The Journal
OF THE
Jamaica Agricultural Society.

Vol. XIV. OCTOBER, 1910. No. 10.

BOARD OF MANAGEMENT.

It was thought unnecessary to summon a meeting of the Board last month as the business was not enough to warrant this. The next meeting will therefore be on the 20th inst.

CASTILLOA RUBBER IN PORTLAND.

June 1910.—There are a number of Castilloa rubber trees scattered about in different locations in my instructoral district of Portland, a good many of which I have had opportunities of tapping. In view of the great interest now being taken in rubber in Jamaica, not to mention the vast amount of capital that is being devoted to rubber culture outside our Island, it may be of interest for me to give some of the results, data and conclusions arrived at in the course of the tappings of these rubber trees in Portland.

Thirty-seven trees, of ages varying from eight to fourteen years have been tapped: the girth of these trees has varied from twenty inches to sixty-five inches; the soil on the whole has been poor and by no means the most suitable for rubber.

At the first tappings these thirty-seven trees, however, have varied a good deal,—one tree yielding twenty-five and one-half ounces of rubber at the first tapping, another yielding fifteen ounces, another ten ounces, another seven ounces.

The tree yielding twenty-five and one-half ounces is situated on stony, red, hot, soil, entirely unshaded. It is fourteen or fifteen years of age, sixty-five inches in girth. There were, however, two points that told in its favour,—first that the tree has always had and now has its trunk shaded by other shorter trees such as oranges, Liberian coffee, etc. The result of this has been that the bark has not hardened to anything like the degree some of the trees more exposed to the sun. Moreover, the bark is thicker on this tree on account of the shade and therefore gives a larger surface of latex-bearing tissue. The second point is that this tree has at some time in its young growth had its top taken off, causing the tree to fork, giving therefore larger girth near the ground and available for tapping. That this is of some importance is further shown by the result of the tree giving fifteen ounces, which, though a younger tree, yet has given the second best results, and was also a forked tree; the same holds good of the tree giving ten ounces. This would seem to point to it being a good plan to top the trees say at twelve feet, which is confirmed by the report of Mons. P. Cibot in his investigation in Venezuela. From what I have seen I do not think age necessarily governs the time at which a tree may be tapped, but ra-

ther growth and girth. One tree gave me the seven ounces at one tapping, and nineteen ounces during seven months, only eight years of age, far better than some trees ten to twelve years old, which were not as well grown nor as well situated, and therefore smaller. Given equal conditions no doubt age would be the governing factor as to when to tap, provided that age was well established.

In reference to this tree that gave twenty-five and one-half ounces at the first tapping, I continued to tap at regular intervals of thirty days or as near as possible ; after three months the tree ceased to give latex and only ran water. I then rested the tree four months and got a first yield of seven ounces and a further five ounces two months later. The total yield for the tree to date being forty-one ounces or two pounds nine ounces of dry rubber.

Another tree at seven tappings, gave me nineteen ounces of rubber, another at five tappings, fifteen and one-half ounces. In connection with these trees I tried varying the distance between the cuts made on the bark. In the first case the cuts were twelve inches apart, in the latter three inches. I carefully selected these trees as being of the same girth and age. At the first tapping the result was the same, seven ounces, and the further tappings gave almost equal results in each case. I conclude therefore there is no advantage in making the grooves closer.

From my observations I conclude a tree on moderate soil, at eight or ten years of age, should be at least forty to forty-five inches in girth, and yield four or five ounces of rubber at the first tapping. Just how often the trees should be tapped to obtain best results remains to be proved. One thing I am certain of, however, and that is that daily or weekly tappings for Castilloa by the methods adopted for Hevea are of no use. After a day or two there is absolutely no flow of latex. I am inclined to think it will be found best, judging by the few trees I have tried that way, that the trees should be tapped either three or four times a year at equal intervals. I am confirmed in this by the opinions of Castilloa rubber growers in Mexico. (See report of La Zacualpa.) Having been told by a traveller and read that it was best to cut down trees *and* tap them as the trunk of the trees contained large quantities of latex, which would more than recoup all loss by destruction of the trees, I tried it and found it to be a "Yarn," as there is no rubber apparently beyond the inner bark.

In regards the methods of tapping, there are some difficulties which have to be overcome. In the first place, the latex will not run, but coagulates so quickly as to drop off the tree in great clots before reaching the collecting vessel. I have used the herring bone method entirely for outlining the grooves, one set of cuts on each side of a tree ; alternate cuts being made on each side of a vertical cut about six to twelve inches apart. These cuts are made at a descending angle to the centre cut. In spite of this most of the valuable thick latex will not flow. To obviate this, I first tried a piece of canvas steeped in grafting wax and tied round the base of the tree to form a groove and channel to catch the latex as it falls and

to allow me to wash the latex down with water into the channel and so into the collecting vessel. This proved very unsatisfactory besides necessitating the carrying about of a quantity of water and increasing the bulk of latex to be moved about. I have, however, worked out a method which I find to work satisfactorily and has the point of simplicity and is easily learnt by the most ignorant labourer.

Up to lately I have used the tools made by Bowman & Northrop and lent me by the Director of Agriculture. These tools consisted of a dragging chisel arrangement of a delicate make, with a pair of brittle chisel for outlining the groove in front of the cutting chisel. This always gave dissatisfaction; whilst no doubt it does well for Hevea, it is quite impracticable for Castilloa; no labourer could be trusted to use it; moreover it requires the most strenuous exertions to use the tool, the greatest skill to cut an even depth of groove and avoid injuring the inner cambium layer. This is a great danger and results for certainty in a rotting spot and no more rubber near that spot. I am certain a hard-working man could with difficulty tap six trees with this tool per diem, moreover it does dirty work cutting out the bark or rather tearing it out in little chips, which tearing stops the flow of latex, besides mixing with the latex collected. There are two other tools supplied with this one, a parer for the edges of the cut made first;—this is of no use with Castilloa, as a daily tapping gives no results. The pricking wheel supplied is too light and gives no results.

After trying another set of tools much the same, and a Simplex, all of which proved of no use. I got Mr. Barclay to import me one of those tappers spoken of in a late JOURNAL. It has turned out splendidly, makes a clean one-chip cut, gauged to any depth you wish, and is practically impossible to get out of order, being very strong. I can do this work with one hand and not feel it fatiguing and I have proved that I can tap ten to fifteen trees a day according to their girth. The first thing to do is to cut the vertical stroke. I then rapidly cut all the side cuts on one side of the vertical, starting as high as I can reach and working down to the ground at about six or eight inches apart. These cuts I only make half the thickness of the bark. Immediately a thin rapid flow of white milk starts flowing. Rapidly putting down the tapper I take up a brush (a sixpence enamel brush with fine hair I use), and running it over the cuts collect the liquid before it can drop, scraping it off into a glass screw-top bottle held in my other hand as I collect it. This flow ceases soon, then I take the knife end of the tapper making an incision through the tender inner bark, whereupon the thick, creamy latex gushes out and can be collected in great clots at leisure on the cut as it oozes out. Then the work continues. I find at least ten or fifteen trees can be tapped and the latex collected, so no return to these trees is needed, in one day. The advantage of this tool is that the inner tree cannot be possibly injured: moreover by the brush method the final brushing out of latex leaves a very fine coating of latex on the groove, which heals, or rather covers the wound and prevents air or water setting up any rot. The method is absolutely clean, no waste

is possible if properly done, and very simple. No return to collect vessels is needed, or to pick off rubber. Each day's work is done with. A vessel with water must be carried to plunge the brush in when not in use. This tool is manufactured or patented by George Thompson.

I am strongly of opinion that rubber planted in the right places, such as many of the unused lands of the back of Portland and parts of St. Thomas, would be a very paying investment. Taking into consideration the sort of soil nearly all the rubber I have tapped is growing in, viz., dry, marly, red dirt, in many cases on hill tops, or in open pasture, being injured by billers and cattle, it would only be fair to expect better results from better planting. Yet working on the basis of my results and my conditions, I think we can see a profit in rubber growing. It is usual they say, to plant rubber in Mexico 400 to the acre. If, however, we planted rubber twelve feet apart, making use of the land meantime for any other crops we could between, even bananas, we should get 300 trees per acre. At an average after nine years, of four ounces per tapping for only three tappings a year, we would expect to realise three-quarter pound per tree, or 225 pounds of rubber per acre per annum. This figuring at only $1 per pound, would work out at $225 or £45 gross. Against this is cost of growing, tapping and caring; growing ought not to cost much if other crops are grown and in any case would be a capital charge. Beyond brushing out twice a year, no other expenses of cultivation would appear in revenue account; 20/- an acre ought to cover this; tapping, reckoning twelve trees per man per day at 3/-, would cost £11 5/- per annum. This is a high charge, and using expert labour, which would soon be reduced no doubt, curing could not possibly cost more than 3d. per pound, as the methods are simple *and* inexpensive in the handling; these expenses work out a little over 1 - per pound, and with cost of marketing and superintending, etc., we would seem safe in saying the rubber could be grown and marketed for 1/6 per pound, which should give a profit per acre of from £20 to £27.

In conclusion, I am strongly of opinion that given the right locations (sea breeze is a deadly enemy), the right soils and treatment, Castilloa rubber ought to give a good return in these districts, and no doubt many others in the Island.—(Sgd.) L. A. WATES, Agricultural Instructor.

[A continuation of Mr. Wates' experience with Castilloa trees in the eastern part of Portland will appear in next JOURNAL—ED.]

BUTTER-MAKING.

SELECTION OF COWS FOR JAMAICA.

WHEN we receive a letter asking us to tell the writer "all about" a subject, we feel sorry that we can within the bounds of a letter only give a few hints, and that because of our differences of conditions, we cannot refer the inquirer to books, nearly all of

which are written for northern conditions. The interest now taken in dairying—the supply of milk and butter—has caused us to be the recipients at times of many letters asking us to reply giving all the information we can on the subject of the different breeds of cows with relation to butter-making especially. We shall try here to reason plainly and we hope sensibly, on the subject.

The quantity of milk required to produce one pound of butter in the case of milking breeds, is approximately as follows :—

Shorthorns, Welsh. Red Polls, Ayrshires and Holsteins—one pound of butter from twenty-three pounds to thirty pounds of milk.

South Devons. Kerries. Dexters—one pound of butter from twenty pounds to twenty-four pounds of milk.

Jerseys, Guernseys—one pound of butter from fifteen pounds to twenty pounds of milk.

Now it would be thought that wherever butter-making is a specialty, no breed but Jerseys and Guernseys would be kept, but there are many other things to be taken into account when the decision as to what breed should be kept has to be made.

First, there is climate and environment. Different breeds have been developed under different circumstances and to suit certain conditions. Jerseys and Guernseys have been developed in the mild climate of the Channel Islands, well cared for and gently handled for generations. They are also largely kept in the South of England, but get scarcer as you go north, until in Scotland it is a rare thing to see a Jersey or a Guernsey. Latterly one or two are being kept in herds of Ayrshires and Shorthorns, where a milk trade with large cities is done,—where inspection as to fat content on milk is very strict and penalties very severe—to enrich the milk.

In Ireland, almost invariably Shorthorns and the native Kerry cows are kept. Ireland is a dairy country, running Denmark hard for premier honours in the butter trade, while in New Zealand where the butter made and exported is even better than from Denmark, the Ayrshire cow is the most common breed. In Denmark, whose principal trade is butter, their native cow is largely Holstein in blood, and while Ayrshires and Shortborns have been imported, no Jerseys or Guernseys have hitherto been commonly kept. (We must state, bowever, that not long since, a commission of Danish farmers visited Jersey and Guernsey with the view of taking good representatives of these breeds to Denmark, and the expressed object is to increase the butter fat content of their milk). In the United States, with their severe winter, Jerseys and Guernseys are most popular breeds, but are largely kept housed. In European countries as little housing as possible is done, so that the constitution of the breeds and their original qualities are better maintained. The artificial methods employed in the United States necessitates constant importations of Jerseys and Guernseys from the Channel Islands, Holsteins from Holland, and Ayrshires from Scotland. Continual forcing for milk records hurts the constitution of the breeds, cows often fail to breed or just as often produce poor calves. In Great Britain very

little housing is done,—only in winter and they are let out on all fine days,—and in summer cows are fed little if anything in addition to their grazing in the rich meadows.

When cows are prepared to be kept almost entirely artificially in housing, feeding and caring generally, any breed may be kept anywhere, but where they must largely take the run of things, we must look first to the constitution of the animals. A live cow and a healthy calf are more to us than a few quarts of milk extra for a time.

This is a tropical climate in the lowlands, hence a pure breed of cows, whose native home is under entirely different conditions, requires to be kept with care based on a knowledge of the breed. But by breeding bulls of these breeds to cows that have been for generations here, so that they have largely conformed and become adapted to our conditions, or by the use of bulls here of a breed produced in a hot country, where the people have cared for cattle systematically, and produced them to suit their wants, for longer generations than Jamaica is old perhaps, such as Indian cattle—we secure a hardening effect to our conditions with a corresponding reduction in milk yield for which the pure breed is famed,—unless milch breeds of Indian cattle are used, when we should expect little or no reduction. But draught breeds are generally used here.

But a half loaf is better than no loaf, and as live cows with a yield of eight to ten quarts of milk, are better than cows that die too easily here, or take more coddling and care than we are prepared, or have the skill to give, or that would pay us to give, then cross-breeding is best for our general conditions. Yet there are always some enthusiasts, who have the knowledge, have the skill and experience, and will give the time and attention and work, to keeping a pure breed, and it is good that this is so, for others have the opportunity of replenishing their herds with fresh blood at moderate cost and little risk compared with that of importing.

Then besides climate and environment, there are our markets to consider If a man could live by butter-making alone, and was careful and attentive, he might develop a herd of Jerseys, or better still, Guernseys, which are larger and hardier, and yield as rich milk. He might then afford to disregard the value of the bull-calves,—if he was near a town and could sell them for veal, keeping only the choicest for use as bulls. He might find this profitable, as a Jersey steer would not probably pay for its upkeep.

But why then do the people in Denmark and Ireland where they have the skill, knowledge, experience, and equipment, for keeping cows artificially, who live principally by butter making, or even the people in New Zealand, prefer other cows to Jerseys and Guernseys?

It may be first, because a large yield of milk with less care, gives as much butter and considerably more separated milk for the calves, and that these are profitable for them to raise. If one cow can yield ten quarts, which gives one and one-half pounds of butter,

and another yields twelve quarts, which also gives one and one-half pounds of butter, on the same feeding with less care, against exigencies of climate, the latter is the more profitable cow, all the more so if the bull calves are more valuable. In Ireland, Shorthorns being large cows, heavy feeders, with strong digestions making the most of the pastures, and needing little shelter owing to their thick coats, and being large milkers, while every bull calf is a marketable commodity at any age, with the best beef market in the world close by, it pays best there to keep Shorthorns.

So that here in Jamaica, we have to consider closely our circumstances. We want milk, for it is scarce and dear, we want to supply ourselves with fresh butter, as our imports of tinned stuff are too large and the butter not so palatable as our own: we want to supply ourselves with good beef, and again we want oxen for draught. The last named should be a specialty of those who cannot take advantage of a milk and butter trade.

Then we have to consider what will be the most economical cows for our environment. This will be found to lie in a judicious admixture of breeds. The hotter a locality the more Indian blood should be kept, say a quarter; in the uplands an eighth would be sufficient, and the importation of bulls of such breeds of cattle as dairy Shorthorns and South Devons, large breeds, heavy feeders, with strong digestions, large milkers, making good beef, to cross on cows of mixed breeds with a strain of Indian in them, will work an all-round improvement. First, there will be the strength of constitution that comes from the infusion of entirely fresh blood; there will be the improvement in size on herds running too small from close breeding or carelessness in mating; there will be the improvement in the quality of beef that comes from these well-known breeds; and there will be the improvement in milk yield. But there can be no improvement in any direction without feed as well as breed. Good pastures will keep up the strength and stamina of a herd even without the introduction of pure-bred bulls, or even fresh bulls, while poor feeding will work ruin in any herd; but in good breeding and good feeding lie the secret of always having a high-class and profitable breed.

Our native cows have for generations only produced milk for their calves, so give a small yield but it is very rich in butter fat. Therefore the most useful cross for our milk yield, under ordinary country conditions, will not be with Jerseys or Guernseys, but should be in the direction of larger yields and strengthened constitutions. Where the cows are already big, or where the pastures are steep, and the climate cool, and nights chilly and foggy, and too for wet climates, we suggest the Ayrshire cross for hardiness and milk yield. If pastures are rich and feeding plentiful, and in most cases where the cows are running small or lean and leggy with inbreeding, or too wild through their Indian blood, then Shorthorns and South Devons would be most useful crosses for improving size, quality, docility and milk yield. Where a dairy herd has already Holstein

blood, we suggest the cross of a Guernsey bull. Our circumstances are so different from those prevailing in the north, that for ordinary utility purposes a pure-bred herd is not to be desired. There is room for one or two pure-bred herds by any one possessing the aptitude, skill and enthusiasm, but there is little scope for doing much business, whilst for the ordinary man, mixed breeds are of greater utility and economy.

DISEASES OF COCONUT PALMS.

THE information contained in the following article is taken from *Circulars and Agricultural Journal of the Royal Botanic Gardens, Ceylon*, Vol. IV., Nos. 22 and 24, on "The Stem Bleeding Disease of the Coconut" and "The Root Disease of the Coconut Palm," by Petch, and from two articles in the *Bulletin of the Department of Agriculture, Trinidad*, Vol. IX., No. 64, the first entitled "The Bud Rot of the Coconut Palm," by Rorer, the second "Coconut Palm Diseases," by Mr. J. B. Johnson, Assistant Pathologist to the United States Department of Agriculture. The diseases described in these papers are three in number, namely, the bud rot diseases the root disease, and the stem bleeding disease.

BUD ROT DISEASE.—According to Rorer and Johnson, it is now almost certain that this well-known disease of coconut palms is due to the action of bacteria. The causative organism has not yet been definitely separated, but evidence accumulated from various parts of the world leaves very little doubt as to its nature. The disease, as is well known, occurs in several islands of the West Indies, and one with very similar characters has been found in various parts of the East, particularly in India, Ceylon and the Philippines.

In Trinidad bud rot is usually distinguished "by the yellowing and drooping of the leaves, the falling of the immature nuts, the wilting and breaking over and browning of the terminal leaf and the putrid condition of the whole of the region of the cabbage." Apparently the disease may commence either in the young central tissues or at the base of the outer leaves. In the latter case its action is not so rapid as it is in the former. In Ceylon it would seem that the disease always commences in the cabbage, and the young erect leaves become brown and dead, while the outer whorl of leaves is still apparently healthy. The fact that the disease commences at the centre and not at the outside, is one of the characters by which it can be separated from the root disease as found in the latter island.

Various methods of dealing with this disease have been suggested, and it is possible that in very early stages flaming or, in the case of young plants, the use of Bordeaux Mixture may be found effective in checking it, but in advanced cases little can be done in the way of remedial measures, and the safest course to pursue is to promptly and thoroughly destroy all trees showing advanced symp-

toms of the disease. In Trinidad, the Board of Agriculture voted the sum of $500 for the purpose of destroying diseased trees, and the work was started on November 30th, 1909, under the direct supervision of an agricultural inspector.

ROOT DISEASE.—A root disease of coconut palms is reported from both Trinidad and Ceylon, but the accounts given from the two islands would appear to indicate that they are not due to the same organism. The Trinidad disease was described by Stockdale in 1906, and attributed to a species of Botryodiplodia. A similar disease of coconut palms at Travancore in India, is described by Dr. E. J. Butler and also attributed by him to a species of Botryodiplodia. The symptoms of root disease in Trinidad, as described by Stockdale, are somewhat similar to that of the bud rot. It may be recognised by a yellowing and hanging down of the leaves, by the disorganised condition of the cortex of the roots, by the formation of a red ring of discolouration in the stem, and by the eventual death and rotting of the cabbage. The diseased roots generally contain the mycelium of the fungus called *Botryodiplodia* sp. As a result of a critical examination of the literature, Johnson is of the opinion that Stockdale's conclusions were not warranted, and states that, according to his own observations, the disease of the roots is of bacterial origin and in all probability due to the same organism as that causing the bud rot disease, so that in reality the bud rot and the root diseases of coconut palms in Trinidad are identical in origin. Johnson appears also to be of the opinion that the various forms of bud rot met with in different parts of the world are identical, and due to the same organism as is found in Trinidad. Since this is the case, it is evident that the root disease found in Ceylon cannot be considered as identical with that in Trinidad, for Petch proves almost conclusively that the disease is due to a fungus, *Fomes lucidus*, which belongs to the family of bracket fungi. The symptoms characterising the disease in Ceylon are as follows: (1) The outer leaves wither and droop, usually remaining for a long time suspended vertically around the stem; (2) the tree becomes barren owing to the suppression of the flowering branches; (3) new leaves are successively smaller, so that the crown becomes a handful of dark yellowish leaves; (4) finally these small leaves wither and the bud decays. Instances were noted in which the tree was killed so rapidly that the leaves and terminal bud dried up before the decaying of the latter had time to commence. The fungus causing the disease develops in the outer ring of vascular bundles in the butt of the tree, that is from the ground level to a distance of about three feet above the ground. The water-conducting cells become filled with hyphae, and in this way the food supply from the roots is cut off. The mycelium of the fungus is, in general, white, but the older hyphae are often brownish in colour. Another fungus, *Lasiodiplodia theobronae*, which is better known in connection with the diseases of cocoa, was frequently found to occur in the dead roots of coconut palms, but careful investigation showed that it was almost certainly

saprophytic in this case. It may be stated here that the fungus referred to by Stockdale as *Botrodiplodia* sp., and found on dead roots of coconut palms in Trinidad, is now known to have been also, in all probability, *Lasiodiplodia theobromae*. In addition to attacking coconut palms *Fomes lucidus* can affect bamboos, mango and flamboyant (*Poinciana regia*). As noted above, Petch calls attention to the difference between the symptoms typical of the root disease as found in Ceylon, and those characteristic of bud rot disease. It may also be noted that the root disease in Ceylon differs from that in Trinidad in the absence of the red discolouration of the stem, and in the fact that the terminal bud is frequently quite healthy.

In the case of monocotyledonous plants such as the coconut palm, there is not much possibility of treating root diseases, but the following preventive measures are recommended: all diseased trees should be felled, and the butt, with the last two or three feet of the stem, burnt. It is not necessary to burn the upper portions of the tree as these are not infected by the fungus. When the tree has been felled, a trench at least two feet deep, should be dug around the roots, which may then be left in the soil to decay. There is very little likelihood that these roots will serve as a source of infection, since the food supply which they contain is rapidly consumed both by the fungus causing the disease, and by numerous other saprophytic fungi, such as *Lasiodiplodia theobromae*, which has already been alluded to: when the food supply is exhausted these fungi will necessarily die of starvation. Lastly, it is advised that the hole from which the tree has been removed be left open for at least one year.

Stem Bleeding Disease.—The Symptoms of this disease vary somewhat according to the age and nature of the trees. In general, cracks appear in the bark from which oozes a brown viscid liquid that soon turns black and leaves a dark stain around the hole. On cutting away the cortex near the hole, it is often found that the tissue has become soft and watery through decay. In some cases the outer layer of tissue falls off, leaving a hole filled with fibres. Frequently, such are cleaned out by termites, and a white, smooth hollow is thus made, extending to the so-called wood. In other cases, spiral cylindrical hollows are formed, running up and down the inner tissues of the stem, and in extreme cases the whole tree may be rendered hollow from the base to within two or three feet of the terminal bud. This may happen even when but few bleeding patches are visible on the outside. Trees so attacked are not necessarily killed, and the effect of the disease on the crop is so small as to be entirely masked by the much greater influence of differences in the rainfall from year to year. The limitation of the disease to the stem of the trees may possibly be due to the fact that this is the only portion which contains a sufficiently large percentage of sugar to enable the causative fungus to thrive. This fungus is *Thielaviopsis ethaceticus*, which is also responsible for a disease of pineapples and sugarcanes in various parts of the tropics. Petch found that it was unable to live on dried leaves or dried husks of the coconut;

consequently its spread is not effected by such debris. He is also of the opinion that there is no danger of increasing the prevalence of this disease by the manufacture of coir. Though this fungus does not appear to damage the trees materially, yet injured trees are frequently broken by high winds, and in this way loss is caused. As a consequence, the following remedial measures are recommended: the diseased parts should be cut out completely, and all chips burnt. This operation is best performed with a chisel and mallet. Slanting wounds should be made, so that water may drain away. When the diseased material has been removed, the surface of the tissues should be carefully burned with a torch, to dry it, and a coating of tar applied to the wound. In conclusion, it may be worthy of mention that lightning, fire and root disease may cause bleeding patches on the stems of coconut palms, but these patches may be distinguished from those caused by *Thielaviopsis ethaceticus* by the facts that they are usually more numerous, and that the sap which exudes is of a much lighter red-brown colour, less viscid in nature, and causes a rusty discolouration.—*The Agricultural News.*

INDIAN CORN—MAIZE.

By J. T. Palache, Agricultural Instructor.

There is no product in this Island, except cassava, that ought to commend itself more to our peasent proprietors than Indian Corn. Its uses are so numerous and varied that there is nothing else that can be mentioned as its equal as an aid to the co-operation of the farm. So soon as the ears are well set the lower leaves can be gathered and used as fodder for the animals—cow, horse, mule, donkey and rabbit—that are kept to make manure to build up the land and enrich the soil for future crops. Again, when the ears yellow the tops can be cut off and used for the same purpose. Then the dishes that can be prepared for the table from this valuable esculent are numerous, delicious, and most nutritious, especially for children. Let me enumerate a few: The green ears when young and tender, either boiled or roasted are very fine. When yellow, before completely dried, grated and sifted, they make a real good meal from which dumplings, corn cake, and duckano can be made—far nicer than any made from imported meal. The dry corn broken, steeped in water and the outer skin removed, then boiled in milk, from the cow fed on the leaves and tops, and called hominy, is a most nutritious breakfast dish for children, and adults enjoy and appreciate it also. Splendid meal is made from our corn by the St. Ann's Products Company, which I have no hesitation in saying is far more nutritious and better flavoured than the imported meal. Nearly all these products are being brought into the Island, and forming their quota of the drainage on our resources that is going on and producing that depression and hard times we hear so much of all around from day to day.

Next are the considerations of the value of Maize as animal food. The horse benefits considerably by Maize feeding. It may

not be the best for horses required for fast, long work, oats being decidedly better; but for brood mare rearing a foal, young stock being grown up for producing condition, bone, muscle and growth, I am prepared to take my stand on the fact that good, sound Jamaica-grown maize has not its equal.

Then for poultry, of all the artificial foods recommended none can produce egg-laying to equal fresh Jamaica corn; and the flesh of poultry fed on it is unequalled for flavour and quality, save perhaps that of those fed on rice. That useful small settlers' friend, the pig, grows faster, forms flesh and fat quicker and gives pork of vastly superior quality, when fed on maize, than on any other food that can be given to him. This maize enables good native bacon and eggs to be obtained, and who would not rather breakfast off bacon and eggs when you know it is the product of your own farm instead of imported salt fish and herrings. A handful of ground corn or boiled corn given to the rabbits in wet weather when green food is full of water, preserves their health. It would take too much time and space to enumerate all the uses of this valuable and easily grown product, and my object in writing this is to draw the attention of the readers of the JOURNAL to the necessity of paying more attention to the growing of maize in Jamaica. I am pleased to say that some attention is being paid to this matter in my instructoral district, as the spring crop this year has been the largest and finest I have ever known in my fifty years intimate acquaintance with the agriculture of the district. Perfection is not nearly yet reached. Better preparation of the soil, more manuring and mulching in the dry districts, and draining in the wet districts should claim more attention and have more time bestowed upon them. The selection of seed and planting of only the best of seed also deserves serious consideration. I have, since last year, been conducting some experiments here, the result of which I propose to set out in this article with the object solely of endeavouring to induce some of your readers to make similar experiments. In the spring of 1909, I forked two square chains of common pasture that had been mulched with guinea grass in the fall of 1908, turned all the mulching in, lined it in rows three feet apart and planted the rows with good seed which I got from Mr. Scott of the Bogue, in St. Elizabeth; placing one grain nine inches apart along the rows, skipping every sixth row. After 21 days I planted the missed rows in like manner with Child's Golden Superb, which in America has reached 24 rows to the cob, and a row of the American seed on each side. The reason for planting the native seed first is, that the period for growing in America, owing to climatic conditions, is much shorter than in a tropical country like Jamaica, and if both seeds were planted the same day the American plants would flower at least a fortnight earlier than the Jamaican, and all the pollen would be lost before the native plant was ready to receive it, and all chance of hybridization lost; but if the Jamaican gets twenty-one days' start, this brings them flowering about the same time, and that interchange of pollen produced by the wind and insects takes place, and cross-breeding both on the

American and Jamaican plants is the result. When the corn ripens and the ears are gathered, remove from those grown on American plants, all the seeds that resemble the Jamaica seed, and from the Jamaica ears all the seed that resemble the original American seed. These are the ones to be planted to give the plants the hardiness of the native and the prolificness of the American progenitor. From these two chains I gathered ten bushels of corn, equal to fifty bushels to the acre. Almost every stalk produced two fine, large ears, a great many three, and there was not one stalk with only one ear. The cobs varied from fourteen to sixteen rows to the ear and were completely full up to the end of the stick. I planted another two square chains in the fall, but weather conditions were against me, and the result was unsatisfactory. But for spring planting this year, I got seed from Mr. M. H. M. Farquharson of Cornwall, St. Elizabeth, who has been conducting the like experiments, and I planted one and one-quarter acres on the hill system,—that is, by making small hills with the hoe in the open field that had been well mulched, planting three seed on each hill in rows three feet apart each way. I planted this corn on the 15th February, 1910; I reaped it in the last week of July and got sixty bushels from the acre and the quarter. Splendid corn, the cobs ranging from fourteen to eighteen rows and of fairly good length. I have planted for fall crop two and one-half acres of this seed on the hill system, choosing only sixteen-row cobs, and I have planted a patch of one square chain in rows of the eighteen-row ones, and I am distributing the balance of the eighteen-row ones amongst the members of the Branches in my district, who will undertake to cultivate in accordance with my instructions and report the result.

I think I have now said enough to prove that a little extra care and attention in the cultivation of maize, will enable us to grow our own corn supplies and thus save the nearly £60,000 a year we are now sending to America for corn and corn products, besides effecting other economies directly flowing from good maize cultivation.

BANANA NOTES FOR OCTOBER.

By H. Q. Levy, Agricultural Instructor.

Suckering Bananas.—This is the month when all bananas should be suckered, and the suckering should be of a different kind to that done at any other time of the year. It is now the time to make your final choice of suckers for the spring of 1912. The "peepers" *i.e.*, suckers about four to six inches high that were left in July, on first and second ratoons, should have grown to about two feet six inches to three feet high. All but one on each parent plant must be taken out. If bananas are planted fourteen by fourteen, two may be left to each stool, if twelve by twelve, each alternate stool should have two and the intermediate one a single sucker; distances closer than this, each stool should only be allowed one

sucker. It is quite a mistake to crowd your fields with suckers so as to get a large number of bunches; it is better to go on the selective principle, giving each root plenty of light and air, for it is only by so doing that there is any likelihood of the planter being able to bring in a spring crop after cutting the first or plant crop. In "plants," if the suckers are *well advanced*, or *fully grown*, which they should be by the second week of October, "peepers" ought now to be left, one to each sucker; if they happen to be backward, then taller suckers must be left. Old bananas and those that are thick and heavily shaded, should have sword suckers fully five to six feet high now. In all suckering, be careful not to have your 1912 "followers" on old stumps, or suckers, the fruit of which will soon be cut. Such followers will only develop into "water suckers." Be also careful not to injure more roots than are absolutely necessary. Round pointed cutlasses ought never to be used for suckering; they destroy too many of the main roots, and cannot in heavy soils, be pushed down far enough to kill the heart eye.

SUPPLYING OLD FIELDS.—Most progressive banana planters now-a-days, replant their fields after the fourth or fifth ratoons, some even earlier, but there are quite a number of cultivators who run on their fields for years longer. These fields in time develop open spots, and it is surprising how few take any trouble to fill up such gaps. They seem to forget the expenditure for cleaning goes on all the same, as they are very seldom large enough to be advantageously left uncleaned. These open spots can easily be filled in, by planting good sized "sword suckers" say five to six feet high, but no larger; if the space is a large one, the suckers should be planted in line. This is a good month for doing any such supplying. After planting, give each root a forking for a distance of say three feet round. Generally, I do not advocate the planting of "sword suckers," but for this particular object they will be found to answer very much better than "heads" or "bits."

TIME OF PLANTING,—This is *not* the month for planting new fields of bananas. Those who advocate planting in October so as to reap a spring crop, either do not plant or cultivate in the correct way, or have tried no other time. A planter stands a better chance of regulating his crop for the spring by planting in February than in October. I know this is quite in opposition to the popular belief. The higher you are in the hills, the later you should plant. The atmosphere and earth remains cold for a longer period in the mountains than in the lower elevations and the plains. Hence, bananas planted in October make a feeble growth of a foot or two and remain at that until the month of February or March before making a fresh start, whereas those planted in February or March, start right away, and never having had their growth checked or stunted, make far healthier suckers, and will be found to come in just as early, if not earlier, than those planted in October. Again, in the hills, the plants have not the hot winds and scorching sun to deal with, but get a more regular and evenly distributed rainfall through-

out the growing period. Those planters in the higher elevations who gave up October planting for February this year, should not be disheartened if their plants are not as far advanced as they should be, for on account of the prolonged spell of cold weather, continuing quite to the end of May, the plants got a bad set back at the start, and were unable to make the usual rapid development after "peeping" through the ground; then in certain districts, exceptional dry weather prevailed for a considerable time after planting, and this also retarded the plants. If failure has attended you this time, my advice is try again. There is nothing gained by planting before February, except you have to do so to obtain the necessary labour.

SOIL INSECTICIDES.

For the destruction of insects in the soil which damage the roots of plants, there are several preparations in the market. These principally aimed at killing such pests as wire worm, which caused great loss in root crops like potatoes, but it was thought such preparations might kill the pests which attack the roots of some of our economic trees in Jamaica, or at least act as a deterrent. Two of these preparations were tried, their proprietary names being Vaporite, owned by Messrs. Strawson & Sons, Ltd., Spencer House, South Place, London. E.C., and Apterite, owned by Messrs. Wm. Cooper & Nephews, Berkhampsted.

We procured samples of these and sent them out to various planters, the principal aim being to find whether they would kill the grubs which have been causing such trouble among our cocoa trees by eating the heart of the roots in the same way as the larvae of the fiddler beetle did at one time to our cultivated orange trees. The cocoa grub is the larva of a similar weevil. The testimony is conflicting, and one cannot but think that the directions for the use of Apterite and Vaporite have not always been carefully observed. They act by being mixed, that is, worked into the soil, not by being sprinkled on the top. Both preparations are in the form of powders. In contact with damp soil, they give off fumes strongly which penetrate the soil and kill all insect life. The soil must be loosened and the powder must be worked into it. Mr. John Lockett at Troja, reported that his experiments were not continued long enough (and we had no more of the powder) to say definitely whether the Apterite tried did kill the cocoa grubs, but he thought their attacks were deterred anyhow, and the trees improved in appearance, but he was certain that the Apterite drove off stinging ants, and no doubt would act upon white ants also. Mr. D. Campbell at Linstead, reported he had not found Apterite to have the slightest effect on the cocoa grubs.

We think further trials are worth while, as only extended tests can tell whether the "soil preparations," as these proprietary in-

secticides are often termed, can help us in our fights against the grubs which are found to eat the roots of cocoa trees.

We have now procured a fresh supply of Apterite, which we shall sell at 3d. per pound, and we shall be glad to hear from any who have carried out complete tests, as to the deductions arrived at.

PROTECTION OF ANIMALS.

THOSE who are carrying out the purposes of the Society for the Protection of Animals, are doing work that has long been needed in Jamaica. Their efforts on behalf of domestic animals are not hysterical (save occasionally some well-meaning but purblind enthusiast, such as often brings good causes to ridicule), but are founded on reason and are meant to be carried through with judgment. They do not, no more than do we, desire anyone to keep pigs in fancy houses covered with blankets and to be washed daily with sunlight soap; nor do they desire to see dogs so stuffed with food that they can hardly walk: nor is it their aim that horses and mules should not do a good day's work and should not receive a touch of the whip when necessary,—some animals, like men, are lazy and indifferent, and will not do any more than they can help,—but all that is entirely different from owners of animals being utterly unconcerned as to what treatment they subject their stock.

It is the business of the State to see that animals are not maltreated, and just as there are associations to help the State to carry out duties to human beings, so there is this Society to help the State in the protection of animals.

* * *

Human life should not be neglected by the State, nor is it: we have District Medical Officers, hospitals and nurses. Then human beings have speech, freedom of movement, and family ties that bind the one to help the other in sickness, while humanity gives ready response to the calls of suffering humanity. Humans bring ills upon themselves owing to their individual freedom to do as they please with themselves. But humanity has duties to perform to other than humans. We have taken it upon ourselves to keep in domesticity what we are pleased to call the lower animals, and we, to a large extent, depend upon them for our existence. Apart from responsibility as sentient beings towards other sentient beings, to provide them with ample food, sufficient shelter, and care in sickness, our commercial interests—the interests of every man or woman who keeps a horse, cow, goat or pig—should spur us on to see that our live stock are kept healthy, that no infectious or contagious disease spreads among them. We are afraid that it is often the pocket interests more than humanity—sometimes pride in our stock—that spurs us on to any endeavour to do our duty towards them.

If there are some in this community who sneer at prompt efforts to protect the interests of our stock, and use the absolutely [illegible] argument that because disease is rife among mankind, be-

cause children are neglected by their parents, all efforts should be concentrated on suffering humanity, there are fortunately for them and humanity, men and women whose minds and efforts are comprehensive enough to include both. Our daily well-being is too closely associated with the well-being of animals for the latter to be neglected.

We have always found that those most ready to help suffering animals, are also those ever willing to help suffering humanity.

POTATOES.

THOSE who are going to plant some and have not had previous experience, should bear in mind the following :—

As Irish potatoes make their growth and mature their crop within three months, they are greedy feeders, so must have rich soil, well pulverised, so that the fine rootlets may find their food readily and the tuber may have no opposition from hard dirt in forming and swelling. To begin with, select a piece of rich soil, or if you have only ordinary soil available, make it rich with manure. Even guinea grass roots turned over and allowed to rot will make good manure for potatoes, and old pasture land, too, ploughed and left to weather will make good potato soil. Fork the land deeply, and this can be done in big clods, leaving the ground to lie in the rough for a month, when the sun, rain and the breeze, will soon weather it and make it crumbly; then fine it down, and make drills from two feet to two feet six inches apart, (even three feet for plough cultivation) and six inches deep. If you have not especially good soil and have not enough manure, prepare long ahead for potatoes by growing a thick crop of cowpeas on the land, and having them dug in in a month or six weeks ahead of planting the potatoes. If you are adding manure, it is better incorporated with the soil beforehand rather than put in the drills. Plant the potatoes nine to twelve inches apart, according to size of seed used.

If the potatoes are beginning to sprout when they arrive, they should be planted right away, and if they are larger than a pigeon's egg, as they usually are, if not selected specially, they should be cut in two or three pieces or sets, leaving one or two eyes to each portion, and the cut face should be immediately rubbed in wood ashes to preserve it from rot, and be planted right away if possible. If the potatoes are not sprouted they should be kept over in a cool place exposed to light but not sun, until the sprouts appear, and if they are slow to sprout, damp straw or trash can be spread over them to force them. Cover the tops of the seed at least three inches deep in dry districts, leaving a hollow to show the drills: and in wet districts plant an inch or so shallower and cover almost level. When the shoots are above the ground three or four inches, they should be lightly hilled up, by having the soil from between the drills loosened and drawn up to the plants and later when they have grown larger they should get another hilling up. By this system in

dry districts where moisture requires to be conserved, the potatoes will not thus be on high ridges, but will only be a little above the level; in wet districts they will be well ridged. Nothing more needs to be done except that if rains come with hot sun afterwards and the soil cakes, it is beneficial to break the caking of the soil and leave it loose again. In very dry districts, a heavy mulch between the rows will secure a crop even if there is no rain.

There are different systems of growing potatoes and even in our small Island, methods differ according to climate. In the lowlands we plant only in November, the first or second week, as soon as the usual heavy rains are over, the land being ploughed up roughly, a month before the rains.

In a dry district we plant deeper than where rain is sure, may be heavy. In a very dry district we do not hill or ridge but mulch; in a moderately dry locality, we hill only a little: where there is plenty of rain and cloudy skies, we hill up as they do in the north but not quite so much. Sweet potatoes require hilling as they require plenty of heat at all times for transforming the starch into sugar, but Irish potatoes must be kept cool and moist.

RUBBER: ITS USES COMMERCIALLY.

THE following is an excerpt from a recent issue of *The Tropical Agriculturist* of Ceylon. The difference between india-rubber and gutta-percha, stated briefly, is as follows: rubber is elastic, while gutta-percha is plastic, that is to say, if rubber is stretched it will return to its original form when released, while gutta-percha will stay in any form into which it is forced. Hence their different uses for telegraphy, golf, etc. Gutta-percha also is obtained from an entirely different tree than rubber, and is found in the Malay Peninsula.

The commercial uses of rubber are very numerous, and it is difficult to assign to the various branches of manufacturing their order of importance as consumers of the raw product. Rubber is chiefly used for making rubber boots and shoes, tyres, water-proofing, hose piping, insulating covers, machinery belting, elastic thread, and webbing. But it is also put to a host of minor uses, such as tennis and golf ball making, corrugated rubber matting, pipe joints, india-rubber corks, india-rubber door stops, india-rubber gloves and gauntlets, hot water bottles, pencil erasers, and so forth. Of course, india-rubber is seldom used alone, being combined with various substances, according to the purpose to which it has to be put. It is, however, almost invariably vulcanised, that is to say, mixed with varying quantities of sulphur. If a large quantity of sulphur is used vulcanite is the product.

We have endeavoured to obtain figures showing the amounts of raw rubber consumed by the various rubber industries, but, un-

fortunately, this has been found impossible. A well-known Mincing Lane rubber broker expressed the opinion that until quite recently the manufacture of rubber boots and shoes used up the most rubber, but that in the last year or two, the consumption of rubber in tyre-making has taken the first place. It is this tremendous demand for rubber on the part of tyre-making firms, especially in America, that is mainly responsible for the present high price of raw rubber.

To deal with the various rubber-making industries separately, let us take first the manufacture of rubber boots and shoes. From the interesting Quarter Century Special Supplement of *The India Rubber Journal*, we learn that the earliest attempts to manufacture india-rubber boots and shoes in England were made in the twenties and thirties of the last century; but it was not until about 1854 that the trade was really established. Since that time a large number of companies have started, and the development of the trade has been very great. Rubber boots and shoes have been made for every market in the world, with special shapes to suit the foot-wear of the country. The extraordinary shapes for the Chinese, who have always been large purchasers of rubber shoes, are perhaps the most peculiar. The *Journal* goes on to point out that rubber boots and shoes have never been really popular in the United Kingdom and are chiefly made for export. But, of course, there is a large consumption of rubber for the soles of tennis shoes and in other sports.

The tyre industry, which consumes enormous quantities of rubber, is only about twenty-five years old, though a patent was granted in 1845 to a Mr. R. W. Thompson, for an elastic tyre. This tyre was constructed almost on the same principles as the Dunlop tyre, but it was invented far before there was any use for it, and it was not until Dunlop took out a patent in 1888 for a pneumatic tyre that the industry really began to develop. Solid tyres were, of course, in use before this date, and were first used for cabs in 1861. The tyre industry has developed in conjunction with the bicycle and motor industries, and it is the tremendous growth of the latter, as we have said, that mainly accounts for the rubber boom.

India-rubber has been employed for waterproofing garments for a long time. As early as 1791, one Samuel Peel took out a patent for waterproofing garments, using caoutchouc dissolved in turpentine. Of course, the name of Macintosh is historic in connection with waterproof fabrics. It was in 1823 that Charles Macintosh took out his first patent for rendering textures impervious to water and air by means of rubber. Paraffin wax has recently been supplanting rubber to a certain extent as a waterproofing material; but the development of motoring, as in the case of tyres, has come to the aid of this branch of the rubber industry, for textures waterproofed with rubber are best adapted to keeping out rain, wind, and dust in an open car.

Rubber is largely used in the making of hose pipes. The first rubber hose on record was manufactured in 1827 by Charles Macin-

follow the use of the syringe) should have two injections of three to four quarts of lukewarm water, first using enough *Permanganate* of Potash to colour the water pink (a mere pinch will do this), at an interval of three days: then the following week twice, and before service an injection of four quarts of warm water in which has been dissolved one ounce of *Bi-carbonate* of Potash. Meantime give every day in damped food or as a drench, for a week before service is timed, Bi-carbonate of potash, two drachams, Nux Vomica, one dracham, Gentian, five drachams, mixed.

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Red Mange in Dogs.—Many treatments of this unsightly and very contagious disease among dogs, fail because the diet is not attended to. Many writers on the subject simply say feed on such and such a diet, whereas, the disease may be caused in part by different diets yet both heating, and the principle is to change the diet whatever it has been. If the diet has been largely flesh meat, change to one that is largely farinaceous: if the diet has been on the contrary largely or chiefly cornmeal porridge, change it to thick soups made of cheap bones and vegetables, letting the dogs gnaw the bones afterwards. The vegetables will cool the blood. Wash the skin clean with Jeyes and water; then take three parts castor oil, one of kerosene, one of flowers of sulphur, and making sure to shake the bottle of this mixture before using, take a little on a cloth and rub it into the dog's skin. Do this every second day for a week, then stop and use only the Jeyes and water for a week, and begin the sulphur and oil treatment again. Whenever the scabs are gone and a clean healthy skin appears, use the sulphur and oil treatment only once a week, but continue the Jeyes wash every day. The dog licks itself and so gets doses of sulphur and oil and they do it good.

Internally, administer twice a day until better, in food, twenty grains of granulated soda hyposulphite, first dissolved in water. The treatment usually requires to be kept up for six weeks vigorously, and it may take six months before the skin and hair are all right.

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Values of Foods.—It is also of great economical value to the stock feeder to know something of the food value of different food stuffs. Tables of analyses often differ because the same kinds of food vary sometimes a good deal according to the country they are grown in.

There is, for instance, a decided difference in the food value of American corn and Jamaica corn,—the former is the more floury, the latter contains more protein or the flesh-forming element, which element is the standard that sets the price of feeding stuffs. But if the Jamaica corn is not thoroughly dried (as the American always is) the advantage would be the other way. There can be thus considerable differences in the real value in what we may pay the same price for.

A bushel of heavy Scotch oats (not less than forty pounds to the bushel) may be of greater food value than a bushel of corn (maize) yet one must figure out the relative prices to get the exact value to the feeder.

Furthermore, tables of analyses are not always to be depended upon to find out the real value to the stock, so much depends upon the digestibility of the foods,—what the animal can get out of them. This can be found out by the feeder by watching closely the condition of his animals. Still further, certain combinations give more value than others, one food seeming to help on the other. For instance, in stock feeding in the north, roots are of no great value by chemical analysis, yet turnips are indispensable to the beasts. So hay is a more concentrated food than grass but cows give more milk on grass than hay. The skill of the feeder lies in his ability in finding out the most profitable combinations.

RUBBER YIELDS IN JAMAICA.

FROM the reports of the results of the experimental tests in tapping Castilloa rubber trees made in St. Thomas-ye-Vale, St. Mary, St. Thomas-ye-East and Portland, we are glad to note a continuation of good yields. On one of Dr. Pringle's estates in St. Mary, the results have been surprisingly large. The average rainfall of the estate is fifty-seven inches, the rubber trees are standing through bananas and cocoa; the yields of the bananas and cocoa are some of the best on any St. Mary estate, and the three products appear to grow amicably together so far. The soil is probably very rich, however. Trees between seven and eight years old gave eleven ounces; a tree between eleven and twelve years old, gave two pounds one ounce, and another tree the same age, one pound eleven ounces.

In St. Thomas-ye-Vale the trees did not yield nearly so much although we think, promising, giving yields of three and four ounces at one tapping. Here the average rainfall is about eighty-five inches, but the tappings were made in July when the trees were seeding and after two months of drought.

In St. Thomas-ye-East at 1,300 feet elevation, trees planted from seed in September, 1903, and grown in the bush, gave yields of nine ounces, and trees ten years old on a different estate in the same parish, gave seven ounces at one tapping. Mr. Briscoe, the Instructor, thinks that July and August is not the best time of the year to tap, but probably the state of the weather has more to do with differences of yield than the month.

In Portland, Mr. Wates reports that he again tapped the same twenty-one trees from which he had secured four pounds thirteen ounces in May and June; in August and September he secured six pounds ten ounces of dry rubber. From another group of eleven Castilloa trees left on one-sixth of a chain of land, formerly used as

a nursery and crowded with other trees, two of the eleven being rotted on one side from illtreatment, he secured at one tapping, twenty-three ounces of dry rubber. Thus one-sixth of a chain having given at one tapping one pound seven ounces, therefore (Mr. Wates' figures) on the same lines an acre should give eighty-six pounds at one tapping, or with four quarterly tappings in the year, 344 pounds, which at $1 per pound would give £68 16s.

According to present yields and time taken to tap, the whole cost of producing rubber in Jamaica should not be more than 1/6 per pound. We have yet to find, however, how often per annum the trees can be tapped safely.

We shall publish further matter on rubber in Jamaica, in the next issue.

Meantime we know that Castilloa rubber trees grow surely and rapidly in Jamaica on poor as well as rich soil, under the same conditions of climate in which our bananas and cocoa grow, and that they yield satisfactorily.

SHOWS TO BE HELD.

Santa Cruz, at Northampton (St. Elizabeth)	9th November
Manchester, at Kendal - -	1st December
Hanover Show, at Lucea - -	1st December
Maidstone Show (Manchester) -	— January
Grand Cayman - -	20th December

The Pratville Branch (South Manchester) is also trying to arrange for a small show to stir up the district.

It is a pity that there are two shows arranged for the same date.

COMMENTS.

THE SECRETARY.—The Secretary returned from his leave of absence on Thursday, 29th September, and resumed his duties.

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SUBSCRIPTIONS.—Members of the Society who have not yet paid their subscriptions for the current year, please note to send us the 4/- as soon as they read this paragraph.

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POTATOES.—By the time this JOURNAL is in the hands of the readers, we shall have a supply of seed potatoes. We only import to order, but usually have a few barrels over.

The land to grow potatoes should have been well broken up a month ago at least, as if left till just before planting, it costs more to get the soil into good condition. A lumpy soil will not give good results, it must be made fine, and if not naturally rich must have manure added.

VEGETABLES.—We are later this year in getting out our supply of vegetable seeds, but should have these in hand before the end of the month. Any reader who finds difficulty in getting supplies of reliable seeds from local dealers can send to us. Threepence per packet.

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LIST OF SEEDS STOCKED.—Beet (crimson and streaked), Pole Beans, Cabbage (Succession and Drumhead), Carrots (half long and short), Cucumber (long and short), Egg Plant (purple), Kohl Rabi (early), Lettuce (head and leaf), Melons (water and musk), Okra (white velvet), Onion (Bermuda), Parsley (curled), Pumpkin (mixed), Tomato (Tenderloin, Perfection and Stone), Turnip (white, purple-top, Swede), Seed Corn (maize), Guinea Corn, Broom Corn, Tobacco, Bengal Beans.

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ADVERTISEMENTS.—In the advertisement of Fertilisers of Messrs. Wessels Bros. and Von Gontard, appearing this month, the price 8/- per bag, has reference to Argentine Corn and not to the Fertiliser. An advertisement of Argentine corn for sale by Messrs. Wessels Bros., at 8/- per two-bushel bag, will appear in the JOURNAL for November.

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BRANCHES.—Branch Secretaries might note to write a special paragraph in their December or January reports about the seasons that have prevailed in their districts during this year. The weather has been so erratic and uncertain since 1907, and so many derogatory remarks have been passed upon it that as it appears to have behaved very decently to us over most of the Island since July, it should make good reading for the wind up of the year, especially if, as appears likely, there is a continuation of the present showers until the end of the year. At any rate, all vegetation in the country at present, looks green and verdant.

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IMPORTATION OF QUEEN BEES.—The new regulations regarding the importation of Queen Bees, do not appear to be well understood yet judging from letters received here. There were objections raised to the idea at first, as bee-keepers thought that any regulations at all would be an interference with their liberty; but it was explained how much havoc had been worked in other parts of the world through the Foul Brood scourge, that this regulation was a protection to them individually as well as to the Island, and that instead of being a drawback otherwise it was really an advantage to them. All the bee-keeper has to do in ordering as usual is to ask that the bees be addressed to him, care of the Hon. Director of Agriculture, Hope Gardens, Kingston. The bees will be delivered to the Director, and the expert bee-keeper who is engaged in connection with the Farm School at Hope, will then open the parcel, destroy

the companion bees, destroy the candy, and substitute fresh bees and fresh candy; then the queen bees will be remailed. Instead of the queen bees suffering from this, the immediate attention given on their arrival in Kingston will refresh and invigorate them for the further postal journey.

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Cocoa in St. Thomas-ye-East.—In order to encourage the planting of a valuable permanent crop like cocoa in St. Thomas-ye-East, where the conditions are typical for the growing of cocoa, it was arranged by the Department of Agriculture to take up the old Bath Gardens which were lying neglected, and use the land there as a cocoa nursery, so that the plants could be distributed free. Mr. Thomas was appointed to take charge of this nursery. Mr. Wates, the Agricultural Instructor, reports that Mr. Thomas has now a very good display of cocoa plants, numbering about 12,000 ready for distribution, and that distribution has now begun. The raising of the cocoa plants is only one part of the work: it has been arranged that Mr. Thomas follow them up and see that the plants are planted in good shape, that is, he will visit the lands of small settlers and others, and give instruction on planting and growing the young cocoa plants.

This work should lead to a very large increase in the number of healthy and thriving cocoa trees in St. Thomas, and to a largely increased output of cocoa in the next six years. In the eastern part of St. Thomas cocoa grows very luxuriantly, but very little care has hitherto been taken by small settlers of their trees. The instructoral work also includes the getting of neglected cocoa cultivations into good shape. All this is work that should yield a very large return on the amount expended for Instructors.

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Guinea Corn.—There are several varieties of guinea corn grown in the Island, and of some of them the birds are particularly fond. Each variety has its certain uses to suit certain conditions. The quickest grower and the best for chicken feed is the Red Branching Doura. Sometimes we have had this within two months, and it can be planted any time of the year there is rain. The most prolific in vegetation is the old White Guinea Corn, but it is slow to grow and must be planted at certain times in certain districts. It usually seeds in January. The birds seem fondest of these two varieties. Of course if everybody was growing guinea corn all through the country, the attacks of birds would be so well distributed that they would not be felt so much, but at present where there are only a few patches of guinea corn and only one or two large plantations the attacks are serious.

In the Island of Curacoa in the Dutch West Indies, where guinea corn is very largely grown, they use "Scares" to keep off birds made as follows. A pole usually about eight feet high above

the ground is put in the middle of the field if it is a small one, (several poles if a large field) and this height is usually high enough when there is a good breeze; on the top of this there is a fan with four ends, windmill shape, and on the ends there is a link of chain fastened with a piece of wire. Below there is an empty kerosene tin nailed so that the distance between the centre of the fan and the tin is one inch shorter than from centre of the fan to the end of link. In this way when the fan is moved by the wind the links hammer on the tin and make a deal of noise.

This seems to be an effective scarer of birds in Curacoa.

Still not much of this crop, valuable alike for man and beast, is being grown. The supply of seed is always precarious, at least in any quantity. A good crop, however, has been grown at the Farm School at Hope, and we have secured seed from these. Anyone wishing small quantities from a threepenny packet to a bushel, can write to us.

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KENDAL SHOW.—This old established Show will be held at Kendal on the 1st December. We need hardly say much about Kendal Show as it is so well known. Kendal is a grand centre for all parts of the Island to reach, the grounds are beautiful, always in *good condition, well shaded and near the station.* The Secretary is, as usual, Mr. G. A. Bonitto, Mandeville.

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KINGSTON SHOW.—The Prize List of the great Agricultural Show to be held at Knutsford Park, near Kingston, on February 15, 1911, is now being issued. It is a very attractive list covering almost every kind of stock and product that the Island can produce, while the prizes are substantial.

The Agricultural Society is offering special prizes of £4 and £3 as first and second prizes for the best collection of agricultural products shown by a Branch Society. These are substantial prizes and are worth while competing for. These Branch exhibits will be shown separately from the others and arrangements will be made for the Railway Company to get them to Kingston and back easily. *We shall be glad if Branches will discuss this matter of being represented* and let us know if they intend to compete so that adequate space may be arranged.

In addition to the Branch exhibits we hope that members of Branches will compete largely in the general competitions.

BEWARE of little expense; a small leak will sink a great ship. *Franklin.*

BRANCH NOTES.

Scott's Hall (St. Mary).—The regular monthly meeting of this Branch took place in the Schoolroom at four p.m. on the 18th August. There were present: Rev. J. Gordon Hay, in the chair; Mr. G. O. Hanson, Secretary; Mrs. J. Jonas, and seventeen other members. Messrs. F. Davis, R. Pink, E. Holmes, G. Nugent, and Miss M. Jonas were present as visitors. The meeting opened with prayer followed by the reading and confirmation of the minutes of last meeting. The members were pleased to hear that the Secretary again won first prize for garden eggs at the Buff Bay Show and they heartily congratulated him. On the motion of the President, Messrs. Davis, Holmes, Nugent and Miss Jonas became members. This brings up the membership of the Society to forty-four. Several minor matters were dealt with after which the Secretary read the petition which he has drafted for the appointment of two gentlemen as *justices of the peace. All present were in full accordance and congratu*lated him on the movement with the hope that the Custos may see his way to have the gentlemen appointed. The branch road from Pitfield to the bridge on the Junction Road came on for discussion. This being a crying need the Secretary was instructed to draft a petition to the Board asking that this road be granted. It was further decided that Messrs. Davis, Northover, and Byfield, should take the Secretary along the proposed route and give him such information as he may require, he being a stranger to this route. The President suggested that the programme should be changed for the future so as to allow the ladies to take more active part, as well as creating more interest and widening the views of the members on some useful subjects. At the next meetiug therefore, the Secretary will read a paper on "Dignity," and Mrs. Hanson and Miss Smith will render a song each. The National Anthem was sung and the meeting came to a close.—G. O. HANSON, Secretary.

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Upper Metcalfe (St. Mary.)—A regular meeting of this Branch was held in the Brainerd Schoolroom on Thursday, the 18th August. The minutes of the last meeting were read and confirmed. Mr. H. S. Lynch was appointed Secretary and Miss L. Witter Assistant Secretary. The meeting was again favoured with the presence of Mr. Cradwick, Travelling Instructor, who gave a very inspiring address. He first dealt with *the Prize* Holdings Competition, and wished that the members would awaken to the privileges given them. The Shows were then spoken about. Mr. Cradwick thought that only members of Branch Societies should compete free at the Shows, whilst the non-members should pay a special fee. We know some people purchase exhibits and send them to the Shows, thus winning the best prizes. These professional exhibitors must be shut out. Shows are intended to show the products of the Island, hence small settlers *should not be discouraged. Let all Societies consider whether it would* be better to have smaller Shows wherein a few Branches could be well represented, than to have large ones. The cocoa disease was next brought up. Mr. Cradwick had treated some cocoa trees belonging to Mr. S. A. Schleifer, and these trees are making great improvement. He hopes to visit the plantations of the members and treat the cocoa trees, so as to stamp out the disease. Later on, this Society through the kind help of Mr. Cradwick, hopes to be favoured with the presence of Mr. Simmonds, who it is hoped, will help the Society in many respects. A vote of thanks was accorded Mr. Cradwick for his valuable and interesting address. Mr. Lynch was asked to revive the social interest of the meeting, and it is hoped that the next meeting will be an exceptional one. Several mem-

bers paid their subscription. After the roll-call, the meeting was adjourned.—L. M. WITTER. Assistant Secretary.

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Stewart Town (Trelawny).—The regular monthly meeting of this Branch was held for the transaction of business on Thursday, evening, August 25th. In the absence of the President, the meeting was called to order by Mr. John Stockhausen, who has always been requested to fill the position. The following were the members present:—Messrs. John Stockhausen, H. Q. Levy, and E. Arnett (Agricultural Instructors), W. N. Dougal, Richard Hall, James Johnson, Chas. McFarlane, Thos. Moreland, John T. Dale, John Sieveright, and the Secretary. Mr. Louis Grant, a visitor, was also present. The minutes of meeting held June 2nd, were read and confirmed. The minutes of Special Committee meeting held July 7th, to consider the appropriation of show funds, were also read. The suggestions embodied the following: (1) The establishment of a Loan Bank, with a nucleus of £15: (2) a Prize Holdings Competition confined to the district embracing Stewart Town, First Hill, Jackson Town and Sawyers: (3) obtaining an improved breed of pig—a boar—for the use of the Society. Mr. Levy rose to a point of order, and stated that the Prize Holdings Competition in connection with the Branch was only a part of his suggestion. He had also suggested the getting of an improved breed of pig and goat. The different suggestions put forward as to how the surplus fund of the recent Show should be appropriated were discussed *seriatim*. Mr. Chas. McFarlane's suggestion that a Loan Bank in connection with the Branch be established, which was favoured by the members, was lengthily discussed. Mr. Arnett pointed out the difficulties in carrying out a Loan Bank Scheme. He considered the idea a good one if it were found to be workable. If a Loan Bank were established it would have to be carefully worked. He thought £15 would be too small an amount to grant loans: the amount would have to be increased by means of shares of 2/6 to bring it up to £25. He was not sure if the suggested Loan Bank would be of any real advantage to the persons whom it was intended to benefit. He cited the Christiana Branch as an instance. A Loan Bank was started some time ago in connection with that Branch, but the persons it was intended to benefit were unable to derive the benefit, and those who could get the money did not need it, and so the money is locked up. Personally he was not in sympathy with the starting of a Loan Bank, as he belived it would ultimately bring trouble if loans were given and not recovered at the time fixed. Still, if it is the wish of the Branch to start a Loan Bank he would not be opposed to it. Mr. Levy said the surplus funds of the Show is money in trust, and the members of the Branch are the Trustees. If a Loan Bank be started, real estate would have to be given as security. He mentioned to some of the subscribers to the Show Fund, the idea of utilising a portion of the surplus money to establish a Loan Bank, and they were deadly opposed to it. For whatever purpose the money be decided to be used, a portion of it must be reserved for a future Show. He did not see that any advantage would accrue from a Loan Bank. The Loan Bank Scheme was too ambitious—the Branch was not yet ripe for it. There is a law regulating Loan Banks. Proper books would have to be kept, and these books would cost about £5; rules would have to be drawn up, and the rule-books printed: the expenses would probably amount to £10. Where would be the wisdom, therefore, of spending £10 to get £15? He and Mr. Arnett were present only to advise. They were not opposed to the scheme, but they were only pointing out the difficulties. Their desire was to forward whatever will be for the benefit of the members. Mr. Stockhausen thought the Loan Bank would be a good idea if it were workable. He, like the Instructors, was not opposed to the money being used for the benefit of the members. The subject being discussed from various standpoints, and its working being found impracticable, the following resolution moved by Mr. Chas. McFarlane, seconded by Mr. Thos. Moreland, was unanimously

carried :—"That in view of all the difficulties placed before us in the way of establishing a Loan Bank the proposal be withdrawn." Mr. Levy's Prize Holdings Competition Scheme now came up for discussion. It is as follows :—That a part of the surplus money, say £10, be applied to a local Prize Holdings Competition confined to the members of the Branch, the area embracing Stewart Town, Jackson Town, First Hill, and Sawyers. The prizes to be awarded for the greatest amount of improvement shown on the holdings within a year or at most eighteen months, be as follows : first prize, £4 ; second prize, £3 ; third prize, £2 ; fourth prize, £1 ; fifth prize 10/- ; and sixth prize, 5/. The meeting was in agreement with the proposal, but the members present whom the scheme would directly affect, stated that for various reasons they would be unable to compete, although they would do all in their power to keep their holdings in order. It was agreed that a Committee be appointed to outline the scheme. The following members were appointed to serve on the Committee :—Messrs. Levy, Arnett, J. Stockhausen, A. N. Bernard, W. N. Dougal and the Secretary. Mr. McFarlane was asked, but he declined. The Committee will meet on Friday, September 9th, at four p.m. The meeting will be open to any member of the Branch who desires to attend. The next matter attended to was that relative to the purchase of a boar for the Society's use. On the suggestion of Mr. Stockhausen, the Instructors were asked to seek out and engage a suitable boar for the Branch for improving the breed of pigs in the district. It was agreed that the price does not exceed £4. Mr. Arnett promised to look out for one as he will, within the next two weeks, be travelling through St. Mary and St. Ann ; and he was sure to obtain a suitable one in either of these parishes. The question of importing an English boar was touched upon, but it was explained that the expense of bringing it out would be too costly. The details of the keep of the boar to be arranged when he has been obtained. Mr. Moreland proposed that an improved breed of billy goat be purchased for the Branch. This was agreed to and Mr. Arnett was asked to sell us one of his improved breed of goats—the Anglo-Swiss or Anglo-Nubian. On the suggestion of Mr. Arnett, a member of the Branch, Mr. John Sieveright, was appointed to accompany the Instructor, Mr. Levy, to Gibraltar to see the goat, decide whether it will suit us and select. The Treasurer was instructed to lodge the surplus money from the Show in the Government Savings Bank to the credit of the Branch, in the joint names of himself and the Secretary. A letter from the Acting Secretary of the Parent Society *re* the offering of two prizes of £4 and £3 at the Knutsford Park Agricultural Show in St. Andrew, during February, 1911, was read, and it was agreed that before any steps be taken the Secretary of the Branch write to the Acting Secretary of the Parent Society stating that we, as a Branch are interested, and if the Parent Society would approach the Steamship Company and ask them if they would help us by taking free our exhibits to Kingston, we would be very thankful. Mr. Dougal asked that if exhibits be sent to the Knutsford Park Show, what arrangements would be made for looking after them. Mr. Dougal was assured by Mr. Arnett that if we got the Steamship Company to help us by taking our exhibits *free*, there would be no trouble in looking after them at the Show. A lamp costing 15/6 was purchased for the Branch and used for the first time. The expenditure was approved. Mr. Stockhausen stated that he felt himself in an awkward position to be acting as President, and at the same time holding the office of Treasurer. He did not think it was right he should be filling the dual office. The President had not been attending, and the Vice-presidents had not been filling their positions, and he regularly had to preside over the meetings. If this is to continue he would like some one else to be appointed Treasurer. It was decided that the present arrangement continue until the end of the year. The cassava industry was brought up for discussion but as it was late, the subject was deferred for discussion at the next monthly meeting. Mr. Louis Grant

became a member, having paid his subscription. The singing of the National Anthem brought the meeting to a close at 10.20 p.m.—JOSIAH JOHNSON, Secretary.

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Porus (Manchester).—The usual monthly meeting of this Branch was held in the Church of England Schoolroom on Monday, 8th August, 1910. Twelve members along with the Instructor and some visitors were present. The Rev. J. N. Somerville was proposed and elected a member. The minutes of last meeting were read and confirmed. Of the business arising out of the minutes, the question of the pound fees was brought up but was left over until next meeting. The model ground was next considered. A Committee was appointed to visit the spot on Saturday, 13th, at ten a.m. The Vice-president is to be notified. Correspondence was read from the Acting Secretary of the Parent Society re the nomination of "authorised persons." The Secretary was instructed to refer the Acting Secretary of the Parent Society to July JOURNAL, page 267 of the Branch Notes. Correspondence was also received inviting this Branch to compete for the special prizes offered by the Parent Society at the Show to be held at Knutsford Park in February, 1911. We have decided to go in for the competition. The Rev. Somerville asked if nothing could be done in the manufacturing of cornmeal. He also spoke on the cultivation of sweet and Irish potatoes and cassava starch for which, he said, he would be able to get a market. At the place he had just left they have to use arrowroot starch as a substitute for starching clothes. The Instructor expressed his pleasure in welcoming the reverend gentleman and at hearing his remarks, and he too spoke emphatically on the corn question, quoting the American phrase which says: when prices are low, put it in the hoof. We can, he said, put it in the pigs, and he hopes with the united efforts of the two leaders of the Churches there will be aroused a greater interest among the people. He also spoke of the co-operative association which is now on foot, also the Agricultural Loan Bank, and what we suffer from most to-day, he urged, is the want of cheap capital, which is caused through the lack of combination and the lack of effort. The Rev. Somerville replied thanking the Instructor, and closed his discourse by saying that the seeds that he had sown in Green Island are now maturing, and the people there do not have the advantages of the people of this parish. The meeting then adjourned until the first Monday in September. After the adjournment the Instructor had a family talk on the social condition of life. After an enjoyable evening a vote of thanks to the Instructor was moved by the Rev. Somerville, and seconded by Mr. W. A. Morgan. The Instructor will read a paper on "Poultry" at next meeting.—C. ROWLAND, Secretary.

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Darliston (Westmoreland).—The quarterly meeting of this Branch was held at its usual place on Friday, 19th August, at nine a.m. Present: J. W. Mennell, Esq., President; C. J. Stewart, Esq., Vice-president; R. W. Smith, Esq., Treasurer; J. H. Hedley, Esq., Secretary, S. A. Schleifer, Esq., Agricultural Instructor, : Messrs. Joseph Stewart, Joseph Williams, David Williams, Joseph Leslie, James Stewart, S. J. Philp, James Levy, and Joseph Thompson (visitor). The minutes of last meetiug held 27th May last, were read and confirmed. Two letters from the Colonial Secretary dated 8th June and 11th August, of the present year, were read by the Chairman, J. W. Mennell, Esq., expressing His Majesty's (King George the Fifth's) approval of the resolution passed by this Branch of the Jamaica Agricultural Society respecting the death of His late Majesty King Edward, the Seventh. A letter from the Acting Secretary of the Parent Society inviting this Branch to compete with other Branches of the Agricultural Society at the forthcoming Knutsford Park Show which is to be held in February, 1911, was read. The Secretary was directed to write to the Acting Secretary of the Parent Society stating that the

Branch is too far to compete with other Branches at the Knutsford Park Show. A letter was also read from the Newmarket Branch, dated 2nd July last, asking this Branch for its co-operation at the next Newmarket Show, which is to be held on the 8th of December next. The Secretary was instructed to write to the Newmarket Branch telling it that the Darliston Branch as a Branch, does not pledge itself, but the individual members will do all that they can in sending exhibits. After some discussion on this subject (respecting the Newmarket Show) the Chairman introduced S. A. Schleifer, Esq., the New Agricultural Instructor, to the meeting. *Mr. Schleifer then made a few well-chosen remarks*, and assured the members present that he will try his best to assist them as much as he can. A vote of thanks was moved by Mr. C. J. Stewart to the Instructor for the remarks made. This vote of thanks was seconded by Mr. S. J. Philp and carried. Mr. Schleifer responded. Mr. C. J. Stewart said that the Government be asked to buy native corn for three months at least, during the year, instead of buying American corn all the time, with the understanding that this year be exempted. It was decided that this corn question be dealt with at next meeting. Several questions were asked the Instructor, which he answered clearly. Meeting adjourned to Friday, 18th November, at nine a.m., at the usual place.—J. H. HEDLEY, Secretary.

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St. John's (St. Catherine).—A regular meeting of this Branch was held at Kitson Town on Wednesday, 24*th* August, at seven p.m. All the members but six as well as over one hundred visitors were present. Among those present were: Messrs. F. A. Vernal, President; T. J. Richards, Vice-president; H. L. Mossman, Travelling Instructor; J. H. Gonzales, G. A. Bell, H. A. Smith, R. McBean, and S. A. Banton, Secretary. Letters were read (a) from the Acting Secretary relative to a resolution which was forwarded to the Board of Management *re* amendment of the Pound Laws; (b) from the Parent Society informing members and others of the oncoming Show at Knutsford Park during February, 1911; (c) from the Colonial Secretary's Office forwarding copies of despatches received from the Secretary of State for the Colonies. The President, in an interesting speech, introduced the lecturer. He said, that we have heat and air, but moisture which plants also require, he was afraid we had too little. Mr. Mossman, who was heartily cheered as he rose said, that he was pleased to be able to say that since he was appointed Travelling Instructor, the audience at Kitson Town was the largest he had ever met. From what he had read and saw he knew that we are suffering from lack of water. We should continue to approach the authorities and let them know our wants and in time we will get a suitable supply. He will assist us in whatever way he possibly can. He is trying to arrange his plans in order that he might be at every Branch meeting. His subject was cocoa. He said, among other things, cocoa is not indigenous to the West Indies. It was first found as a wild plant in Central and South American forests 1519, and was introduced in the West Indies in 1727. During that time the common people were not allowed to use it. He described graphically the different kinds of cocoa grown in Jamaica and how the trees should be treated. He drove home the lesson of "selection of seeds" to all. At the end of his lecture Mr. Mossman invited questions from the audience. Mr. Banton asked whether the soil of Kitson Town as far as he knew, would be suitable for rubber. The lecturer replied that he had not yet examined the soil, still he knew that Castilloa rubber grew and gave latex in profitable quantities on soils similar to that of Kitson Town. The Secretary said he had asked the question because he was at Rural Vale in Portland on the 8th, and he saw Mr. Wates tap rubber trees that gave—so he was told—a large quantity of latex on soil similar to this. The only doubt in his mind is that the climatic conditions of N.E. Portland differ considerably from here. On the motion of Mr. S. A. Banton, seconded by Mr. T. J. Richards, the following resolution was unanimously adopted:

"Knowing that great hardships exist among the inhabitants of this district from the lack of water, and realising that such hardships can be ameliorated by a judicious expenditure on the Kitson Town tank by the authorities, resolved that the Parochial Board—St. Catherine—be again respectfully asked to complete the Kitson Town tank in accordance with promises made in January 23rd, 1909. That this Society instructs its Secretary to remind the Board that no reply has as yet been received relative to resolutions *re* the construction of roads to Price Pen, Romalho and Kingland. That this Branch Society would like to know when these roads will be made." The meeting regretted that all stock cannot be protected, and protested against the suggestion that certain hogs should be protected *vide* JOURNAL for August. The Secretary was authorised to correspond with the Board of Management on this subject. Mr. Alex. Gonzales complained that he has not yet received his JOURNAL. The meeting adjourned until the 20th September, when Mr. Mossman the Instructor, will again be present. The water question will also be dealt with then.—S. A. BANTON, Secretary.

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Lucea (Hanover).—The third quarterly meeting of this Branch was held in the Court House, the Rev. J. M. McDonald in the chair. There was a good attendance of members. The minutes of meetings held on the 14th May and 18th June, were read and confirmed. The chairman introduced Mr. S. Schleifer, the new Agricultural Instructor, who was welcomed by the meeting. Mr. Schleifer thanked the Chairman and members for their welcome. The Rev. A. A. Barclay, Mt. Carmel, Clarendon, being present, was introduced to the meeting. He briefly addressed the meeting thanking it for its welcome. Read copy of despatches from the Earl of Crewe, Secretary of State for the Colonies, regarding the resolution of sympathy on the death of the late King, commanding that it should be made known throughout Jamaica, how profoundly touched he himself (King George), Her Majesty Queen Mary, and Her Majesty the Queen Mother, have been by the expressions of sorrow from all classes of the community in Jamaica, and the sympathy shown for them in their bereavement. His Majesty greatly appreciates the assurances of devotion and loyalty to His Majesty's throne and person. The Secretary reported that seventeen exhibits had been sent from the Hanover Agricultural Society to the Buff Bay Show, that seven prizes had been won, that the exhibits of cocoa were considered the best at the Show, and that he had been informed that they were being sent to the Toronto Exhibition. Satisfaction was expressed at this report. It was decided, after some discussion, that the Society pay the expenses connected with this, on the understanding that it is not to be regarded as a precedent. The Secretary stated that the firm of Messrs. L. Sanftleben & Sons, through the junior member of the firm, had given every assistance and facility in its power in the matter, and that the United Fruit Company had kindly taken the exhibits free of freight to Port Antonio and sent them on by train to Buff Bay. The Secretary was asked to convey the best thanks of the Society to these firms. Read letter of 1st June, from the Secretary of the Parent Society *re* the appointment of Mr. Schleifer as Agricultural Instructor. The contents were noted with satisfaction. Read letter from Sergeant-major Crank, 21st May, stating that the matter of the overdriving and over-loading of mule carts to which the Society called his attention, would have the attention of the police at Sandy Bay. Read letter from the Secretary of the Parent Society, 25th May and 29th June, *re* the question of petcharies referred to in these letters. It was decided to say that the Hanover Agricultural Society is surprised at the statement made at the half-yearly meeting of the Jamaica Agricultural Society by Mr. Douet, which was accepted by the Society, that Petcharies are not in Jamaica during the close season. The Hanover Agricultural Society would again bring the matter before the Jamaica Agricultural Society

asking that they be removed from the protected list. It would point out that there are two species of Petchary—the Jamaica Petchary, which is *indigenous* and is here always, and the grey Petchary, which is migratory. Read letter from the Secretary of the Parent Society re the judging of Prize Holdings. Mr. Schleifer gave it as his opinion that the holdings in Hanover would not be ready for judging before November. It was decided to suggest to the Jamaica Agricultural Society that the judging take place during the latter half of November, and to ask that it be granted that the results be read out at the Show on 1st December. In this way the judge of the holdings would be available at the Show without any additional expense Read letter from the Secretary of the Parent Society 17th June, stating that a grant had been made towards the Show according to the rules. Read letter 19th July, approving of the draft prize-list submitted to the Acting Secretary of the Parent Society; also letter from the Director of Public Works re the use of the barracks and grounds for the Show. The Secretary stated that His Excellency the Governor had consented to be a patron of the show and was expected to be present to open it. There was submitted the prize-list which was received and approved of. It was decided to hold a committee meeting on 24th September, to appoint judges and deal with other matters connected with the show. Read letter from the Acting Secretary S.P.A.J., granting 30/- as prizes for the show, to be given only and on the lines suggested in the Secretary's letter. It was decided that the best thanks of the Society be conveyed to the S.P.A.J., and an assurance given that the amount granted would be used as suggested in the Secretary's letter. Read letter from the Actg. Secty. of the Parent Society re Knutsford Park Show, offering prizes for collective exhibits from Branch Societies. The Society resolved to take up the matter. The Treasurer submitted a statement of accounts showing a balance in hand of £5 19s. 1d. on ordinary account and £1 for the show. The Instructor, Mr. Schleifer, gave a report of his visits to the different districts, and gave some very practical advice to the Society. The meeting then adjourned.—D. A. ROTHNIE, Secretary.

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Windsor Castle (St. Mary).—The regular monthly meeting of this Branch was held on Thursday, September 1st, at Woodside Schoolroom. At five o'clock precisely Mr. Cradwick was present. He had gone around visiting the holdings and receiving new entries. He proceeded at once to get the mixture ready for spraying a cow for the destruction of ticks. In spite of the fact that he had an unworkable syringe from the Director of Agriculture, he succeeded in getting through the task. By this time the following members had arrived:—The Vice-president, Secretary, Reporting Secretary, Messrs. Kelly, Josephs, Lawe, Thomas, Burnett, Forbes, Wynter, Reid, and Tucker. Messrs. Josephs, Tucker, and Forbes, became members. After the reading of the minutes, the following business was disposed of: first the report of a Committee appointed to select a gentleman to fill the position of J.P., was received and the following resolution moved by Mr. Mitchell, seconded by Mr. Rogers, was passed: "In accordance with a resolution passed at a largely attended meeting of the Windsor Castle Branch of the Jamaica Agricultural Society, a Committee appointed to select a gentleman to fill the position of J.P., nominated Mr. Van McClure. This gentleman agreed to serve if appointed. Be it resolved that His Honour the Custos be asked to recommend Mr. McClure to His Excellency the Governor for a commission to serve as one of His Majesty's J.P.'s." The matter of a post office for Windsor Castle was brought up by Mr. Crooks and received the support of the meeting. Mr. Cradwick then spoke on the Prize Holdings Competition. He showed all its benefits. Mr. Mitchell followed and pointed out to owners that they had nothing to lose by competing, and they stood to gain by the improvements they put on their holdings. As a result three new en-

tries were received. It was decided that the Hon. R. P. Simmonds should be asked to be present at the next meeting, and as planter and representative of the parish, address the planters of the districts around. It was moved and carried by a large majority, that this meeting should be held at Woodside at four p.m. on the first Thursday in October. The matter of members not getting their JOURNALS was brought forward and it was pointed out that the list of members who joined after the formation of the Society, was not sent to the General Secretary. The Secretary was instructed to send up a revised list. At the next meeting Mr. Reid will read a paper on surface tillage with the hoe.—W. J. ROGERS, Secretary.

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Troja (St. Catherine).—The regular monthly meeting of this Branch took place on the 1st September. There were over twenty members present and the chair was filled by the President. The minutes of the last meeting were read and confirmed. Several important matters were brought up for discussion. The Committee appointed to deal with the subject of "authorised persons," gave in its report, although one of its members was absent. This report, on a motion by Mr. M. Magnus, seconded by the President, was accepted but not adopted. Moved by W. Ferguson, Esq., and seconded by D. W. Mignott, Esq., and unanimously carried: "That the Committee's report be received but not adopted, and that gentlemen desirous of serving as "authorised persons," send in their written application to the Committee not later than the 22nd September, and that the Committee re-report on the matter at the next regular meeting to be held on the 29th September. At this stage the President spoke on a matter which concerns all growers of bananas. He said that the large producers get better prices than others, and this was a disadvantage to the small growers. To meet this difficulty he said, that a combine of small suppliers could be formed, which could pledge itself to supply a certain number of stems per week, and thus be able to demand the best price that is available from time to time. He (the President) said that he had seen this plan worked very successfully. The suggestion was followed by a heated discussion, during which diverse and adverse opinions were expressed. At length it was decided that a private meeting of growers and all interested in the scheme, should be held in the Kendal Schoolroom, the meeting house of the Society, at 4 p.m. on Saturday, 3rd September. The question of buying bananas by weight was again deferred, as there were other matters requiring immediate attention. Mr. E. A. McNeil, one of the Vice-presidents, then spoke of a matter, of which not only the members of this Society are aware, but also all the people in and around Troja. For a long time the need of a police station here has been strongly felt, and although this great and pressing need has been represented to the authorities, and Mr. McNeil has offered a spot for the erection of the station, yet nothing has been done beyond giving a promise that the district would get the station. This delay is felt to be unbearable and dangerous. The President, T. J. Cawley, Esq., said that Troja was sadly neglected, the station was very much needed, and that its acquisition would go far to stem the tide of evil that is being perpetrated in and around Troja. To grapple with the situation Messrs. V. N. Magnus, Crookshank, Gardner, and McNeil, were made a Select Committee to draft a letter to His Excellency the Governor depicting the deplorable state of things. The Secretary was next instructed to write to the Rev. J. M. R. Cass, inviting him to become a member, and soliciting the use of the Schoolroom for holding the meetings of the Society. Several matters relative to roads were brought up by Messrs. V. N. Magnus, Solomon Lee, and Uriah Francis, but these were left to be dealt with by the Committee on Saturday. Messrs. Ernest Pitter and John Stephenson, were elected new members. The roll was called and the meeting adjourned till the 29th September.—A. VIVIAN HAGUES, Secretary.

Ulster Spring (Trelawny).—The monthly meeting of this Branch came off on August 24th, 1910. Present: Rev. E. G. Douglas (in the chair), Messrs. T. F. Forbes, J. E. Neita, J. G. Myers, T. Currie, P. M. Munro, A. B. South, J. Anderson, G. Rosedom, Miss M. Runcie, Miss A. Moses, Mrs. Gregg, H. Q. Levy, Esq., Agricultural Instructor, and the Secretary. A discussion took place as to why the Branch Notes of this Society have not been published for some time in the JOURNAL. Several members are unable to attend the meetings, and these Notes are the chief means by which they are kept posted as to what the Society is doing. Mr. Levy explained that there being about sixty-eight Branch Societies to send up Notes and the space for such Notes being limited, it is impossible to publish them in the same JOURNAL every month. On the motion of Mr. Forbes, seconded by Mr. A. B. South, it was decided to ask the Parent Society to allot more space to Branch Notes. *Re Agricultural Bulletins*, which used to be free for a number of years, but are now to be paid for at 6d. per copy, on the motion of Mr. Forbes, seconded by Mr. Munro, it was decided to ask the Director of Agriculture to furnish a free copy to each Branch Society. *Re* Show it was decided to have a Show in April, 1911, and the Secretary was instructed to apply to the Parent Society for the customary grant. Timing of bananas.—There being a considerable difference of opinion as to whether October or February is the better month to plant bananas to meet the season which is at its height in April and May, the meeting wanted to know if there was a universal rule whereby a cultivator could plant with the assurance that his crop would be ready between March and June. Mr. Levy said there was such a rule which works correctly in every case, provided strict attention be paid to certain essentials—kind of suckers, up-to-date trenching, etc., and that was "plant in February." He stated with much confidence, and cited instances to substantiate his contention that where the ideal conditions are adhered to, bananas planted in October and the following February, shoot at the same time—if anything, those planted in the latter month shoot a little before those planted in the former, owing to the fact that the October plantings take some time to overcome the chilly weather and consequently very little growth takes place. Recently planters have been complaining that their ground cocoes rot and the matter was brought to the notice of the Society at a previous meeting. Mr. South thought it was due to deep planting. Mr. Neita argued that the bits planted were not healthy. Mr. Levy said it was a disease—a fungus growth that spreads very rapidly. The whole trouble may be traced to the neglect of cultivators to drain the land. No ground provision wants more attention to the draining of the land than cocoes, and it is a well-known fact that very few if any, persons ever think of draining the land to plant cocoes. To get rid of the fungus, other crops, preferably surface feeders, should be put in for two or three years—particular attention being paid to a suitable rotation of crops. The Pound Law came up for discussion. Mr. Neita showed one weak point in the law. A donkey was sent in. After some days, the owner, who is in a position to take it out, refused to do so though notified of the fact. Though this is so, the animal must be retained for six weeks before it is put up at auction. The result is that it does not bring enough to pay for its keep and the pound-keeper suffers. If an owner is notified and *refuses* to take out his animal, the pound-keeper should be empowered to sell it *at once*. Further discussion of the Pound Law was postponed for next meeting, when there will be a new attraction in the shape of a small Show, which will be a monthly fixture till the real Show comes off next April. The meeting adjourned.—G. W. MILLER, Secretary.

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Southfield (St. Elizabeth).—The regular monthly meeting of this Branch was held in the Top Hill Schoolroom on the 8th September, 1910. The President Rev. W. Graham, presided. Owing to rain on previous occasions, the Penny Bank was not started until that day. Messrs. E. J.

Smith, R. July, and J. J. Miller, became its directors, the latter being the manager. The Chairman read an interesting item from a newspaper on tobacco. He urged the members to grow more extensively such crops, particularly tobacco and cassava, that will bring more money into the district. He reported that he sent four different samples of cured tobacco to Canada, so as to know what price each sample can realize. He would like to see a depot formed in the district where all tobacco growers could get ready sales for their tobacco. Letters were read from the Acting Secretary of the Parent Society re special prizes for Branch Societies for best exhibits at the Knutsford Park Show in February next, and from the Secretary of the Santa Cruz Branch re the coming Show at Northampton on November, 9th, 1910. E. J. Smith, Esq., the Instructor, promised that he would at the next meeting, address the members on the most suitable times to plant certain crops. The meeting agreed, and these persons: Mrs. Jane DaCosta, Southfield P.O., Mr. Joseph July, Southfield P.O., Mr. Charles Johnson, Southfield P.O., and Mr. Henry Bernard, Southfield P.O., became members.—J. J. MILLER, Secretary.

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Eliot (Central St. Mary).—The regular meeing of his Branch was held at Eliot on Thursday, 8th September, at seven p.m. The threatening rains frightened away the majority of the members, as was the case in August, when only three members turned up. Owing to the unsettled state of the weather, only a few were out this evening: Rev. C. A. Wilson, Messrs. J. A. Banks (in the chair), Fred. A. Williams, Robt. S. Williams, Joshua Latouch, Francis Gordon, Thad. Livingston, Jeremiah Gordon, E. A. Gunter, and Miss A. Williams. Minutes of the last meeting were read and confirmed. A letter from the Acting General Secretary was read informing the Branch Societies that the Parent Society is offering two prizes to the best collective exhibit presented at the Knutsford Park Show in February, 1911. A Committee consisting of Messrs. J. A. Banks (chairman) Fred. A. Williams, Jeremiah Gordon, Thad. Livingston, and E. A. Gunter, was appointed to consider the matter. The Secretary reported that at the Nashville Show held in August of this year, a third prize to the value of ten shillings, was awarded to the collective exhibit from this Branch. This amount was to be added to the funds of the Society. An attempt was made at finding out the prizes gained by individual members, but it was decided to leave the matter over for a fuller meeting. The old question: "What can be done to improve the Society?" was again raised. A few suggestions were made, but nothing definite was arrived at. Members were asked to give the question their careful consideration till next meeting, when the question would be brought up again. The Secretary was instructed to invite the Revds. H. B. Walcott, ane F. W. Coore, and W. F. Cradwick, Esq., to our October meeting, Mr. Walcott to be asked to give a lecture on practical gardening, and Mr. Cradwick on any appropriate subject. It was also thought that at some future date, the Honourable representative for the parish be asked to attend the meeting to lecture. Mr. Richard Thompson became a new member, also Mr. McPhaucker, proposed some time ago, but whose name was not recorded. Subscription received from Mr. Lionel Davis. Meeting adjourned for 6th October, 1910.—E. ALEXANDER GUNTER, Secretary.

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Springfield (St. James).—This Branch held a special meeting at the Kensington Schoolroom on the 2nd September, 1910. In the absence of the President, Mr. J. Jacob Irving, Vice-president, presided. Present: A. J. McLaughlin, Alex. Stephens, W. Reid, J. J. Ellis, J. Shaw. Visitors: Theo. McLaughlin, Samuel Brown, Alfred McLaughlin, Ed. Johnson, J. W. Ricketts of Vaughansfield School; Miss S. E. Thompson of the Springfield Girls' School; Mr. Alfred Wallace from Montego Bay; Mr. Schleifer,

Travelling Instructor, and the Secretary, D. E. Drummond. A letter was read by the Secretary from the President, Rev. J. A. Jones, regretting his inability to attend the meeting. Mr. Irving was called to the chair, and in his opening remarks referred to the loss this Branch has sustained in the removal of Mr. Levy. He had promised to give a demonstration of suckering bananas in the field, but unfortunately rain hindered him from doing so. The minutes of the last meeting were read and confirmed. Mr. Irving then spoke of a local show that should have been held by the Branch, but by not having the presence and help of Instructors very often, the idea could not be carried out. The speaker, in a suitable speech, introduced Mr. Schleifer, the Travelling Instructor, to the members of the Society and assured him of the pleasure it has given them in having him among them for the first time, and that the President, the Rev. Jones, has always spoken of him in the most flattering terms as an efficient gentleman—one whom they would be most anxious to have in their midst. Mr. Schleifer thanked Mr. Irving for his inaugural speech; he in turn was glad to be with them, and promised to do his best, and showing that he himself is a practical cultivator and is only too glad to give hints in the planting of bananas, yams, cocoes, etc. He also said his area is large, having Hanover, Westmoreland, and part of St. James Therefore it is hard for him to be present at every meeting. He said Mr. Levy spoke very hopefully of the Springfield Branch. He craved the indulgence of the Society for arranging the dates of the regular meetings, so that he may be able to be present at all the meetings. The Instructor based his address on the thorough cultivation of the soil. By a thorough knowledge of the proper cultivation of the soil, we will be able to grow anything. He then spoke of ploughing the land, especially in forking. Because lands are not level people do not believe in forking up the steep inclines. By proper methods he showed that the heavy rains will not wash away the soil and plant food, if we go a little further to prevent this by putting trenches and drains on the hillsides. To trench level land is easy, but we may overdo or underdo the thing and thus this should be done properly. If a man were trenching a swamp, the drains should be nearly between each row, but in order to allow feeding space the drains should be between every two or three rows of bananas. The Instructor drew sketches showing how hillsides, which are arid can be irrigated by cutting slanting trenches, thus leading water from the gullies to the hills. This instructive part of the lecture evoked great attention and was thoroughly appreciated. The lecturer then explained by a diagram the two kinds of slopes—explaining that water-logged soil needs trenches to lead off the sour water and to allow fresh water and air to go in. Plain incline trenches should be sloped about a half chain apart with catch pits two by two at convenient lengths to form feeders for the young roots, especially on loose soils. He next dealt in an exhaustive manner with how drains should be cut so as to water the ridges and strike a receiving catch-pit, and in rainy weather the catch-pits will require cleaning, and no more wash-outs as the plant food will be saved and cocoes can be planted in the valleys This can also be done in the yam field. Persons think that the deep trenches dry up the land but on the contrary, it is the shallow trench that does so. The deep trench drains away the sour water, aerates the land, and makes it capable of receiving fresh rain water with all the stores of required plant food got from the air. Many questions were asked as to the proper method of reclaiming swamps, the proper time for planting bananas. Mr. A. J. McLaughlin spoke of the benefits received re cutting of drains, and other members spoke of the planting of cocoa, whether the plants should be permanently planted or should be subsequently transplanted; to each of which suitable replies were given. Debate thrown out for the next meeting—"Yam *vs.* Banana—which is more profitable in this district. After the moving of a vote of thanks by the Vice-president, which was duly supported, the meeting was brought to a close.—D. E. DRUMMOND, Secretary.