REPORT ON TWO AREAS OF PEASANT HOLDINGS

IN

TRINIDAD B.W.I.

Presented by W. GALLEY.
A survey was carried out in selected areas representing two different types of peasant farming in Trinidad. This survey took place between the months of October 1947 and May 1948. The object of the survey was to investigate the conditions under which peasants practise agriculture, with a view to being able to suggest improved and more efficient methods of using the land.

The areas selected comprised a section of hill land in the Northern Range, and also a section of flat land used for the growing of rice and sugar cane.

The hill land was situated in the Maracas Valley, about three miles from St. Joseph, and around the top of La Baja Road. It comprised about 180 acres in all. The rice land was situated South of the Imperial College property, with the Churchill-Roosevelt Highway acting as part of the Northern Boundary. This area was about 600 acres in all.

**HILL LAND.**

This is on one of the steep hillsides of the Northern Range of hills. Two deep gulleys run almost the full length of the area, forming a ridge in the middle along which runs La Baja Road. These gulleys have several minor gulleys running into them which fan out into their upper limits. At their lower ends they join a stream forming the boundary of the area. In the wet season these gulleys can be raging torrents, but in the dry season water is seen only in the upper half of the Western gully. This presumably soaks into the ground, as no water is present in the lower half. Spurs run up either side of the area to meet at the top of the hill and form the boundaries.
A brief history of the area will give some idea as to why such an apparently unsuitable area is cultivated today. The hill is steep, more especially on the upper slopes where the cultivated plots are reached by an arduous climb. The soil is light and thin, and easily erodes under cultivation.

Up to around 1918 most of the area was devoted to cocoa cultivation; under estate or capitalistic systems, as opposed to peasant cultivation. Traces of this cultivation can be seen today where the cocoa has not died out. Trees are still present in the East gully, and in the upper part of the West gully in quite a reasonable density. Possibly the shade created by the steep sides and by the trees which are plentiful in the gulleys, helped the cocoa plants to survive despite a complete lack of cultivation. From observation of surviving cocoa trees, it appears that the area once under cocoa reached to just beyond the end of La Baja Road. The high prices that cocoa used to fetch, in return for low costs of production, would lead to the use of this land after other better lands had been brought into cultivation, and to the construction of La Baja Road, which today is little more than a bridle path but affords reasonable access to the hillside.

It is maintained at Government expense through the District Warden. As cocoa became less profitable the less suitable areas were first to be affected, and in the case of this land a change to citrus cultivation took place in order to keep the land paying its way. Later the price of limes, which was the chief crop, fell, so that this too became an uneconomic crop and the land gradually fell into disuse. One or two nutmeg trees can be seen and it may be assumed that these were tried in a small way to keep things going.
these methods failed, a period of complete disuse took place from 1920 or thereabouts.

In 1936 the land was brought back into cultivation, this time by peasant cultivators who leased the land from the owners. There were several reasons for this. Firstly there was a general shortage of land for cultivation caused by the building of houses along the Eastern Main Road on the land formerly used by the peasants. This shortage was further accentuated when the Trinidad Government stopped leasing out land in the Mount Hope area. The crops grown by these people were vegetables and greens for the ready market in and around Port of Spain. The final factor which forced the peasants away from their holdings was an outbreak of typhoid which was spread by pollution of the San Juan River. In an effort to check the disease, it was forbidden to grow vegetables around the river.

In order to prevent hardship among the cultivators, who were dependent for their livelihood on the sale of these vegetables, all the existing vegetables were bought by the Trinidad Government and then destroyed. As a result of these large areas of cultivated land going out of use, the cultivators were forced further afield and this hillside came to be opened up. Although the danger of typhoid no longer exists there is still a shortage of land due to more and more building. Furthermore as the plots on the hillside cannot be reached without a hard climb, there is not much pilfering done by people living in the town, who have not gardens of their own. This last factor is quite important to the grower and helps to compensate him for the difficulty in reaching his garden.

The people who cultivate this land are almost all of negro descent, and, with few exceptions live in or around St. Joseph. There are only two or three families who actually live on the area surveyed. These occupy sheds built originally for processing cocoa. The others usually build small shelters of branches and leaves for protection against rain and sun during...
the day. They arrive early in the morning to work at their plots until the early afternoon, when they leave with produce for sale. These people are usually hard working and industrious.

The land is leased at 8 dollars an acre, from the owners who are mostly absentee landlords. These people take little interest in the land apart from the collection of the rent, which is done through local agents. No measures are taken by the owners to see that the rules of good husbandry are practised. Many of the cultivators are men with little or no agricultural background who normally would be working in the towns or local industries, but who are at present out of work and unable to get jobs. In order to make sure of having something to eat and if possible to get some spending money they rent land for growing ground provisions. As this is done out of necessity the grower is a somewhat reluctant agriculturalist and as his agricultural knowledge and experience is very limited the standard of cultivation is not very high. Little or no attention is paid to soil conservation or to the maintenance of fertility. He merely rents as much as he can dig and grows crops on it until the fertility is so reduced that it is no longer worth his while to grow any more on it. Then he moves to a fresh piece of land and starts the same process over again. Deterioration of the land is mainly due to erosion; the shallow top soil is soon removed leaving the ground very stony and with boulders protruding. Once erosion starts it progresses at an increasing rate, and on land which has been under cultivation for some time gulleys form and soon enlarge. The length of time that gardens are cultivated varies from two to four years, and in some rare cases up to six years. In this comparatively short space of time all the mature top soil is washed away.

Geologically the area lies in the part of the Northern Range described as Upper Caribbean Series, according to G. A. Waring. This is classified as a micaceous and talcose schist with quartz and calcareous rocks occurring locally.
Wall and Sawkins in their survey of the geology of Trinidad of 1860 report the soils of this region as being generally poor due to the constant washing away by the heavy rains on the steep slopes, particularly where the clay content is low and the proportion of sand high. When the above report was made these hills were under natural vegetation of forest and the soils had not been interfered with by man. Even under these conditions the soil was apparently removed as fast as it was formed. No mature soil can develop under these conditions, and where the natural cover is removed to plant crops the removal is very much accelerated. When the peasant is finished with his plot the soil is too poor to support forest growth, only grasses and small weeds become established at first, which are only able to bring about soil regeneration at a very slow rate. When a plot is finally abandoned, erosion does not cease abruptly but continues for some time until a good secondary cover becomes established. Blackjack or Railway Weed is generally the first plant to take over deserted plots. Grasses soon come in, usually Corn Grass becoming predominant after a while. Large areas of Corn Grass can be seen on the hillside where plots have been abandoned in previous years. Only on the top of the hill does any original forest remain untouched, as it is left to the desired area, but of.

Samples of soil were taken on the area and submitted to the Chemistry Department of I.C.T.A. for analysis. These samples represented the top six inches of soil, though it was not always possible to get this depth as rock occasionally occurred at three or four inches. All the soils except one were gravelly with a high proportion of sand, the coarse sand being mainly schist and quartz. It was suggested that the soils were immature Lithosols. The soil reaction varied from highly alkaline (pH over 8) to highly acid (pH less than 5).
Alkaline samples contained lime in varying amounts suggesting the presence of limestone outcrops. Organic matter varied over a wide range but was appreciably higher for the uncultivated soils. Total Nitrogen varied from medium to high and showed no marked difference between cultivated and uncultivated soils. The C/N ratio was higher for uncultivated soils. Available phosphate was shown to be deficient for most samples. No conclusive result was obtained for available rotash as only four samples were tested and they showed wide variation. This information tends to show that the soils of an inferior nature, being generally deficient in phosphate and possibly also in potash, furthermore under continuous cultivation, the loss of organic matter makes the already coarse soil even more liable to erode.

Under the present system the cultivator decides how much land he wants to dig, and, after consultation with the local agent, he selects a suitable area of bush which seems to have some soil to it and then attempts to clear it. To aid in the clearing the bush is usually burnt. This is generally done in the dry season so that the ground can be prepared in readiness for the rainy season. At this time of the year, March until May, the undergrowth is very dry and burns readily. Sometimes the fire confines itself to the desired area, but often it spreads and can cover vast amounts of land. By law a man is supposed to make a fire-break around the plot before burning, by cutting a path sufficiently wide to prevent the flames spreading. This is seldom done, and in any case if the fire does get out of hand it is almost impossible to find the culprit. The peasants adopt a very irresponsible attitude towards burning, as they cannot appreciate the harm done by excessive burning unless property
is destroyed. Where burning is carried out much of the organic matter in the soil is destroyed. The organic matter has a physical action in checking soil erosion. It maintains the soil structure allowing water to permeate freely, rather than run off the surface in heavy downpours, it also helps to bind the soil particles together. Another part played by organic matter is to hold moisture under fairly dry conditions and maintain a water supply for plants. Where burnt land is put under cultivation at once some benefit is gained from the residues in the plant ash, and the loss in organic matter is minimized. However where the land is left for some time after burning, plant growth is checked and little cover is afforded the ground against the elements. The rain leaches plant nutrients, and the sun oxidises any remaining organic matter, leaving the soil depleted and in poor heart. This occurs where excessive burning takes place, and further, young and sometimes fair sized trees are destroyed or checked in growth. These trees either formed or would have formed permanent ground cover which helps to maintain and regenerate the soil. Their destruction only serves to aid soil erosion and slows down the process of soil formation. The poorly educated peasants are unable to grasp this and therefore take no measures against it. To them it merely seems to be a waste of time.

Digging and planting takes place from May to July. This work is done by the family, the man’s wife and children, if any, doing their share. Crops grown are food crops for local consumption, comprising mainly maize, Zea Mays; beans of various sorts; pigeon peas, Cajanus indicus; Tomatoes, Lycopersicum esculentum; tannias, Xanthosoma sagittifolium; and cassava, Manihot utilissima. The practice is to plant when the rains commence or a little later. Maize, beans,
and pigeon peas are sown first, these are sown together in the plots. When the maize and beans germinate the peas are sown. The beans grow rapidly and are soon harvested in six to eight weeks. They are followed by tomato seedlings which are grown at home or obtained locally together with tannias and eddoes. When the corn and tomatoes are harvested the pigeon peas are left to grow on their own as a rule; generally they bear two crops in the twelve months that they remain in the ground. Cassava is usually planted among the mixed crops during the dry season if there is sufficient room.

This mixed cropping is repeated year after year, with slight variation until the ground is too poor to carry anything. No manuring at all is carried out. Clean weeding is practised with the early crops to help them to get established, even on the steepest slopes. The weeding ceases when the peas are big enough to check the undergrowth. The beans and maize are sown at spacings of nine to twelve inches, and the pigeon peas at about five feet. The other crops are planted as space permits. Grapefruit and oranges being too tall to grow, are not grown. The produce is sold around St. Joseph if possible, but when this cannot be done it is carried to Port of Spain. At present there is a wide demand for all of these crops so that their disposal is not difficult. Mule transport is frequently used for carrying the goods from the plots to St. Joseph, though some people carry their produce by hand. From St. Joseph there is a regular service of buses if it is necessary to carry the goods to market there.

If this method is to be carried out, the following method might be used. First, interview all the people who are cultivating the area of present and past crop

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The greater part of this hillside is generally unsuited to the production of annual crops, especially above the top of La Baja Road, where a great deal of cultivation is carried out at present. Therefore, the best use of this land would be under forest growth as it was in its natural state. This is not however a suitable proposition. The people at present using the land would have to be moved to another suitable site, which is almost insurmountable difficulty as nearly all useful agricultural land in Trinidad is already being used. Also, to make the best use of forest growth would mean planting out definite species of trees by hand, and then supervising their growth. This would become the duty of the Forestry Department who have not sufficient staff to cope with the additional work entailed. Consequently I would suggest that a system of orchard cultivation be practised, except on the lower slopes where reasonably level ground occurs, and which could be used for annual crops. Citrus species would be suitable for this purpose, grapefruit and oranges being the most useful to grow, as a factory in Port of Spain can process these fruits. Compulsion would be necessary to get the growers to change over to this system, but encouragement could be afforded them by the following means. Some form of security of land tenure will be essential, as the crop is more or less a permanent one. The introduction of tenant-right and security of the land, provided a man pays his rent and follows the rules of good husbandry, should act as an inducement to prospective cultivators.

If this method is to be carried out, the following method might be used. Firstly interview all the people who are cultivating the area at present and find out
which of them intend to stay in agriculture permanently. Those who only cultivate while waiting for a job, and any people who do not wish to cultivate under the new system can be discarded at once. For any of these who still desire to have land, accommodation can be found on existing land settlement establishments; or if the numbers warrant it, a new settlement can be formed in a similar manner to the one at La Pastora Estate, but on a less elaborate scale. Houses need not be provided, only plans for building them, and advice about cultivations which should be within an organised system. With having to prepare their holdings right from the start, only the keenest will participate and they will develop a certain attachment to the property.

On the hillside only about 150 acres are capable of being cultivated; of this area about 50 acres are suitable for annual crops. If the area under citrus is planted at 80 trees per acre, the estimated yield should be in the region of 300 cases of fruit. Allowing a price of 1/6 per case clear of overheads, which is a conservative estimate, the return per acre is in the region of £22-10-0. One man can tend five acres and cultivate a plot of ground provisions. Under this system twenty families can be supported on the land, provided that arrangements can be made for marketing the produce. A factory exists in Port of Spain which is capable of dealing with all the fruit that can be produced at present. It is owned and run by the Co-operative Citrus Growers Association of Trinidad and Tobago, Ltd. Oranges and grapefruit are processed in this factory for a market which is at present rising, and which should be stable for many years to come. By becoming members of this association, the growers are assured of a means of disposal for their fruit, and furthermore, the profits go to the members.

A supply of budded plants should be organised about eighteen months before the start of the scheme so as to have a supply of plants ready when needed.
The land should be allocated, five acres of orchard land and two acres of land for ground provisions, per person. The land for annual crops can be worked on a four course rotation; mixed crops in the first year, followed by a pure stand of pigeon peas, which sell locally if there is a surplus, and then it should be left for two years as a grass fallow.

In the first year the grower should clear the vegetation on one acre of orchard land by cutting, as well as dig his plot for provisions. In the orchard land he should plant out mixed grapefruit, sweet orange, Seville orange and a few mandarin type trees, which should do alright under these conditions. If the arable land is not sufficient for his needs in the first year, the last plot of orchard land to be planted could be cultivated for a year or so.

In the second year one more acre of fruit should be planted, and the previous year's plot kept clean by cutting the weed growth. To assist in the establishment of the trees it would help if they were planted on platform terraces and clean weeded around the trees for the first year or so.

This means preparing a small level patch of ground for each tree before planting. Each year continue to plant out one more acre of fruit. At the end of the third year fruit should start to be set and by the fourth year harvesting should be well under way. A form of government loan, repayable in a set number of years out of the takings, might be a feasible proposition to help the grower over the first difficult period. Cattle and goats can be grazed on the grass fallow and among the fruit trees, if kept under control. They will help to supplement the food and serve to maintain soil fertility. For this scheme to be a success it will be necessary for the people to work together whenever
possible, such as at harvest time when it will be necessary to have the fruit gathered together to make it easier to collect for the factory. Further by sticking together they will be able to obtain quantities of artificial fertilizers in bulk, if they are required. These can be applied to the individual trees with little waste if the need arises.

An alternative scheme to this last one would be to compel the cultivators to carry out extensive soil conservation measures, but to allow them to continue growing the same crops as they grow now. By doing this it is possible to continue cultivating the hillside, and possibly for an indefinite period.

This will necessitate the making of bunds of earth along the contours, with channels to stop the free flow of water. No cultivation will have to be allowed above or beside gulleys, and existing gulleys will need checking with small dams. Between the contour bunds grass strips will have to alternate with cultivated strips. A cover crop may be grown instead of grass in the strip, and used to provide fodder for stock, but it should be cut, not grazed. To carry out this work, trained personnel will be needed for supervision, and an intensive propaganda campaign will be necessary in order to get the full co-operation of the people. It will also reduce the effective area of the hillside, which will therefore support less people.

Before carrying out any of the suggested ideas for the improvement of the land, it is advisable to try out the idea in a small way at first, and then if it is satisfactory, to enlarge upon it. The best way would be to try out several ideas at once, on a small scale, and then when the most effective one has been found, and the necessary
modifications have been made, it can be put into practise on a large scale.

A general view of the hillside.

A crude shelter typical of those used by the peasants for protection against the weather when on the hillside. This was seen at the top of La Baja Road.

View from about half-way up showing the steep cultivated slopes.

LEFT. Sheet erosion, resulting from the clearing of vegetation on the steep slopes before planting.

An example of the haphazard method of felling trees when clearing land, thus encouraging soil erosion. This was seen at the top of La Baja Road.
This area is devoted mainly to the production of rice and sugar cane. With the exception of a small area belonging to the Trinidad Government, it is leased to the growers by the Orange Grove and Streatham Lodge Estates. The cultivators are mostly East Indians of mixed Mohammedan and Hindu religions, who live on or adjacent to the area. These people are the descendants of people who came to Trinidad as indentured labour to work on the big estates. The system of indentured labour was evolved to bring labourers from India to supply the demand on the sugar and cocoa estates. They were given a free passage to Trinidad and on the expiring of their contract they were offered a passage back or a gratuity.

Many preferred to stay behind and leased or bought plots of land, but supplementing their incomes by continuing to work on the estates.

Their way of life and traditions from India survived and are still present today. Elaborate religious festivals, marriages and funerals are upheld as strongly as ever, in many cases to the detriment of the people. Large sums of money, often far more than can be afforded, are spent on these festivals with resulting hardship and difficulty in maintaining home life.

Generally speaking the East Indians are intelligent, hard working and industrious agriculturalists. They are limited in their work by religious, superstitious and traditional practices, such as planting and harvesting by certain phases of the moon; or the practice of dividing land equally among the sons of a person who has died. This results in fragmentation and scattering of the holdings making them more uneconomic to manage as a whole. As yet
this has not reached the serious proportions which are found in India, but similar conditions will arise unless measures are taken to prevent this.

The land in this area can be divided into three distinct sections; that used for the growing of rice, that used for the growing of sugar cane, and that used for house plots. The area is drained by the Tacarigua, Tunapuna and Guyabal rivers. Of these only the Tacarigua is of any consequence as the other two are dry or almost dry in the dry weather. Roads and tracks, in various stages of repair intercept the area, giving fair access to most parts.

The house plots are in the Northern part of the area near the Churchill-Roosevelt Highway. The houses are mostly mud and thatch but conform to certain standards laid down by the Health Department. Some of these houses are quite good but others are very poor indeed, barely providing shelter from the elements. Water for domestic purposes is available at communal taps, being piped from valleys in the area sometimes underground, or planted to follow. Sweet potatoes, tomatoes, peas, maize and okra, rice and beans, are grown. Cultivations and weeding are done by the women, by hand using hoes. Consequently many of the occupiers dig wells outside their houses to save carrying water. Such wells being near to the house plots are liable to pollution, even if the water is from a reliable source. Some on the taps to the houses. When not in use they may be left open and carry the water to the factory. Before pulling it is sometimes the custom to have the same so as to destroy the aid traces and make cutting easier. This is

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are hired out to less fortunate cultivators. The goats and poultry are kept for food, as eggs and flesh. The animals are fed on locally procured feedingstuffs, usually barely more than a maintenance ration and unbalanced. Grass is gathered from the holding, or failing this from roadsides or wherever available. Consequently this is of inferior quality and very mixed constituents. The goats are tethered wherever there is anything to graze, and the poultry are left to fend for themselves. Produce from the garden in the way of roots, tops and maize is sometimes used to supplement the feed.

Ground provisions are grown around the houses, these food crops are; sweet potatoes, cassava, yams, and tannia in the way of roots; also maize, pigeon peas, beans, egg plants, tomatoes and peppers, generally grown mixed. All surplus from home consumption is sold locally. Smaller quick growing plants are put in first, such as tomatoes, beans, maize and okra. Pigeon peas and cassava are sometimes undersown or planted to follow. Sweet potatoes and egg plants are usually grown in pure stands when land is available. Cultivations and weeding are done by the family, by hand using hoes.

The Eastern part of the area is devoted to the growing of sugar cane. This all goes to the Orange Grove sugar factory. Cane cutting takes place in the first half of the year, from two to four rotoons are taken off each planting, depending on local conditions such as rainfall and soil fertility, similarly the length of time before cutting plant cane can vary from twelve to fifteen months. The growers are informed on which day their cane is wanted, and they have to cut and carry the cane to the factory. Before cutting it is sometimes the practice to burn the cane so as to destroy the old trash and make cutting easier. This is
a bad policy as the sugar inverts more rapidly and is lost altogether if the factory cannot process the cane within a day or so of cutting. To discourage this the factory gives a higher price for unburnt cane. It is customary for the grower and family to cut the cane the day before the factory wants it, and then on the actual day it is led to the factory as early as possible. Two wheeled mule and ox carts are used for leading the cut cane. As all the growers try to get to the factory at once they have to spend a long time waiting their turn at the weighbridge where their loads are weighed. When leading cane, more time is spent in the factory grounds queuing for the weighbridge, than in the actual transporting of the cane from the field to the factory. The only feasible method of eliminating this bottleneck seems to be by providing more weighbridges. Another alternative would be to give the peasants a definite schedule of times at which to bring his cane. This would prove almost impossible as each person has to travel a different distance, and in any case very few of them have any means of telling the time, with accuracy.

Rice is grown in the area under irrigation, the water being supplied from the Tacarigua river by means of a dam and channels maintained by the Trinidad government through the Department of Hydraulics. Water is supplied along specific channels on certain days of each week, and it is up to the cultivators to be present if they require water. At present, only a very limited area is supplied with irrigation water through this system; however, plans are underfoot to increase this by constructing another dam high up the river, and using the Tunapuna river for irrigation. The grain is collected on sheets spread under small
drainage, after diverting its course. The drainage water then returns to the Tacarigua river above the present dam, where it can be used for irrigating the area served at sun present.

After the crop of planted rice has been harvested, some of the seedling rice is raised in plots around the dwelling houses, in low lying wet areas if possible. When the seedlings are ready for planting out they are pulled by hand and made into small bundles, which are replanting carried to the rice fields by means of mule carts as a rule; some people, however, carry them by hand. This land has previously been prepared either by digging with hand hoes; or by a preliminary ploughing followed by a final breaking up by hand hoes or harrows. The peasants who own ploughs cultivate the land of others after their own is finished. Where oxen are available, the ploughing is followed by harrowing and a fine breaking up achieved by turning over the harrows and using the wooden frame. Sometimes a wooden beam is used instead to obtain the consistency of soil suitable for planting out the rice. After planting, the water is drained off for a while to make the plants firm, then irrigation is continued right up to a week or two before harvesting. Just before the crop is fully ripe the water is drained off to allow the grain to set properly. Harvesting is carried out by hand using sickles, the cut rice being put into a heap with the tops all lying in one direction. It is then thrashed as soon as possible, by rather primitive means. The person thrashing, takes a double handful of the harvested rice by the butt ends and beats the ears against a grille of wooden bars. This grille is supported two to three feet from the ground by bamboo poles. This is repeated until the grain is all shaken out; the straw is then discarded. The grain is collected on sheets spread under and
around the grille. The straw is either burned or used for bedding for livestock. The threshed grain is taken to the house and dried by spreading out on sheets laid in the sun.

After the crop of planted rice has been harvested, many of the cultivators take a crop of tillered rice. Tilling occurs after the first cutting, and if the crop is left, a further though reduced yield may be obtained. This method is popular because it saves the labour of replanting which compensates for the reduced yield.

Yields of rice vary from two barrels per acre for tillered crop, to twenty-five barrels for planted rice. The tillered crop varies from 2 - 2½ barrels per acre. (1 barrel = 160 lbs.) Planted crop yields vary from 20-25 barrels; this is for the July planted crop. For rice planted in December, yields of from 6 - 10 barrels are obtained. The chief varieties grown are Joya, Demerara Red, Demerara White, and on I.C.T.A. plots, Montmairier. With the exception of I.C.T.A., these varieties are very mixed within the plots.

The removal of the hard hulls of the rice is performed by a rice mill situated within the area. This is operated by a small Diesel engine. The mill itself is not very efficient and produces many broken grains, but as it is the only mill in the district, the people are compelled to make use of it. A small charge is made for milling the rice.

Black pea may be sown after the rice has been harvested, as a catch crop. The presence of saprophytic fungi among the stubble was very pronounced on many of the plots. It may be assumed from this that a plentiful supply of humus was present in the ground.
Under a scheme proposed by the Department of Hydraulics, irrigation is to be ultimately available for the whole of this area. Unfortunately, the plan was made, and will most likely be carried out without consultation with the landowners or growers. There is nothing to prevent the owners taking back the land themselves, and either growing cane or irrigated crops on it. Failing this, they are at liberty to raise the rent for the increased facilities available, towards the cost of which they have not contributed. For the most efficient development of this area, the new irrigation scheme is essential, but not if it is to be abused. To prevent this, the owners of the land involved should be approached and their views on the matter obtained. Legislation should then be introduced giving the tenants a security of tenure, and if necessary limiting a rise in rent to a reasonable figure, a proportion of which should be diverted towards the cost and maintenance of the irrigation works.

With this scheme it would be possible to grow crops throughout the year. There is a ready market in Port of Spain for perishable crops and as transport from this area offers no difficulties, a rotation including such crops as cabbage, lettuce, watercress, radishes, tomatoes, peas, beans, cauliflowers and carrots could safely be introduced. After the main crop of rice has been taken off, quick growing crops can be planted for the market in a manner similar to that practised at Aranguez Estate at St. Joseph. As most of the area to be irrigated is a medium clay, and for four to five months of the year the ground will be under one crop of rice, the danger of soil erosion will not be great.

In order to get this scheme working properly, instruction will be needed, and the cultivators
must be given every encouragement for co-operating with each other. The easiest and most direct method of instruction is by a demonstration plot. This will give the best result if a person already cultivating in the area can be persuaded to use his land for demonstration purposes. When the people see one of their own men carrying out a new scheme, and succeeding, they are more likely to be impressed than if they were merely told of new ideas. By the application of fertilisers to the cash crops, yields can be kept up and the fertility of the soil maintained at a good level. Co-operation among the growers will make it easier to obtain artificial fertilisers if needed, and furthermore, by working together, the marketing of the produce can be made much simpler. Much propaganda must be carried out among the people before attempting such a scheme in order to explain fully just what is intended. This will also serve to get the views of the people concerned and their particular fancies and prejudices, and help to convert them to the new scheme. The demonstration plot will also serve a purpose in showing what difficulties are likely to be encountered before attempting to carry out the scheme on a large scale. These can then be overcome.

By carrying out this scheme the land will bring in more return per acre to the cultivator than at present. The rice crop is not sacrificed, and by the sale of the cash crops, the family budget is increased. Some of these crops will be consumed by the family themselves and serve as a useful supplement to their diet. The increased earnings should bring about a corresponding rise in the standard of living. With the increased productivity of the land, so much must be returned to maintain fertility, either as artificial or animal manures. If this is not done, in a few years the land will become exhausted and useless, and the efforts of all will have been wasted.
A good shelter for rearing livestock on the rice growing area. It is made from locally obtained materials.

A general view of the ricefields showing peasants carrying away their rice after threshing it. Part of the Northern Range of hills can be seen in the background.

ABOVE. Leading sugar cane by ox cart. Rubber tyred carts are a rarity.

LEFT. A trace typical of the area showing the serious effect of wet weather.