visitors. The cercas which are distant from the bohío, however, are kept in good condition and planted with better grass. The farmers are able to rotate animals from one cerca to the other, as the first becomes overgrazed.

The second alternative after a conuco has been cropped is to dejarlo botao, to leave it fallow. When the last of the worthwhile root crops have been taken, the farmer will put his pigs into the site to give them the advantage of the last scraps, and the site will be left fallow. No attempt will be made to keep the fence in a state of repair, nor will any attempts be made to control the class of vegetation which re-emerges to cover the site, as in the case of the cerca. The vast majority of sites within the limits of Pino Tumbao are of this class; for every tarea of land which a farmer has under cultivation, he has some 10 or 12 tareas lying fallow. Since the fences are down, and the sites are thus "en el sitio," the animals of other farmers may wander in and graze.

His rights to this property will be recognized by the other members of the community, and no cases of serious encroachment have been encountered. But if the site is distant from his present residence, and all signs of the former fence disappear (as frequently occurs--though the serranos can see traces of a fence where outsiders see nothing but brush), and the fallow takes on the appearance of high secondary growth, he has lost exclusive rights to the land, and other cultivators can (and have) recleared the land. Most serranos have in their history several pieces of land which they have in reality abandoned, to which they make no more claims, and which is presently being cropped by other cultivators who do not (and were not seen as obliged to) obtain the permission of the original cropper. But more frequently the piece of land which has been cropped and which is still lying in low fallow will be claimed as "propiedad" by the original cropper.

It is realized that this system has its danger. The mountaineers are well aware of the tenuous nature of their claims to these pieces of mountain land. Even according to the rules of their own making, once the fence is down and the high vegetation is back in, that piece of land is en el sitio; animals can graze there at will and the original cultivator has "poco derecho" (little right) to the land. One strategy of getting around this potential danger of encroachers has been to plant fruit trees--mango, avocado, palm trees--or small patches of coffee. These

strengthen the claim that the site is propiedad.

In general, most of the fallow sites in Pino Tumbao have their recognized owners; and because of the great need for cooperative labor, and outside encroacher would scarcely be able to survive were he to try to clear land recognized as belonging to one of the long standing residents.

These then are the specifics, gleaned from fieldwork, about one aspect of the total drama of life in Pino Tumbao. But the scenes here described constitute a "current situation" which cannot be properly understood or evaluated without taking into account their immediate antecedents. The conuco as presented here is quite different in many aspects from that which was called a conuco three decades ago, and even more different from the plot which the pre-Columban Arawak called a conuco. The final part of this paper will attempt to fill out knowledge of the present by comparing it to the past.