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BOARD OF MANAGEMENT.

THE usual monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society on Thursday, 28th January, at 11.40 a.m. Present: His Excellency the Governor, presiding, the Hons. L. J. Bertram, H. H. Cousins, Geo. McGrath, His Lordship Bishop Collins, Messrs. R. Craig, A. W. Donet, C. A. T. Fursdon, A. C. L. Martin, H. T. Ronaldson, J. R. Williams, and the Secretary, John Barclay.

Apologies for absence were received from the Hon. R. P. Simmonds, D. Campbell, E. A. H. Haggart, and J. Shore, who were not able to be present.

The minutes of the previous meeting having been published in the current month's JOURNAL, were taken up as read and confirmed.

Board of Agriculture Members. The Secretary intimated that His Grace the Archbishop, Mr. C. E. DeMercado, and Mr. Conrad Watson, members of the Board of Agriculture about to be abolished, had advised that they would serve on the Board of Management as asked.

Conditions in South Manchester. The Secretary submitted report by Mr. Palache, on South Manchester, which as it was long he had published in the newspapers that morning, so that members could peruse it. After discussion, and comments by the Chairman, the report was referred to the Staple and Minor Products Committee and the Instructors Committee jointly, for their consideration and report.

Cotton Growing. The Secretary reported that he had circulated the papers to the joint Committee on cotton growing, and these had been returned with their comments, but he had not been able to get up a meeting of the Committee to draw up a report. He had summed up the opinions of the members shortly if the Board decided to hear these now.

The President said they could take the matter now and the comments were read.

It was considered that the report was discouraging, but on the motion of Mr. Williams, it was resolved to carry through the experiments already proposed on small settlers own lands, under their own care, but under the guidance of the Instructors, on the Pedro Plains and on the coast of Trelawny and St. James, so that

they could satisfy themselves whether settlers could make a success of this industry or not. A grant of £10 was made for the purpose.

The following letters from the C. S. O. were read:—

Orange Trade. (a) No. 127/15320, 5th January, 1909.

I am directed by the Governor to forward to you a copy of a letter from Sir Alfred Jones reporting that the carrying of oranges with bananas on the S. S. *Port Royal* has proved disastrous and stating that the Elder, Dempster Company have decided not to carry any oranges in the space reserved for bananas, and I am to say that His Excellency will be glad to receive the observations of the Jamaica Agricultural Society in regard to this matter.

I am to add that clause 8 of the contract with Messrs. Elder, Dempster, provides that if after shipment of the bananas purchased under clause 7 there shall be any suitable space available therefor, the contractors shall receive other fruit and goods on certain conditions. If, however, it is a fact that bananas and oranges cannot be taken in the same hold without substantial risk to either, then the balance of a hold partially filled with bananas purchased under clause 7 would not, it is thought, be a suitable space for oranges. Apart from this, assuming that the safety of either the bananas or oranges is endangered by being put in the same hold, I am directed by the Governor to say that it would appear that Messrs. Elder, Dempster would certainly be infringing clause 9 by so shipping them.

(COPY LETTER).

I am sure you will be very grieved to hear that the result of our carrying oranges by the *Port Royal* in the insulated space with bananas, has proved disastrous, and we have had to pay the fruit company compensation to the extent of £528. Now this clearly demonstrates that these two fruits cannot be carried in the same hold. The heat and gas given out by the oranges imperil the safety of the bananas, so we feel sure you will back us up in our decision not to carry any oranges in the space reserved for bananas. This seems to be imperative.—A. L. JONES.

After discussion, the Secretary was instructed to write the Agent of the Direct Line and ask whether, in the event of shippers combining to give notice of their shipments in time, it would be possible to erect bulkheads between the space reserved for bananas and that reserved for oranges, and whether this would prevent the disastrous effects of shipping the two fruits together mentioned by Sir Alfred Jones.

(b) No. 349/127, 12th January, 1909.

I am directed by the Governor to submit herewith for the perusal of the Board of Management of the Jamaica Agricultural Society, a copy of a letter from Mr. A. H. Stockley on the subject of the Jamaica orange trade with the United Kingdom.

DEAR SIR SYDNEY,—I know how greatly you have always been interested in the question of making a market over here for Jamaica oranges: this is my excuse for troubling you with a few words on the subject and enclosing you an article from the *Daily Telegraph* of London of the 21st inst. From the point of view of a practical business man, my experience during the eight years I have been connected with the Jamaica fruit trade, only tends to make me feel hopeless that the necessary steps will ever be taken to protect the orange business, and prevent the attempts we are making to get the fruit properly established on the English market resulting in a failure. You know the absurd ideas which prevail so strongly in Jamaica as regards men being assisted and encouraged

to ship on their own account, and I see in a recent number of the *Gleaner* the Archbishop stating that all Jamaica requires is an agent on this side to handle all such consignments, thus getting away from the middleman, etc. Such views may sound well in theory, but can never work out in practice, especially as it also means beginning at the wrong end. If eight years ago a real effort had been made to stop all badly packed fruit and immature oranges being sent from the island, the public here would have had the fruit put before them everywhere, instead of the wholesale dealers refusing to handle Jamaica oranges on account of the unsatisfactory and uncertain condition the bulk of the consignments always arrive here in. I have no desire to pose as taking up the matter other than as a business one: we are pushing Jamaica oranges because I think eventually there will be a good trade in them for us, and I feel every confidence in the quality of the fruit itself: but I fancy it would astonish even the Archbishop to know the amount we have to spend in continually advertising this article, and does he imagine that this would or could ever be done if the business was attempted to be carried on by a number of small shippers, who without exception clear out directly they find the market going against them. No! I am afraid however strongly the people of Jamaica dislike to see business done by one firm on a large scale, if they want good results it is the only way to get any industry properly established on a sound and paying basis for all concerned, and not by allowing any one who chooses to start as an expert orange packer and shipper just when they may see a chance of picking up a few pounds, to the detriment of the people who have fruit to sell and are willing to sell at reasonable prices to those who understand the business, and are ready to work the trade on proper lines. If Jamaica does not care about this orange industry, well and good; but there is only one way to continue it successfully, viz.: to follow the lead of other places and insist on proper inspection and stop the shipping of immature fruit.—A. H. STOCKLEY.

The Secretary stated this had been already submitted to the Staple and Minor Products Committee and he read their comments.

After discussion, it was resolved to submit the whole matter of the orange trade again to a Special Orange Industry Committee, consisting of Mr. McGrath, Mr. Douet and the Director of Agriculture, with power to add to their number from among those interested in the orange trade as growers or shippers.

Inspection of Direct Line Steamers. (3) No. 13000/15189, 22nd December.

Submitting the usual reports of inspection of Direct Line Steamers by the Harbour Master, stating that the terms of the contract had been complied with. Also asking if the Society desired that the Harbour Master should continue these fortnightly inspections and reports on the Direct Line Steamers.

It was resolved to reply that the regular inspections might be discontinued, but that occasional inspections and reports might be made. Also Nos. 311/233 of date 9th January, and 72/15682 of date 4th January, reporting on these inspections.

Exhibitions. (4) No. 18144 of date 29th December, 1908.

Enclosing copy of letter from the Secretary of State for the Colonies relative to an International Exhibition to be held in Brussels in 1910, asking whether it was desired that this Colony should take part in the Exhibition, the reply stating that the Governor

considered that it was not thought desirable to incur the expenditure, but that the Agricultural Society and Merchants' Exchange had been asked to assist by arranging for the transmission of private exhibits from Jamaica, or other facilities for exhibitors.

(b) No. 15824 of date 29th December, 1908.

Intimating that an Imperial and International Exhibition would be held in London in September.

The Board decided that the island could not take part in this Exhibition, but that exhibits from private exhibitors might be facilitated in every way.

Immature Fruit. No. 539/15941 of date 18th January, 1909.

"I am directed by the Governor to transmit herewith to be laid before the Board of Management of the Jamaica Agricultural Society, a copy of a letter from the Secretary of the Springfield Agricultural Society, with regard to the prevention of the exportation of immature fruit and other products unfit for market."—

Springfield, 29th December, 1908.

To His Excellency the Governor.

YOUR EXCELLENCY.—I have been instructed by our Branch Society at Springfield, St. Elizabeth, to send this letter to you to ask you to take steps to prevent exportation of immature fruits and other products unfit for market.

With the hope that Your Excellency will see your way to help in the matter.—I have, etc., (Sgd.) B. THOS. ARKINSON, Sec. Springfield Branch.

This letter was referred to the special Committee on the orange industry.

Taxation. Resolution from Christiana Branch *re* taxation—

Mr. Bertram moved that the Christiana Branch be requested to furnish the Secretary of the Jamaica Agricultural Society with the name or names of any persons who have had their holdings re-valued and the valuation raised; and that the Secretary be requested to procure the list of entries for the Prize Holdings for comparison with the list of cases so procured. Also that Mr. Palache be asked to give instances in support of the statements he makes in this connection in his report on the conditions in South Manchester.

Washes. The Secretary submitted letter from Cooper & Co., Berkhamsted, of date 17th December, stating that they had read the JOURNAL for November and had been struck by the article on Cacao and Grubs. They thought their preparation "Apterte" would destroy the grubs mentioned, and were sending out samples for experiment; also some samples of V1 and V2 for spraying fruit rees against scale for experiment.

The Director of Agriculture asked that samples of these preparations might be sent to him first before they were sent out for experiment, and this was agreed to.

Prize Holdings. The reports for judging St. Andrew and St. James were submitted and directed to be published. The prizes awarded were approved and directed to be paid.

For next year the following parishes were chosen for the competition—Trelawney, St. Catherine, St. Thomas, and Portland.

[The reports will be published in March JOURNAL].

Foot and Mouth Disease. The Secretary reported that after consulting with the Live Stock Committee, he had advised the Government of the outbreak of Foot and Mouth Disease in the United States, and of the measures that had been taken by the Board of Agriculture and Fisheries of the United Kingdom and by the Canadian Government, and advised similar measures to be taken here.

His Excellency said that the Government had resolved to prohibit the importation of all animals and fodders from the United States ports until further notice. This was approved of. (Oats and corn and meals are not included in the term fodders).

Bulls and Stallions. The Secretary reported that the roan Shorthorn bull, "Henbury Favourite," had arrived in Kingston from Brown's Town, where he had been in the care of Mr. R. L. Young, in wretched condition, and after consulting the Live Stock Committee, it was agreed not to sell the bull at auction until he could be put in better condition. The Director of Agriculture had agreed to take the bull at Hope where he could be kept more cheaply than in town, and under better conditions.

(b) The Secretary reported that the Live Stock Committee had agreed that the stallion "Sir Gerald" should be placed in the same district as last year in the care of Mr. Arnett at Gibraltar.

Shows. The Secretary submitted accounts at shows held at Kendal, Santa Cruz and Sav.-la-Mar, and the payment of grants allotted was approved.

(b) An application for a grant to their show to be held at Ulster Spring on 12th April, was submitted by the Ulster Spring Branch, and a grant under the usual conditions was made.

As the Secretary reported that there were to be three or four shows in April, he was instructed to recommend the Ulster Spring Society to change their date if possible, to a later month.

[This had meantime been done].

(c) Letters *re* proposed show at Brown's Town, asking for the services of Mr. Arnett, the Instructor, to work up the show in the country districts and for the three marquees, were submitted.

The Secretary stated that Mr. Arnett would be working in his own districts of St. Ann and Trelawney from the middle of March, and it would be useful for him in his work to talk about the show; but he felt it should be mentioned that there had been complaints from small settlers to him that they had not received their prize money from the last show. He was instructed to recommend the Brown's Town Show Committee to inquire into this and pay the prize money if it had been duly awarded. The use of the marquees

(d) The Secretary submitted his report on his visit to Westmoreland and at the shows at Sav.-la-Mar and Bath, which were directed to be published.

Stud Book. Letter from Mr. Palache was submitted, asking the Society to subscribe to a copy of the new Jamaica Stud Book he was getting up. It was agreed to take a copy at a guinea.

Half-yearly Report. Drafts of the Secretary's Half-yearly Report was submitted, which had already been circulated among the members of the Board.

Mr. Fursdon asked what was the Secretary's authority for stating that the King's Shorthorn bull died of Red water after having for years been in the island, as he thought Veterinary Surgeons stated that acclimated animals after having had tick fever could not die of Red water.

The Secretary replied that the Board had taken the diagnosis of the studmaster, Mr. Calder, as correct. It was, however, decided to delete the cause of death from the report.

The Instructors' reports and itineraries were submitted as usual.

The following new members were elected:—Alfred Farmer, Cross Roads; A. L. Bennett, Montreal, Canada; A. J. Hendricks, jr., Black River.

The meeting adjourned till 18th February, 1909.

FLIES ON CATTLE.

THE plague of Black Flies attacking cattle in St. Elizabeth as mentioned in JOURNAL for November 1908, was unusual in Jamaica; but such flies are common in the United States. We have assumed this pest to be the Horn-Fly common in the Southern United States. The same treatment as for ticks will deal with the flies, for it is stated that in dipping cattle for ticks, 80% of the Horn-Flies are killed. In some parts, spraying the cattle has been found very efficient, and at the same time humane. The preparation used has been found satisfactory in protecting the animals from the attack of flies for a certain period and also from the attacks of ticks, lice, warbles and mange parasites. This wash consists of emulsion of petroleum oil in water in the proportion of 20 gallons of oil to 80 gallons of water with the addition of 5 lbs. of soap. It is claimed that the effects of the oil remain on the cattle for over a month. These Horn-Flies breed in the cow dung, and they are very useful in pastures for turning the droppings over, so that the flies may not get the opportunity of laying their eggs. Many of our insectivorous birds, especially the fly catchers, feed largely on these flies.

We asked for samples of the flies to be sent to Professor Oswald, who will no doubt be able to classify them correctly.

SISAL HEMP.

There is always some correspondent writing for particulars of Sisal Hemp and we have occasionally given some information in the JOURNAL on this subject. We add a few further notes.

We have one variety commonly called Koratoo locally (*Agave Morrisii*) which is common in many parts of the island. There is also the Mauritius Hemp (*Fourcraea Gigantea*). Then there is the Sisal Hemp of the Bahama Islands (*Agave rigida sisalana*) and there is the Sisal Hemp grown so largely in Yucatan (*Agave rigida elongata*). There is also another valuable fibre plant very common in the island: we see it growing all about St. Andrew by the roadsides in regular thickets—*Sansiviera*. This produces a valuable fibre also. The difficulty has been to get cheap machines to deal with these fibre plants, but there are now plenty in the market. The price of fibre has been going steadily upwards, over a series of years, and this has stimulated planting. A German East Africa Company has 21,140 acres under different kinds of sisal. In Queensland the question of planting sisal has been largely discussed, and planting has taken place on a fairly large scale. As we before intimated there is one cultivation in Jamaica, but it has not been long enough in existence to say how successfully it may result. Sisal, however, is not a cultivation for small cultivators, as machinery is required to deal with the leaf, although if a factory were established, small cultivators could grow sisal on their waste land to better advantage than logwood, probably. Sisal needs very little cultivation when once it is planted, and long spells of drought cannot kill it. The weight of fibre varies according to the number of plants set to the acre—it may be taken as an average of five hundred pounds to the acre. The price varies from £22 per ton to about £32 per ton according to the kind of fibre, but even to £38 per ton is paid for the best. Sisal Hemp is an attractive crop where a fairly large area of cheap land too dry for almost any crop can be used. There is very little cost for cultivation other than the most meagre cultivation of the land, the securing of plants, setting them in the field and the harvesting of the leaf and the shipping of the fibre. The industry is one which does not require the continuous employment of large numbers of labourers. It may be undertaken on a comparatively small capitulation per acre, and may be carried on without the large weekly expenses which are incurred in the cultivation of some of our staple crops on better lands.

REGISTRATION OF STALLIONS.

As a means of affording some measure of control over the horse-breeding industry, the Department of Agriculture of Victoria adopted in 1907 a system of issuing Government certificates of soundness for stallions which on inspection and examination by one

of the Government veterinary officers are found free from hereditary unsoundness and defective conformation. The certificates are given for all breeds—draught horses, light horses and ponies—and it is provided that blemishes, unsoundness or defects of conformation which are the result of accident, external injury, overstrain or overwork will not disqualify.

During the year 889 stallions were examined, and this number represents between 70 and 80 per cent. of the stallions standing for public use in the State. The Chief Veterinary Officer of Victoria, in reporting on the subject (*Journal of Agriculture*, December, 1907), observes that it is significant of the appreciation with which the scheme is regarded by the horse-breeders of the State that so large a percentage of horses should have been voluntarily submitted for examination during the first season.

The following ten conditions are regarded as evidence of hereditary unsoundness, the existence of which in any degree would warrant refusal of a Government certificate: Broken wind, roaring, cataract, nasal disease (*osteo-porosis*), ring bone, side bone, bone-spavin, bog-spavin, curb, thoroughpin and bursal enlargements. Of all the horses examined 15.17 were refused certificates on the ground of hereditary unsoundness solely, but it is observed that in deciding as to rejections the examining officers have been the opposite of drastic. Of the 889 stallions examined, 684 received certificates; the percentage of refusals being thus 23. Seventy were refused as being defective in conformation, nondescript in type or below a reasonable standard for Government approval.

THE USEFULNESS OF THE TOAD.

Of all the animal kingdom, barring only the snakes, no creature is less appreciated and more misunderstood than that homely, ungacious, awkward clod of ugliness, that faithful ally of man, the toad.

To the lover of nature there are few more interesting subjects than the development and habits of the toad. That the *frog* is hatched from eggs that develop into wriggling pollywogs which eventually undergo a wonderful transformation is generally understood. Few know that in its early stages the toad is no less a water creature and that, like its half brother, the frog, it undergoes this same transformation.

A perfectly astounding number of eggs are laid by each toad, and this is the rule in nature when the chances of rearing young are enormously against success. As many as 11,545 eggs have been removed from one specimen—a remarkable fecundity, yet, not so wonderful, considering that the chances of an egg developing into an adult toad are less than one in a thousand.

Within two weeks after the eggs are laid, the young tadpoles begin to appear, feeding at first upon their gelatinous envelopement. Next the slimy deposits common to ponds or swamps is attacked,

and steadily the young "wrigglers" grow until their bodies enlarge to the size of thumb-nails, then the long tail begins to be absorbed and the legs to develop. Then the young toads hop on the bank of their water homes and disperse, never to return except during the breeding seasons.

For a long time the young toads are extremely sensitive to heat, and during the day hide themselves under leaves and beneath rubbish and stones. Only when a vigorous shower descends do they venture forth in walks and roads and gardens, and so suddenly do they appear and in such numbers that often there has been a popular report that they "rained down" with the showers.

The inability of young toads to endure heat serves as their sole protection, for were it not for this large numbers of them would be destroyed by birds, to whom the unfortunate, defenseless creature would prove a delicate feast. As it is, many toads are devoured at nights by predacious birds and by night prowling animals, including in some instances the ordinary house cat, for it is at night that the toad ventures forth and creates havoc among those pests of the farms which annually cost the country so much.

Despite the ravishes made by enemies, there are numerous instances to prove that the toad is an unusually tough-lived animal. There is positive knowledge of a toad which occupied a certain feeding ground for eight years. Interesting though these instances may be, even more so are a number of experiments showing with what tenacity the toad clings to life. Exaggerated stories there are telling how live frogs have been discovered inside rocks, within tree trunks and in ancient walls of masonry, thus indicating that it is possible for toads to exist in the dormant stage even for ages. In no case has science been satisfied that such extreme instances of longevity are borne out by fact, but a number of experiments along these lines have been made resulting in remarkable conclusions.

Shortly after sundown, or even before, if the evening be cool, the toad emerges from his shelter and begins his hunt in search of food. In country districts he patrols newly mown fields, gardens, roads and newly cultivated lands—all places where insect life is apt to abound. In towns and cities the spots beneath electric lights are chosen, as many as a dozen big toads taking station in the glare of the light to exterminate moths, beetles and other insects that are disabled and come fluttering from the lamps above. Unless the food supply is especially abundant, the toad feeds practically throughout the night. Four times throughout the day, therefore, the stomach of this reptile is filled with flies, mosquitoes and other insect pests, not to mention cutworms, centipedes, grubs and like enemies that ruin the crops of the farmer.

How the toad manages to catch his prey is an interesting study in itself. It is about the only known animal whose tongue is attached in front, and not at the root as ordinarily understood. However, one needs only to observe the feeding of a toad to understand that in all nature no creature has been better prepared to catch its

game. The tongue is coated with a glutinous secretion which adheres like glue to anything coming in contact with it. Slow as the toad is, the motion of this tongue is like chained lightning. No insect coming within range of the agile member escapes. In fact, dead or motionless food has no attraction for the toad. He insists upon catching his flies on the wing. Similarly with the deadly cutworm, that black, glistening nuisance, which cuts clean as a whistle the young plants shooting out of the ground; if the worm lies still or coiled, he is perfectly safe; but if he moves in the least he is gobbled up like a flash and with an astoundingly ravenous appetite.

As already mentioned, the toad is of direct service to man by reason of the harmful insects it destroys. Should it feed on beneficial insects it would be to that extent an injurious animal. To determine accurately whether an insectivorous animal is beneficial or harmful there is but one way to examine the contents of the stomachs of a sufficient number of specimens taken from widely different sections and from different ranges of places.

Some years ago the contents of 149 toads' stomachs were examined, the subjects being obtained from gardens, fields, hills, woodlands, city streets, and other places, during every month of the feeding season. The stomachs were carefully split along the outer curvature, and the contents carefully washed into glass dishes and subjected to microscopic tests. The following is a list made up from these tests:

FOOD ELEMENTS.	Per cent. by bulk.
Ants	19
Cutworms	16
Thousand-legged worms	10
Tent Caterpillars	9
Ground beetles and allies	8
May beetles and allies	6
Wireworm beetles and allies	5
Weevils	5
Miscellaneous caterpillars	3
Grasshoppers, crickets	3
Spiders	2
Sow-bugs	2
Potato beetles and allies	1
Carrion beetles	1
Miscellaneous beetles	1
Snails	1
Angleworms	1
Vegetable detritus	1
Gravel	1
Unidentified animal matter	5

Ninety-eight per cent. of the food was found to be of animal origin, the remainder being of mineral and vegetable origin, evidently swept into the stomachs accidentally along with the insect food.

One specimen of a toad, captured at nine o'clock at night, proved to have eaten the following:

	Per cent. by bulk.
6 cutworms	50
5 thousand-legged worms	20
6 snow bugs	20
9 ants	6
1 weevil	2
1 ground beetle	2

Snails, those pests of the gardens and green-houses, where they prey on lettuce and other succulent plants, annually destroying thousands of pounds worth, constituted one per cent. of the food.

The thousand-legged worms, enemies of the potato, grasshoppers, ants, beetles, cutworms and army-worms, tent caterpillars, tomato worms, cabbage worms, grape and celery caterpillars, all these, and more, are destroyed by the faithful servant, the most despised and lonely of creatures, always excepting the snake.

Throughout a period of ninety days each toad would exterminate, according to scientific investigation, 9,720 injurious or noxious insects. Many gardeners pay their children a cent apiece for each cutworm found and destroyed. A single cutworm during a season may do a dollar's worth of damage by cutting the roots or stems of young plants shooting above ground. So, figuring at the conservative estimate of one cent each, one toad's services in destroying cutworms during a period of ninety days amounts to \$19.44!

Abroad, especially in England, the usefulness of the toad has long since been recognized. It is said that English gardeners often pay as much as £5 a hundred for toads for colonizing purposes, the animals being brought from considerable distances, as otherwise their homing instincts will take them back where they came from.

Therefore remember that the toad is far more our friend than enemy. The only thing of value to us he eats is the useful busy bee. But by raising the hives off the ground, master toad cannot then harm the bees much.

COCOANUT DISEASE.

THE cocoanut trees I had, dropped leaves, then the nuts tore off and the dropping continued till finally the terminal bud dropped.

Mr. Cradwick and Professor Earle came, but nothing definite was determined. I cut down several trees for examination, but there seemed no fungoidal growth, and at the same time there was no rot.

However, I lost a large number of trees, at a guess about 1,500, before I took active measures. The disease, whatever it might be, came from the west and directly against the trade wind.

It reached a four acre piece and the western row got infected. I cut down and burnt the tree tops and the thing stopped, except a few sporadics which I dosed.

I think I am pretty free now, but the continual prevalence of dry weather makes some trees look very shabby.

I don't believe in Bordeaux mixture. I killed some grape fruit trees with it and prefer lime and salt wash, and lime alone for mealy bugs.

I had a lot of Immortelle trees (young) infested with mealy bugs and killed them with strong lime wash.—CORRESPONDENT, St. Thomas-in-ye-East.

MANURE.

(Being a Lecture already delivered to the Teachers at the Agricultural Course at the Mico, St. Andrew, in January.)

IN a country so small as ours and extending over so few degrees of latitude, we find soils and climates adapted to almost every cultivated plant known to civilized man, from the fruits of the tropics to the denizens of Northern climes.

With all our great variety of climate we have every sort of soil, from the rugged mountain side or the hard red soil of the savannahs to the inexhaustible soil of the lowlands along our rivers and water courses.

This being true, successful farming depends very much on the farmer. He must study his soil and climate as he would the pages of a book, and learn to know what is required to produce the largest crops of those things that are most adapted to this particular situation.

That he may do this intelligently and with the greatest profit, it is necessary that he be grounded in the elements of agricultural science. It is true that under favourable circumstances, a man may succeed very fairly without knowing anything of the scientific facts, except as he has observed the ways and methods of others, but in a vast majority of cases, the man who has a trained intellect will make a better farmer, and farm to a better purpose than will his uneducated neighbour.

The art of farming is based on scientific facts that have been deduced from the experience of ages. More than 2,000 years ago a Roman farmer wrote down his observation of the effects of ploughing under a heavy growth of weeds. He noticed that where the weeds were ploughed under the crops were best. Another farmer noticed that whenever a pile of trash, such as manure or rubbish of any kind was worked into the soil, the crop was increased, and continued observation proved that this ploughing under of green crops or manure, invariably resulted in an increase of crops.

From such beginnings came the study of fertilizers; until now we plough under green crops that we have sown with the purpose of using as green manures, and we spread over our land manures and various other fertilizers in order to manure our crops, assured that by so doing we shall be well repaid in the increased yield of our fields.

Books treating on agricultural subjects are plentiful and cheap. Farm papers are published in almost every large city of Great Britain and America and at a price that puts them within the reach of the poorest. And our agricultural departments publish journals, pamphlets, and bulletins, which may be got by any one. Aided by these, any farmer who desires to make the greatest possible success,

can keep himself so well informed that no item that may be of benefit to him will escape his attention.

This brings us to the main part of our subject—soil exhaustion, which is of vast importance to the farmer in every part of the world. Land without fertility is without value for agricultural purposes, and generally speaking, the value of land depends on its available supply of plant food. Fertile land is that which naturally contains an ample supply of the elements that go to feed plants of the kind that have an economic value, or land which may have been supplied by artificial means with plant food. Sterile land is that which is deficient in one or more of the elements of plant food, either in its natural state or because of unwise or unskilful manipulation at the hands of the farmer.

Although we often speak of land as being inexhaustibly fertile, there is no such thing. No land no matter how fertile it may be, but can be exhausted by improper use in the production of crops.

Nature if left alone works to maintain fertility and build up exhausted soils, but this is a slow process and we cannot afford to allow land to lie idle, while the slow processes of nature are working to build it up and restore it to its original state of fertility.

It may be laid down as a proposition that cannot be successfully controverted, that land originally fertile may be maintained in that state by a proper system of farming; that sterile land may be improved and gradually brought to a high state of fertility by using it in the proper way as to growing crops and furnishing plant food.

Let us examine briefly some of the things that have caused the exhaustion of soil in this island, this process going so far in some places that the owners of the land are crying out that the land cannot support them, and are hopeless of ever being able to restore it to a condition that will make its cultivation profitable.

The forests that covered the hills have been cut away until the soil on the high lands left without protection, has been washed into the valleys and the hills have become bald and sterile deserts. With the destruction of the forests came a smaller rainfall and the soil lost the solvent effect of rain water. The streams dried up and the processes of elaborating plant food from the soil ceased to a great extent, giving the constantly decreasing crops less to feed on, until finally the land became unprofitable, and relapsed to nature, and thus by slow degrees is again building it up, until perhaps future generations may again find a generous reward for their labours in the crops yielded by lands that are now unproductive and worthless.

Our pioneer ancestors found a virgin soil fat with plant food lying ready at hand, and needing but the most careless cultivation to produce crops that were the talk of the world. The seemingly inexhaustible fertility of the soil made the pioneer prodigal of his resources and a spendthrift of the riches his soil contained. Year after year he grew sugar, coffee and other crops. The axe and the

firestick reigned rampant, confident that he could pursue this course for an indefinite period without exhausting the soil of his lands.

Even at this time such a system or want of system prevails in several parts of the island, whereby the productiveness of the land is constantly decreasing unless measures be taken to restore fertility to the land.

Happily a new era is breaking around us. Agriculture is being thoughtfully dealt with, the needs of the farms of this country and the story of reckless exhaustion of the soil will soon be told, and our followers will look back in wonder at a time when such a system could prevail among thinking men.

To exhaust the soil will soon be looked upon as something to be ashamed of, and the man who follows a system that will produce such a dire result will be looked down upon as one unfit for the high calling of the husbandman.

Those who now own fertile lands should so work them that fertility will be maintained or increased, and those to whose lot have fallen the lands that are more or less exhausted, should build them up so as to restore them to their original condition or make them still better. How this is to be done is the object I have in view by means of this paper.

That badly worn soil may be brought back to a high state of fertility is a question that we need not argue. In several parts of the island may be found lands that were since worn out and unprofitable, but which are now being brought into a state of high productiveness.

These lands are being built up while the owners are making a living on them and each year adds to their value. The system that has been followed may not have been the same in every case, but generally speaking, it has been practically the same. The farm-made manures have been saved and used, deep forking has been resorted to, and mulching with green bush and grass applied to the land and then dug into the land with good and satisfactory results.

In treating of the best method of restoring fertility, we are compelled to consider all kinds of soil from that which has merely become somewhat "run down" and incapable of producing maximum crops to that which is absolutely barren. In a vast majority of cases the land of this country that has been in cultivation and has become unprofitable through careless or incompetent treatment will still produce some kind of crop, thus showing that it still holds some portion of the plant food it was originally supplied with.

As a matter of fact most soils contain a considerable supply of plant food, but this is not available for the use of crops when the conditions we commonly call "run down" prevails. The plant food that is in the soil when the land is first brought into cultivation may be available that is ready for immediate use; or it may be unavailable or locked up in a chemical combination with something else that prevents the feeder roots of plants from making use of it.

In virgin soil there is always more or less available plant food. Part of this comes from the breaking down of the chemical combi-

nations of the soil through the action of the weather. Rain water is a solvent to a certain degree of the combinations that hold potash and phosphoric acid, and the percolation of the rain water from the soil unlocks these sources of plant food. The sun warms the soil and sets to work certain ferments that work in the same direction, and the air and light passing through the soil after the water, helps the process of disintegration that is always going on during the growing season. Rain water also contains nitrogen in the form of ammonia, which is held by the soil ready to be transferred into plant food.

The trouble with most of the run down land of this country, is that the crops use the plant food in the soil faster than the processes of nature make it available, and useless efforts are made to maintain fertility, the available supply is used up sooner or later and the land becomes unprofitable, while it may at the same time, contain a large supply of plant food in an unavailable or inert form.

Farm yard manure is a complete fertilizer, that is, it contains some of each of the three elements—nitrogen, potash, and phosphoric acid. It does not matter in what form these three elements are supplied; they will make the soil fertile if it is possible to make its mechanical condition such as to admit of plant growth. This mechanical condition is of importance. It would be useless to try to grow a crop on a pile of broken stones, because the spaces between the particles would be so large that water would escape at once, and water is one of the important elements in making plant food available. Every particle of food a plant gets from the soil must be reduced to a combination with water, and the particles must be so very minute that they will enter the microscopic openings in the roots with the water that goes to make what we call the sap of plants. Given, then, a proper tilth or fineness of the soil, and soil in which the condition may be maintained by cultivation during the growing season, and it is possible to produce a crop on soil that has been absolutely free from plant food. The only thing to do is to furnish the necessary elements and a supply of water and the crop will feed and grow, if properly treated as to preparation, planting, and cultivating. And this brings us to deal with the preparation of the soil—a matter that is too often wholly neglected in Jamaica. Good crops cannot be grown without proper preparation of the soil. To accomplish this, it is necessary to have good tools if we would save time and effort. To the small farmers of Jamaica, the tool I recommend is the fork, for it is within the means of every one, and for breaking up and cultivating small plots, equalled by no other.

Land should not be forked when it is wet enough so as to stick together and bake. The object sought in forking is to loosen the soil that its particles will fall apart and thus open it up and make available the plant food it contains. If forked too wet it will bake and the plant food is sealed up in such a manner that the roots of the crop plants cannot secure it and the crop falls short. If land is

clayey and forked when it is very dry it may turn up in a very lumpy condition. Sprinkle it over with air slaked lime and the action of rain or dew and of the sun and air will reduce it to a condition that will make it suitable for the production of crops, but as a rule land should be forked when it is moist enough, that it will not turn up in lumps, but not so wet that it will stick together and bake. If your soil is hard and intractable it is as well to fork it in the fall, then place all the mulching and farm yard manure you can get over it, and then in the spring fork it all in, and then prepare the land for planting.

No matter what crop is to be grown, perfect and painstaking preparation of the land is necessary to give it a good start, and in this as in many other things, "well begun is half done."

A man who had spent his whole life in experimenting with crops said: If I were to tell the whole secret of growing the best crops, I should say, "stir the soil." This applies as well before the crops are planted as after. The advantages to be gained by thorough preparation cannot be overestimated. If preparation previous to planting is constantly kept in mind, the farmer may feel assured that he will produce crops up to the maximum capacity of his lands of cultivation after planting is attended to. The one is as important as the other.

Science has not yet reached the point where a quantity of soil can be analyzed, and a rule given for the combination of plant foods that will be of most value, made up to supply the deficiencies. This is because chemical analysis does not differentiate between available and unavailable plant food. It simply shows how much plant food is in the soil, but does not show the condition in which it exists.

The leguminous plants, or as they are sometimes called the pod family, can gather nitrogen directly from the air and use it in the process of growth. This makes this family of plants one of the most valuable we have for green manuring.

Therefore to the small non-technically educated farmer, farm yard manures and green manuring are the cheapest and safest methods of restoring fertility to run down lands. Stable manure is a complete fertilizer; but varies through a wide range in its constituent parts. If it has been kept from heating and leaching it may contain as much as 15 pounds of nitrogen and as little as eight pounds to the ton. The contents of phosphoric acid may vary from 4 to 8 pounds, and of potash from 8 to 15 pounds. The value of stable manure also depends on the kind of feed from which it is made and the kind of stock, so it is impossible to give an analysis that is at all definite, so many factors may be considered. We know this, however, that it is almost impossible to put too much farm yard manure on run down land. It helps such land in a way that is impossible with commercial fertilizers. As it is composed of straw and litter with the coarser parts of the manure, it helps to make the land light and looser, and easier to get into proper condition for plant growth. This coarse part in the process of decay furnishes a supply of humus, which is of no particular value as plant

food, but is very valuable in its effect on the soil. It improves the mechanical condition, thus making it lighter so that sun and air can enter, and at the same time its spongy nature enables it to hold moisture much better than is the case when the soil has been depleted of humus.

Green manuring consists in sowing crops with the express purpose of digging them under so as to add to the fertility of the soil and improve its mechanical condition and make it a better seed bed, but only the leguminous plants add anything to the state of plant food in the soil.

Mulching consists in covering the land with bush and grass to keep the moisture in the land in dry season, then subsequently digging these into the ground with the same effect as in the case of green crops. The advantage of adopting the use of farm yard manures, green manuring, and mulching is, you can make it all on the spot yourself.

By keeping live stock on the farm, feeding them with the crops grown on the farm and the waste portions thereof, and by careful attention to collecting the manures, keeping it under cover, paying some attention to growing such crops as corn, guinea grass, and canes for cattle feed. It is surprising how much manure can be made and the careful application thereof to the soil, it is possible to rapidly restore land that had lost its fertility without a great outlay of money. When fertility is restored the aim of the farmer should be to maintain fertility. The highest manifestation of the art of farming and application of the scientific processes allied thereto is to so conduct the operations involved as to maintain to the highest degree the fertility of the soil.

It requires but a moment's reflection to be convinced that every crop, no matter how small it may be, takes something away from the soil, unless that which has been taken away is replaced or returned in some way, the soil is depleted of plant food just to the extent the crop has used up the elements that go to make its growth so far as they come from the soil. No system of agriculture is so well calculated to maintain fertility as that system known as mixed farming when it is properly carried on, by which animals are kept on the farm, fed on the products of the farm, and the manure applied to maintain the fertility of the soil, and the finished products of the animals sold to give the profits of the farm. But this subject of maintaining fertility is too extensive to be further dealt with in this paper which has already made too great a tax on your time and attention, and must be deferred to some future occasion.—J. T. PALACHE.

KOUMIS.—One quart of new milk, one dessert-spoonful of honey, one teaspoonful of yeast. Make the milk just warm, add to it the yeast and honey, pour into a large jug, and pass from one jug to another for three or four times. Put each pint of koumis into a quart bottle, cork tightly,

MAIZE-CORN.

CUBANS make more use of corn than Jamaicans. Every Cuban peasant plants twice a year a field of corn. When the corn is nearly ripe, twice a day a number of ears are picked, boiled, and then grated, on a grater, such as is used for cassava in Jamaica, the cornmeal is used twice a day, as most Cubans have cows' milk, and sugar is cheap. They get two nourishing meals a day. I have never seen cornmeal sold in shops. The surplus ear is either sold, or used to feed fowls.—TAYLOR DOMVILLE.

[Cuba is a larger island than Jamaica and the Cubans are a thriftier lot of people than we are here. Every year now sees fewer and fewer home products utilised and more dependence placed on shop stuff. The use of guinea corn has quite gone out of fashion, cassava products are not used as much as they were, corn is being less and less used in the house; and all this is a bad sign. It would only be a good sign if our exports had increased so abundantly that we had always plenty of money to spare, which is not the case—ED.]

PORTO RICO.

THE trade of Porto Rico since the Spanish times has gone ahead very remarkably. In the year 1901 sugar was exported to the value of £943,122. In 1908 the exports of sugar were £3,738,100, and the previous figures £134,122.

The exports of tobacco show an enormous increase rising from £156,508 in 1901 to £1,107,870 in 1908. A considerable value of tobacco is sent to Cuba and makes its appearance in the form of 'Havanas.' The export of cigars and cigarettes in 1908 was £688,459; *i.e.*, there has been a jump of 700 *o/o* in 8 years, and an increase of over 2,000 *o/o* in Spanish times.

There is a steadily increasing export of pine-apples and citrus fruit. Coffee has not fared as well as other products, as formerly it went to Spain and France, where it had preferential duty. There is a strong agitation going on in Porto Rico, Hawaii, and the Philippines to get a protection duty of 6 cents per lb. placed on all other coffees. This would hurt Jamaica coffee badly.

CALF REARING.

THOSE who are rearing calves by hand should explain minutely to their boys who feed them, that in nature the calf gets its milk from its mother often, and in small quantities, and always at blood temperature, and that therefore nature should be imitated as far as possible. Feeding the milk too cold and from vessels that have not been properly scalded is a large cause of scours in calves. Over-feeding is also one of the reasons why so many calves fail to thrive.

Four quarts of milk a day divided into three feeds morning and evening, are enough for calves the first week, and then gradually increase another quart. In 6 to 8 weeks the milk can be increased gradually to 6 and 7 quarts. When two weeks old separated milk can begin to be fed to the calf, gradually substituting the whole milk. The calves can begin to eat meal when a fortnight old, which however, should never be mixed with milk, but should be given separately so that it may be properly mixed with the saliva. When meal is mixed with milk it is gulped down and in this form is indigestible. Calves can begin to nibble at grass when they are a week old.

JOHN CROWS.

THE John Crow or Turkey Buzzard, so familiar a bird to us, is not an unmixed blessing, if he is any blessing at all nowadays. We referred to this subject in last JOURNAL. This bird has become a great robber of the eggs of birds, such as, black birds and nightingales, two of the most useful birds we have as insect eaters: he has also become a serious enemy of the poultry yard and takes off young ducklings wholesale. We note from a report of the Commissioner of Agriculture in Hawaii to the Board of Agriculture and Forestry, that the idea of introducing the Turkey Buzzard in these islands has been considered, as it was stated that the loss of sheep in the territory could have been kept in check by the Turkey Buzzard, which would act as scavengers in clearing off the carcasses of the sheep and cattle in the ranges there—carcasses, which, left to rot engendered disease. So far, the following objections have been raised to its introduction:

That the bird fouls drinking water—as he undoubtedly does here where so many households depend upon tank water; that it is instrumental in spreading diseases by feeding upon dead cattle and then distributing bacteria among forage grass by means of its excrements. The John Crow no doubt scatters blackleg, anthrax, and swine fever, by feeding on the carcasses of animals which have died from these disorders, which are caused by spore-bearing bacilli.

We have no great cattle ranges here, in Jamaica, yet it is often only by the gathering of a crowd of John Crows in one spot, that the carcass of an animal which has died suddenly is found. This is a small point of usefulness. If we had a law making it compulsory for the dead bodies of animals to be burned or buried, the chance of spreading disease would be very much lessened, and the John Crows' opportunities for food would be still further lessened. We could then dispense with them to a large extent.

here. Rock-stone can grow as good timber trees as the best land, though the growth may be slower. Most of our lumber is cut now from trees growing on rocky land, on estates, the principal places where lumber is left. But trees should be planted wherever it is possible to be done with economy. We have always recommended for especially quick growth, the different varieties of Eucalyptus. These are exceptional trees because it is not usual to find quick-growers that make hard wood. In the Hawaiian Islands there is a systematic planting of trees being carried out, and in the report of the Commissioner of Agriculture, we find very interesting information in forest management with a list of estates that are planting. They are nearly all sugar estates. One estate is reported to have planted 10,000 trees along the windward side of its cultivation on bare hills and gullies; another estate is reported to have planted 20,000, another 8,000, and so on. The planting by private owners is largely Eucalyptus trees. One owner reports having planted during 1907 between thirteen and fourteen thousand trees along his fences and in plots varying from one to thirteen acres. He is planting exclusively the seeds of Eucalypti such as E. Globulus, E. Robusta, E. Rostrata, and E. Botryoides. The last named he states to have found the most rapid grower, equalling and in some cases beating the Globulus. All of these trees are of known value for fence-posts, railroad ties, bridge and wharf timbers. In Australia E. Globulus ranks very highly for railroad ties. During the past year this owner states that he cut 244 good fence posts five to twelve inches in diameter, from 38 second growth Eucalyptus Rostrata trees, twelve years old.

We do not see why the long stretches of land along the railway should not be utilised for planting Eucalyptus and other trees for the supply of posts. Eucalypti are especially useful as they are quick-growing, tall, graceful, and not spreading, so that they would not interrupt the view of the scenery from the railway cars.

COLDS IN HORSES.

When a horse has a cough or has a running at the nose it should be treated promptly by rubbing the throat with embrocation, washing out the nostrils with Jeyes and water and daubing them with a little Eucalyptus oil mixed with sweet oil to retain it. If the horse's cough becomes persistent and apparently painful with slight fever and the general discharge from the nose becomes abundant, this may be what is called laryngitis. In this case Elliman's embrocation should be applied strongly as a poultice, that is by spreading it thickly on a piece of cloth and applying the cloth to the horse's throat, and then wrapping a horse's blanket round the throat. The inflamed membranes of the throat and nostrils may also be relieved by making the horse inhale vapours which will stimulate the secretion. This is done by placing hot water in a bucket, and adding one tablespoonful of Jeyes and the same quanti-

ty of turpentine, then a flat stone should be made red hot and dropped in the bucket; then a sack is placed around the bucket and folded also round the nose of the animal so that the steam rises in a funnel as it were and the animal gets the full benefit of the searching antiseptic vapour. This treatment can be repeated for several days. Hay and grain should be dropped and succulent green food given along with a hot bran mash with a tablespoonful of salt in it. A bucket full of water should be before the animal all the time to which should be added two drams of chlorate of potash. A tablespoonful of Stockholm tar mixed with "wet sugar" may be given daily for a week as a ball. This is simple, but effective treatment for colds in horses, common at this time of the year.

GUINEA PIGS AND RATS.

I USED to lose a lot of young rabbits from rats—the partly eaten bodies were seen around. I was told that if I kept guinea pigs I would scare away the rats. I bought a pair and put them in the rabbitry, and since then I have not lost one. There are rats in my house as my papers show, and the cats catch them for their kittens, but they have not troubled the rabbits since I put the guinea pigs among them. Rats are timid creatures and so are guinea pigs, and it may be that the restless movement of the guinea pigs scares off the rats; or it may be, as I am told by people, it is the smell of the guinea pigs that rats object to. It is a matter I don't understand, but the fact remains.—REV. WALTER EVELYN, Whitehall, Duncans.

[Mr. Evelyn has a great many rabbits kept in pens in long rows; the mother does are in separate pens from the bucks, and the growing ones for table are kept in lots in other divisions. The guinea pigs are kept in the end pens of the rows.

We cannot say rats are timid or easily scared; they are really bold and audacious and cunning too; they even soon find out when dogs are chained and venture quite near them; they know too when big dogs are kept and not sharp terriers and take advantage of the clumsiness of the big dogs. It may be the smell of the guinea pigs, we do not think it is the sound of their restless movements that scares the rats.—Ed.]

HINTS ON REARING POULTRY.

BREEDS CONTINUED.

FOR eggs for market purposes Leghorns and their crosses are undoubtedly the most profitable, and crossing any kind of hen with a Leghorn cock will improve the activity and laying qualities of a flock. But it will not improve the eating qualities of the resulting young roosters, for Leghorns run very small and are very wiry as

a rule. They are hardy and thrive anywhere. For large eggs for home use Minorcas are best, but as a breed they do not thrive in wet places. For wet districts Black Orpingtons and Wyandottes make good layers, and Plymouth Rocks are good all round birds; so are Buff Orpingtons and they are fine table birds too, but are not quite so hardy as the three breeds mentioned, while to put weight on a flock, a cross of Indian game is the most useful; but games are wretched layers. Wyandottes have never been much in favour here, but the white variety when from good strain are hardly to be excelled as steady layers. White Orpingtons are hardly such good layers, but are very fine table birds. To cross one year with a light breed and the next with a heavy breed is a good policy for ordinary country household purposes. I know for instance of good results from the use of a Minorca cock one year, and an Indian game the next, the result being fair layers of large eggs and fine table fowls, and good results from a Leghorn and Plymouth Rock Cock being used turn about. This gives very hardy birds, quick growers, splendid layers, but rather coarse for table. Common fowls can be improved by crossing with cocks of the same breed recommended, and in fact a selection of good common hens put with a pure-bred cock is the best way to begin poultry rearing systematically. From the chickens reared, the best pullets should be kept, and a fresh rooster got. Never use a cock with his own relatives. This practice of breeding close relatives together which is very common, is the principal cause of degeneracy and non-success here.

FEEDING.—Our most available food-stuff for fowls, is corn. It is not a typically good food to encourage the best growth, or for egg laying, but it is what we have, and by using it properly we can make it do as a staple food. I am referring to good country corn which is richer in the flesh forming element than American corn, which is more starchy, and fattening.

I only wish we could raise enough of this kind of guinea corn, a sample of which I show you, to enable us to feed it to hens. It is one of six different kinds I have grown, and chosen as best for poultry. It is also as good for horses, cows, and pigs, as corn. Some of these guinea corns have been analysed by the Government Chemist, and this one has been shown to be rich in protein or the flesh-forming element, richer than corn and almost as good as oatmeal just what we need. In towns where oats can be got, these are also far better for poultry than American corn.

The common way to feed fowls is to take an unknown quantity of whole corn some time in the morning or the evening, but not an amount calculated for the number of fowls and chickens to be fed, nor at a fixed time, very early, as it should be, call the fowls around the door in the yard and fling down the corn in handfuls. I know of no better method of encouraging disease. The fowls hang round the yard most of the day waiting for food, the most active or the most greedy gobble up quickly most of the corn, and I have always found the worst layers to be able to pick up corn most quickly, the

yard gets foul with droppings, the food flung on the ground is soiled, and yaws breaks out among chickens, and cholera or "fowl sickness" in the grown fowls. Now fowls in nature do not get so much at one time as to gobble up hard grain food and fill their crops quickly. They scrape for their food among leaves and grass, pick a seed here and a grub there. What we have to do is to provide them more food than nature provides without so much looking for it, as we put more fowls in a given space. want more eggs, and quicker growth, than nature allows. So the corn should be cracked, and an allowance of a handful to each grown fowl allowed in the morning the first thing, as fowls are early risers, and a full handful in the evening, for fowls running free--when confined they will also need some scraps at mid-day. This cracked corn (or oats, or guinea corn) should be taken on to the common or among trees around, and scattered wide, to give all a chance and keep the fowls employed for a while. They will not lose a grain. their eyes are too sharp for that. A fresh place should be taken every other day. Thus the fowls will be encouraged away from the yard and kitchen, and will likely scrape about looking for odd grains of corn, and for insects and grubs all day. Where cattle are kept, fowls should be encouraged in the cattle pen, and they will pick off the big ticks from the cattle, thus preventing them from increasing. No food should be flung out from the kitchen, but any scraps available should be placed in a box or old kerosene pan kept for the purpose, and fed every morning or, when fowls are confined, during the day. For fowls confined in pens a dust heap of rubbish and a heap of grass, or stable manure, should be kept for them to dust themselves and scrape for food to keep them busy. Their grain food should be scattered among the loose stable manure. Clear water should be kept in pans in the shade and refilled morning and afternoon. If fowls know where cool water is kept they will prefer to drink that, then it is easy to dose them with Epsom Salts at any time as the salts can be dissolved in the water; and a handful of salts to a quart of water once a week is a good preventive of troubles. Besides corn, coconuts and ripe bananas (do not feed green bananas) are good food when cheap enough, as they often are in the country--though not at present,—and any sort of food-stuffs used for human beings can be fed, as long as these are plentiful and cheap. When coconuts are plentiful, the small and unsaleable ones can be used for making oil for home use, and the resulting trash or coconut meal is one of the very best foods for laying hens and young chickens. In fattening fowls the whole coconut may be used, with the oil in it, but it is waste to feed whole coconut to laying fowls.

(To be Continued.)

THE HOUSEHOLD.

[For some years in the earlier volumes in the JOURNAL we had two pages of notes of useful things for the household. These were

crushed out through the curtailment of the number of pages of the issue and the increase in Branch notes. By request we shall try to insert a page in every issue we can find room.]

Can you tell me what to do with a plague of red ants, which is driving my wife out of house and home at our place in the hills?

Set bowls or basins of sweet liquor (wet sugar dissolved in water) where the ants are, taking care to put the bowls against something or put something against the bowls that will enable the ants to get in easily. They will be found drowned in hundreds in the morning.

Poison can also be set for them consisting of two table-spoonsful flour or cornmeal, two table-spoonsful of "wet sugar," honey or jam, and one teaspoonful of Paris green containing arsenic, and set parts of this: or better still corrosive sublimate in tins covered with muslin or old cloth with holes in it so that the ants can get in. There is always some risk to domestic animals in laying poison, however.

For cockroaches melt some borax, sugar and honey together and add flour to make the mixture a paste and set it.

* *

CARROTS.—The vegetable which deserves much more attention on account of its wholesomeness is the much neglected and often-despised carrot. Food experts, however, now agree that carrots constitute a valuable food, and it is to be hoped that they will more often be seen on the ordinary table. Carrots are obtainable almost all the year round, and the mistake made by most persons is that of supposing that as soon as they grow somewhat large they are no longer fit for any purpose except to flavour soups. The trouble is not with the carrot, but with the cooking of it, and that is common to the cooking of almost all vegetables grown under the ground, they are not cooked enough. Old carrots, moreover, require to be boiled in two waters, keeping plenty of it on them all the time. Then when carefully drained, they may be chopped into smaller pieces and well seasoned with butter, salt and pepper, or the regulation white sauce may be added to them with good effect.

* *

FRENCH BEANS A LA MAITRE D'HOTEL.—Boil the beans, then drain and put them back in the pan. Shake them gently over the fire to dry a little; then add two ounces of butter, the strained juice of half a lemon, and pepper and salt to taste. Toss them about in the pan, and lastly, add one teaspoonful of chopped parsley. Serve very hot.

* *

CUCUMBER AND TOMATO SALAD.—Slice thinly one or two cucumbers, and let them stand in salt and water one hour. Then pour off the water, and cover the cucumbers with ice (where it can be had). Peel and slice the tomatoes. Arrange the slices of

omato and cucumber in a lettuce leaf, and pour over a French or mayonnaise dressing.

* * *

SPIRITS OF TURPENTINE.—This is one of the most valuable articles in a family, and when it has once obtained a foothold in a house it is really a necessity and could ill be dispensed with. Its medicinal qualities are very numerous; for burns it is a good application and gives immediate relief; for blisters on the hands it is of priceless value, searing down the skin and preventing soreness; for corns on the toes it is useful; it is good for rheumatism and sore throats; and it is the quickest remedy for convulsions or fits. Then it is sure preventive against moths, by just dropping a trifle in the bottom of drawers, chest and cupboards, it will render the garments secure from them. It will keep ants and bugs from closets and store-rooms, by putting a few drops in the corners and upon the shelves; it is a sure destruction to bed bugs and will effectually drive them away from their haunts, if thoroughly applied to the joints of the bedstead and cracks in the floors, and it injures neither furniture nor clothing. Its pungency is retained for a long time, and no family ought to be entirely out of a supply at any time of the year.

It is sold by the chemists here at 1½d. an ounce, and an ounce is approximately two tablespoonsful.

SHOWS TO BE HELD.

The following shows have been arranged;—

St. Thomas-in-ye-Vale, at Bog Walk, April 15th.

St. Ann, at Brown's Town, April 22nd.

Ulster Spring, at Ulster Spring, June 3rd.

Cambridge, at Woodford Upper, St. Andrew, May 5th.

A show is also being arranged to be held at Porus, but we have not yet been advised of the date.

Shows were proposed to be held at Gibraltar (St. Ann) and Blengoffe (St. Andrew), but have been postponed until later on in the year.

COMMENTS.

DROUGHT.—Long continued drought has prevailed during the year 1908 over many parts of the world; it has been especially severe in the North American continent, and not only has done immense damage to crops, but it favoured the breaking out of destructive forest fires, which destroyed large areas of valuable lumber, burned up farms, farm crops, live stock and human beings. Water has been very short too. This great drought has affected crops so much as to make feeding stuffs very dear, so

that we should try to raise as much corn and guinea corn and provisions locally as possible.

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GUINEA CORN.—The red guinea corn that we have introduced and written a good deal about, is a very sure grower and a large yielder, and as the Government Chemist has shown (see page 287 JOURNAL 1907), it is almost as rich as oats in protein. The drawback to it is that the birds are very fond of it, and in one plot we must have lost 20 per cent. from little grass birds. However, the birds can be circumvented to a large extent by taking the heads off before the grain is quite hard, with about 8 inches or 9 inches of stalk, and hanging these up to dry. It will be found that the seed dries satisfactorily without apparent loss of weight or vitality. The proper time to take the grain must be noted, and that is as soon as it begins to get hard, before it is quite brown. The heads of guinea corn are most satisfactory feed for our poultry, as they can just be flung in the pens and the fowls and chickens take off the seeds themselves. There is a large importation of oats into the island, and if this guinea corn could be grown very largely it could be used as a very efficient substitute.

Another good point about guinea corn is that thieves do not trouble it as they do corn, but perhaps that is because it is not so commonly grown yet. We have both native and imported seed for planting in February, March, and April, whenever there is rain enough.

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IMPORTATIONS OF STOCK.—In February a roan Shorthorn bull was imported by Colonel Blagrove, for his properties in St. Ann, and two Porto Rico bulls were imported for Mr. Gossett for his property in Hanover, and one for Mr. J. C. Farquharson of St. Jago. The bringing of Porto Rico cattle is an experiment not made at random, but with a definite aim, and we shall watch the result of the crosses on our cows with interest.

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FOOT AND MOUTH DISEASE.—Owing to the prevalence of Foot and Mouth Disease in parts of the United States—a disease which is most infectious and most contagious,—the Government have as from the 6th day of February until further notice, prohibited the landing in Jamaica of cattle, animals, fodder, and litter. Fodder in this connection does not include grain or meal like oats and corn, bran and middlings. This is no great hardship, as hay and straw mostly come from Halifax now. In Canada, strict precautions have been taken to prevent any live stock going into that country from any part of the United States, even to the length of prohibiting any ships from the U.S. ports having live stock on board from touching at Canadian ports.

In the January JOURNAL we published what the Board of Agriculture and Fisheries in the United Kingdom have done in

Prompt measures were immediately taken by the United States Government to get the disease stamped out, and in a short time we hope to hear that the authorities have been successful in confining the disease to the States which have been strictly quarantined as regards any live stock and fodder going out from them, and also in suppressing the disease there.

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MOUTH TROUBLE IN HORSES.—Just at the time that people's attention was called to the serious outbreak of Foot and Mouth disease in certain parts of the United States, a mouth trouble occurred among horses in Kingston. This was diagnosed by Mr. Tavares, Veterinary Surgeon, as *Enzootic Stomatitis*. The real Foot and Mouth disease is *Aphthous Stomatitis*. This trouble caused horse owners some alarm, but it was got under by ordinary veterinary treatment. The most common cause for this disease is found in the fodder, such as fungi on imported hay, and moulds so commonly seen on imported corn kept for a time in a damp place; and watery vegetation such as young guinea grass. It may also be caused from any irritating medicines if used continually. Horses were seen slobbering from the mouth, unable to eat, and falling off in condition rapidly. The mouths of the horses were very hot and tender to the touch with an offensive, even fetid odour from the breath, with small eruptions on the tongue, lips, and even on the chin. There was a flow of mucus of a sticky and gunny nature hanging in strings from the mouth where these were not cleaned out at once. The treatment was by washing with chlorate of potash in water.

This trouble has occurred before we learned on enquiry, in St. Catherine and St. Elizabeth, and we observed that it has lately occurred in Hawaii. So with all this knowledge, the alarm at first felt, that it might be the real Foot and Mouth disease, was soon allayed.

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PRIZE HOLDINGS COMPETITION.—Owing to the pressure on space the reports of judging for this competition in St. Andrew and St. James will be printed in the next JOURNAL.

We learn from Mr. Arnett, who has considerable experience in judging these holdings in almost all the parishes, that while the entries were satisfactory in St. Andrew, he felt a good deal of disappointment at the lack of the same interest that had been displayed in previous years in St. Ann, St. Elizabeth, Trelawney and Portland. People were interested in a way, but not in the enthusiastic way he has had experience of in the parishes mentioned. Many of the holdings entered in St. Andrew are fairly well cultivated, and the houses fairly good, but there is something incomplete about them in the lack of fences and live stock. No holding can keep up its fertility without live stock. At the same time we must mention that holdings in the long cultivated parts in the white limestone formation of Manchester and St. Ann, have often

had great advantage in appearance—although their soils may be poor,—over the holdings in other parts, owing to their having stone walls and stone house, the latter being mostly white washed and so looking particularly neat and attractive. A good attempt has been made to improve the sanitary conditions of the holdings, but there is still a great lack in that respect. We hope that by the next competition in St. Andrew the owners of small holdings will arise to the occasion, make an effort to fully understand its purpose and put more keenness into the competition.

In St. James there was the same lack of spirit as a whole, and although evidence of the Instructor's work in systems of drainage were not uncommon, there was a want of system, and the general tidiness of the holdings was lacking.

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SCALE INSECTS.—A correspondent sent on some branches of *Castilloa* Rubber infested with scale insects. We sent these on to Professor Newstead for examination, and he replied as follows:—

Constant Spring Hotel, December 2, 1908.

"The *Castilloa* rubber shoots are attacked by the common scale insect of this island; which is so far as I can judge by a somewhat hasty examination, the *Diaspis amygdali*. The rubber is, so far as my experience goes a new food plant for this universally distributed pest; and I am very glad to have the specimens. I should advise lime and sulphur wash or the petroleum emulsion. Any specimens you can send to me during my stay will be greatly appreciated. If I find that my identification of the pest is not correct, when I get my microscope into working order I will write you again."

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LEMON GRASS.—A firm in New York wishes to buy quantities of Lemon grass and lemon grass oil. If any one can supply this we shall be glad to hear.

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IRISH POTATOES.—As we wrote in the January JOURNAL, taking it all over, this has been an ideal season since October for the cultivation of vegetables. Irish potatoes have done exceedingly well, and in the end of January we were lifting potatoes planted in the middle of November. The seed we imported was not what we could call good seed.

As an experiment we took all the rotten and scabby potatoes—when re-sorting the consignment so as to send out only the best,—cut off the rot, rubbed the face of the cut sets well in wood ashes, dipped the scabby potatoes in formalin, and although a good many of the cut sets had to wait a few days, and so dried out a good deal (the fresher the cut seeds are, the better), yet there was an average of seven good healthy potatoes per root,—this is in the lowlands. On the hills it rained all along in January, just when for potatoes it should have been dry, and the soil being cold and clammy—chosen in view of a probable dry weather period, the tops died off eight weeks from planting, i.e., two or three weeks before the full crop was expected. The result is only a half crop

of small potatoes, which will, however, make good seed. This illustrates the difficulty, where soils differ, of advising what soils to choose for gardening. In dry places subject to drought we should pick the dampest locations possible; in moist soils we should pick the best drained locations possible, that is if we have any choice, as most have, but weather out of the ordinary may upset our calculations.

We are importing more seed potatoes to order for the spring planting, and these should arrive end of February.

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CACAO AND GRUBS.—We have received from Cooper & Co., Berkhamstead, England, samples of a new preparation for killing grubs and insect pests, generally, in the soil. This is in the form of a powder, which has some fertilizing value, and is sold at 12s. 6d. per cwt. in England.

We hope this preparation will be found effective in destroying the grubs which eat out the roots of oranges and cocoa.

The use of bi-sulphide of carbon has been found to be dangerous in the hands of labourers, and is certainly expensive and tedious to apply. Bi-sulphide of carbon could hardly come into general use. We trust that Apterite will be effective as it is easy to handle.

A few years ago we heard but few complaints of cocoa trees dying through the attacks of grubs at their roots, but plenty of tales of orange trees dying from this cause. Now we do not hear anything about orange trees being so troubled, because, probably, the conditions that sickened the trees are understood and are remedied—deep planting is no longer done, and trees so planted had the earth cleared from the necks of the trees, and these left open, while drainage, formerly absent has been effected.

May there not be some such conditions governing cocoa trees requiring remedying in the same way?

CORRESPONDENCE.

(Only letters, with replies likely to be of general use are published here.)

Gibraltar, Watt Town, 14th January, 1909.

This Branch has requested me to get information from you on how to get the cocoa to thrive in this locality. It has been tried, but lives for only a short time. The soil here is what is called red clay without much tenacity. The plants that do grow generally die from the tap-root. What is the cause? And how can this be remedied? It has been observed that other orange-producing countries are able to get their crops ready for the early market. What step could you suggest that we take in this matter so as to have our fruits fully developed between the months of August and September? The members who have joined recently and for whom JOURNALS are required are Messrs. E. B. Mills, Michael Wiggan, William Christie, and L. A. Smith.—I. H. EDWARDS, Secretary.

REPLY.—Yours is not a natural cocoa growing soil and great care and labour would be required to make cocoa trees grow successfully and bear for many years. Deep draining and heavy mulching with stock manure would be required. Now yours is a natural coffee soil and the

coffee trees are there already. The same labour and care required to grow cocoa artificially in your red soil would result in mighty crops of coffee right away without waiting.

Early oranges marketed from July to September are obtained in several groves situated rather less favourably than yours for soil and climate, by cleaning the trees every year, taking off all fruit not marketed by November, so that the trees are in a favourable position to blossom early, by January and early February. Orange trees should not be shaded nor should dead branches be allowed to remain on them.—SECRETARY.

BRANCH NOTES.

Bull Head (Clarendon).—A meeting was held at Mt. Carmel on Wednesday, 6th January, 1909. There were 16 members present. Mr. J. Hirst, Agricultural Instructor, was also present. The subject of Prædial Larceny was discussed. Mr. Hirst was of opinion that prædial thieves may be divided into three classes. (a) The habitual criminal who made stealing a profession. (b) The respectable thief, whose neighbours would not show him up, even if he was caught. A strong public opinion is necessary to remedy this. (c) The starvation thief who steals from great want and poverty, and who often is only imitating the second class. Mr. J. F. Robinson pointed out that idleness was to a great extent the cause of stealing of this kind. He thought that generally too much liberty was allowed some children to take other people's things with the feeling that even if they knew they wouldn't say anything. Children should be early taught to realize the difference between "mine and thine." Rev. A. A. Barclay said that in his opinion, illegitimacy was to a great extent the cause of prædial larceny. A few remarks corroborating and emphasising these points, were made by other members. The Secretary read letters from J. Barclay, Esq. re (1) Cocoa-growing and curing and also the convenient and profitable upkeep of a small holding of 3 acres. (2) The Essential Oil product. (3) Representative to the Half-yearly General Meeting of the Jamaica Agricultural Society. Mr. E. Alex. Tomlinson was appointed to represent the interests of the Society at the General Meeting. With regard to the making of essential oil from Seville oranges, Mr. Hirst made valuable suggestions; and the Secretary was instructed to write Mr. Barclay, asking for information as to the marketing, etc., of this product. Mr. Hirst gave an address on the Prize Holdings Scheme, and in answer to a question asked by one of the members, made a few remarks on rubber cultivation. He would not encourage small settlers to cultivate rubber, unless they had a special desire to do so. A vote of thanks was accorded Mr. Hirst for his very helpful remarks. Members were reminded that meetings would always begin precisely at 5 o'clock. The next meeting will be held on Wednesday, 3rd February.—E. A. TOMLINSON, Secretary, Chapelton.

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Gibraltar (St. Ann).—The regular monthly meeting was held on the 4th January, 1909. The following members were present: Hon and Rev. V. M. Webb and 19 others. This being the first time since the re-organization of the Society that the President the Hon. and Rev. W. M. Webb was present, the Secretary introduced him to the meeting in that especial capacity. He said he was very glad to be present and to see what the members of this Branch were endeavouring to do in the furtherance of agriculture in particular and in the improvement of the district in general. To some extent he was of the opinion that Jamaica was behind and when compared with some other West India Islands, chiefly from the lack of capital and intelligence agriculturally. He hoped that the proposed amalgamation of the Board of Agriculture and the Agricultural

Society would eventually bring better results. He was desirous of seeing more and new agricultural industries introduced into the holdings of the small settlers, making special reference to cotton and cocoa. The minutes of the last meeting were read and confirmed. No discussion arising from the minutes, the agenda was proceeded with. Mr. Gager gave some interesting facts on the gathering and curing of pimento. He pointed out the small value placed on this article in past years by ignorant people who used the most promising young trees to make fences and sticks for yams. In 1884 when he was in New York he was positively ashamed to see some of the pimento shipped from our island. In a lucid manner he showed how the crop should be gathered and cured so as to ensure good crops and good prices. Mr. Thomas Lawrence in moving a vote of thanks to Mr. Gager said that he agreed with him in the principles of breaking and curing. He has always acted on the same lines and the results are always satisfactory. The President advised the members to form a combine and see the advantages of thorough curing and instead of selling locally, to export direct to England or America. Mr. Thos. Lawrence, followed by Mr. R. S. Barnett, gave some very useful facts on the preparation of the soil for yams. They were able to give practical ideas as this staple forms their chief agricultural pursuit. A vote of thanks was accorded them for the information given. Mr. Edward Gibbs spoke on the manure which comes from pigs' styes. He has compared it with other animal manures and has watched its effects on plants for years. This has led him to come to the conclusion that the manure from the pig is more profitable than that from other animals. Before closing, the President endeavoured to impress on the members the habit of being thrifty. He would like to see them hard working men, but they must not be old ideas. They must, in everything, aim at steady improvement. It was moved by the Secretary and seconded by Mr. J. R. Codner, that a letter of condolence touching the death of the late Colonial Secretary, be sent to the bereaved widow. This was unanimously agreed to.—I. H. EDWARDS, Secretary.

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St. John's (St. Catherine).—A special meeting of this Branch was held at Kitson Town on the 14th January at 6 p.m. The President being absent through owing to bad health and none of the Vice-Presidents being present, Mr. F. A. Vernal was, on the motion of the Secretary, elected Chairman. After the minutes were read and confirmed, the Secretary read (a) a letter from the General Secretary informing members of the half-yearly meeting which will be held on the 28th, to which each Branch Society can send a representative, (b) another from Mr. E. J. Hendriks of Guanaboa Vale school, resigning his position as junior Vice-president. The water question was again discussed. On the motion of the Secretary, seconded by Mr. Vernal, the following resolution was unanimously carried: "That this meeting seeing that nearly six months have elapsed since the Board has promised to cover the Kitson Town tank with half inch mesh wire and to erect the pump to prevent pollution, and up till now no step has been taken by the Board, resolved that the Board be respectfully asked to fulfil its promise." Touching and sympathetic references were made relative to the demise of the late Hon. H. C. Bourne, Chairman of the Board of Agriculture. On the motion of the Secretary the meeting adjourned until the 2nd February, when the Annual General Meeting will be held. Officers for the new year will be elected.—S. A. BARTON, Secretary.

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Spanish Town.—A meeting was held on 11th January, 1905. Present: W. Clarke McCalla, President, and 15 members and the Secretary. The minutes of the last regular meeting of 14th December, 1908, and 21st were read and confirmed. Election of new members was then proceeded with, there being two nominations, *i. e.*, Messrs. G. Constantine and M.

Demetrius, both gentlemen on vote were unanimously elected. On the proposal of the President, the Secretary was directed to prepare and forward to the parent Society a complete list of all the members with as far as possible, their postal addresses, so as to enable the Secretary of the parent Society to forward the current JOURNALS. The President, before handing finally over the reply of the Custos, the Hon. George McGrath, was requested to read it, which was done, (delivered at the opening of a fair and carnival held on the 28th December, 1908). A letter was read by the Secretary from Mr. J. S. McPherson, resigning membership, owing to the fact that he contemplates leaving the island within the very near future—accepted. Mr. A. Johnson a M. P. B. from Clarendon visited the meeting, and as Secretary of the Four Paths Branch Society, gave some very useful advice, for which a vote of thanks was rendered. Moved by C. Finlayson, the Secretary was requested to prepare and present at meeting of 8th February, a financial statement of this Branch. This concluded the business at 9.20 p.m.—G. PERCY FONSECA, Secretary.

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Smithville (Clarendon).—The regular monthly meeting was held on Monday, 4th January, 1909. There were present the following: Mr. W. Reid, President in the chair and J. Hirst, Agricultural Instructor, and 20 members. The minutes of the previous meeting were read and confirmed. The President then informed the meeting that the Show Committee unavoidably did not meet and consequently there was no report. The idea of a local show was encouraged by Mr. Hirst, who expressed his willingness to assist in the getting up of the show. On the motion of Mr. F. McLymont, seconded by Mr. M. Edwards, Mr. Hirst was appointed Chairman of the Show Committee. The Secretary read letters from the Secretary of the parent Society re essential oil from oranges, and the sending of a delegate to the Half-yearly General Meeting of the Jamaica Agricultural Society on the 28th January, 1909. With regard to the extracting of the essential oils from the Seville orange, Mr. Hirst gave very valuable information, and suggested that the meeting instruct the Secretary to write to Mr. Barclay for information on the marketing of the essential oils. On the motion of Mr. F. McLymont, seconded by Mr. Marcus Edwards, Mr. J. Edwards was elected as delegate to represent the Society at the Half-yearly General Meeting in Kingston. Mr. Hirst then addressed the meeting on Manure. He touched also on the Prize Holdings Scheme, and in course pointed out the extreme carefulness which should characterize each competitor's efforts. The meeting felt deeply thankful to Mr. Hirst for his very helpful remarks, and a vote of thanks was tendered accordingly.—J. A. EDWARDS, Secretary, Frankfield

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Stewart Town, (Trelawney).—The regular monthly meeting of this Branch was held on Thursday evening, January 28th. In the absence of the President, Hon. and Rev. W. M. Webb, Mr. John Stockhausen was requested to preside, which he kindly did. Seventeen other members were present. After the reading and confirmation of minutes of last meeting, the Secretary read a letter from the Parochial Board of Trelawney stating that the Board after giving the matter of the road leading into Liberty Hall and Friendship Mountains further consideration, is unable to move further in this matter until the parties who consider that they have a right of way to the road, or the Society on their behalf, establishes this right in a such a definite manner as to preclude the possibility of a law-suit being entered into against the Parochial Board by Mr. J. J. Milliner or any one else, if it eventually decides to place the road on its schedule of Parochial Roads, and maintain it as a public thoroughfare. It was therefore moved by Mr. A. Norman Bernard, seconded by Mr. James Smith, and unanimously agreed to that the Secretary write to the Deputy Keeper of the Records, respectfully asking that a search be made for the original plat of Liberty Hall Mountain or

Belmont, and to see if a road was given leading from the main road into Liberty Hall Mountain. Mr. Stockhausen reminded the meeting of the forthcoming Minard show, and advised that the members prepare exhibits for that show. The Secretary at this stage referred to the suggestion of our late Governor, Sir Henry H. Blake, made at the Bath Agricultural Show recently held, as reported in the newspapers: "That he (Sir Henry thought it necessary that arrangements should be made whereby the small man for whom the shows were principally intended, would have the opportunity by working through the central Society of getting rid of his small quantities of produce." A lively discussion of the subject followed. Mr. Stockhausen was of opinion that before such a step could be taken it was necessary that the people be properly educated in the important matter of curing their produce. The Secretary said the matter would specially concern the members of the Branch Agricultural Societies, and they would properly cure and carefully prepare their produce to be disposed of by the suggested central department, in the same way as they prepare the samples for the local shows. The benefit gained by the members of the Branch Societies in the obtaining better prices would be a stimulus to others who were careless in this vital matter. The suggestion of Sir Henry met the approval of the meeting. On the motion of the Secretary, seconded by Mr. R. H. Brissett, the following resolution was carried *nem. dis.*: "That this Branch of the Jamaica Agricultural Society heartily approving the suggestion of Sir Henry Blake at the recent show at Bath *re* the disposing of the small man's produce by some central Society, would respectfully bring the matter before the parent Society and ask that it considers the advisability of establishing in the interest of the smaller agriculturists—members of the Branch Societies—a department to find out the best market for their produce, and to dispose of same for them; and that the co-operation of the other Branch Societies be enlisted in pressing the importance of this matter on the parent Society." The items on the agenda being disposed, the meeting adjourned.—JOSIAH JOHNSON, Secretary.

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Glengoffe (St. Andrew).—A meeting was held on the 14th January at Grateful Hill. Among those present were Rev. C. Reynolds presiding, and seven members. After the reading and confirmation of the minutes of the last meeting, items of correspondence were considered. One from the Director of Agriculture, rendered an account of 10/8 balance for boxes conveying plants. The affiliation fee also was due. A full attendance had been sought, but the rain preventing many of the members, it was decided that the effort be renewed, so that the Branch be placed in a position to meet its financial obligations. In connection with the correspondence from the Secretary of the parent Society, dealing with representation at the next Half-yearly General Meeting, it was decided that the Vice-president, Mr. Alex. Carey, be asked to represent the Branch. In connection with the employment of the Travelling Instructors, the feeling of the meeting was expressed in the following resolution: "That in the judgment of this Branch it is not advisable to remove the Travelling Instructors, Messrs. Briscoe and Cradwick, from the direct control of the Government; but rather that the four other Instructors who are under the Instructors Committee be placed, if practicable, under the direct control of the Government." The need of a bridge over the local river on the road leading to Richmond having been previously discussed, the President, Vice-president, and Secretary formed into a committee to draft a petition to the Government, a well worded document setting forth the need of this in the interest of trade, morality, education and progress generally was next read, and approved. It was decided to forward a reply to the member of the Legislative Council for the parish. The Branch is next to move in the matter of the extension of the Government telephone system to the local post office. Bananas are

in good form for the spring when it is expected that an impetus will be given to trade. The St. Vincent yams procured through the Secretary, with the assistance of the Instructor for Manchester, have been a real success. One member reported that he has just reaped one yam weighed 86 lbs., another 80 lbs., and so on.—A. P. HANSON, Secretary, Glengoffe

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St. George's, Buff Bay (Portland).—The annual general meeting was held in the Court House, Buff Bay on Saturday, January 23rd, 1909. There was only a small attendance of members. Mr. T. C. Geddes, President, being in the chair. The minutes of the last general meeting were read and confirmed. The annual report was read and adopted. Great difficulty was experienced to find some one willing enough to undertake the duties of President for the coming year. Finally, J. Hill was persuaded to accept the position, provided the Vice-presidents undertook the night meetings in connection with the proposed show. The following were elected officers for the year: John W. Hill, President; W. G. Russel, Rev. A. Cresser, Vice-presidents; C. H. N. Jones, Hon. Sec. Committee: Rev. W. J. Thompson, S. S. Steadman, A. E. A. DaCosta, C. A. Miller, Jno. Mason, R. W. P. Richards, Rev. W. A. Robinson, Isaac Haase, A. L. Isaacs, T. C. Geddes, C. P. Dunn, R. Russel. The local Secretaries were left over for the committee to appoint. The meeting was then adjourned.—W. JACKSON, late Hon. Sec.

The weather has not been so favourable for plant growth during the past week. Heavy rains with comparatively little sunshine have retarded growth somewhat. The outlook for bananas is good, as the buyers are busy trying to secure contracts, and the suppliers now have a chance of selecting from different kinds the one that will suit his fruit best. Most of the fruit will be late, but a fair proportion will come in the season. Excessive rains have been causing cocoa trees to suffer in different parts and spoiled lots of young pods, but still a good crop is hoped for. Prices remain very slow still. There seems to be a fair supply of ground provisions. White guinea yam and yampie are coming into season again. Eggs are plentiful.—W. JACKSON.

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Above Rocks (St. Catherine).—The regular monthly meeting was held in the St. Mary's schoolroom. Mr. W. L. Rainford presided and Mr. J. Hirst, Travelling Instructor, and Mr. C. C. Henriques of Kingston, were present. The minutes of the last meeting were read and confirmed. Several letters from the Secretary of the J. A. S. were read and discussed. Mr. W. Thomas Linton was elected as delegate to the Half-yearly General meeting of the J. A. S., and after some discussion, the views of the Society on different matters were outlined for his guidance. It was resolved and passed that at the next meeting a full list of all members who have paid up their subscriptions for the present year be read. The meeting then had the pleasure of listening to a very interesting and instructive address on the "Present condition and prospects of the Jamaica jippi jappa hat industry" by Mr. Cyril Henriques of Kingston. The subject was fully discussed by the meeting, and a vote of thanks to Mr. Henriques was unanimously passed. It was also resolved that dealers requiring hats be asked to supply to the Secretary, samples of the hats required, so that the makers be enabled to produce exactly what is wanted. An address by Mr. Hirst was then given, reviewing the hat question, and dealing with the marketing of produce in general. A vote of thanks to the lecturer was unanimously carried. A few other matters were dealt with, and the meeting adjourned to the 19th February, when the matters left over from this meeting will be discussed. There has been plenty of rain, and some breeze, during the last few weeks, but no damage has been done, except to the roads, which hardly needed anything to make them abominable. There is still a fair quantity of cocoa, but the

price is very low. Mr. Rainford has started buying bananas. It is earnestly hoped he will be able to continue for a long time, as this crop has long been unsaleable, and most people were beginning to neglect their banana cultivations. There is a local demand for corn.—W. L. F. VASSAL, Secretary.

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Giddy Hall (St. Elizabeth).—A most interesting meeting was held in the Giddy Hall schoolroom on Friday, January 22. The Chairman, Rev. John Maxwell, presided. All the members took a lively and intelligent interest in the subjects discussed, showing that there is an increasing desire for more up-to-date knowledge among them. One of the first items was a letter from the Secretary, Mr. John Barclay, calling attention to a new industry—the extraction of essential oils from citrus fruits. In connection with this letter, Mr. Shakespeare, one of the members, referred to an article on the same subject in the December number of the JOURNAL of the Jamaica Agricultural Society. Many members would be glad to go in for this industry, as there are plenty of oranges, seville and sweet, in the district, and there is very little sale for them. The difficulty seems to lie in finding a market for the oil, and in the danger of its becoming rancid on the producer's hands. Mr. Tomlinson suggested that there is always a market for essential oil of limes, and that the Secretary of the Branch should discover if either of the rinders may be used for limes, and if so which one. He also pointed out the fact that the extraction of the essential oil from the limes would in no way hinder the sale of the fruit for lime-juice. All agreed that it is a great pity to see the yearly waste of oranges and limes, but the people are disposed to be cautious in taking up a new industry. However, if they hear from the Secretary that the rinder may be used for extracting oil from limes, it is probable that some members will experiment. There was some talk of sending jippi-jappa plants, but in the absence of any knowledge of methods of preparing the straw, etc., it was resolved to invest rather in rubber plants. In these days of motors, there is an ever increasing call for rubber, and trees planted now may be counted on to give a good provision for a man in his old age. As much time had been spent in lively discussion of these and various other matters, such as new roads, silk cotton, locust gum, etc., the Chairman said he would give no long address, but he was anxious to point out that a scarcity of food is always felt in the months of April, May, and June, and he would like to persuade the people to plant Irish potatoes. He promised to give a practical demonstration in planting potatoes to any members who cared to come out, the following morning. (I may mention here that there was a good turn out the next morning, when a practical demonstration and lecture was given.) He told them that whereas a yam takes six months at least to come to maturity, potatoes can be dug in three months or even less from the time of planting. It is true some of our people do not care for the flavour of potatoes, but there is always a ready sale for them at 1½d. per lb., at which price they pay well, and there is little danger of having them stolen. This last remark led to an animated discussion of that great evil, praedial larceny; an evil, which, alas! seems to be on the increase in our district. What are we to do with the thief? He is not only stealing our food, but as Mr. H. Walcott showed, he is destroying the plants of Jamaica; for the praedial thief never plants, he only kills and lays waste. What shall we do with him? Mr. Tomlinson urged that if we do our duty as honest men, we will have no dealings with a known thief. No man should assist him, or give him so much as a cup of water, but bound him out of the parish, and let him be indentured like a coolie on one of the big estates. These measures seem perhaps rather drastic; they remind me of an old Maroon whose yam plantation had been plundered. He came to his parson to tell him his troubles, and what he would like done to the thief, winding up his remarks: "I may be a *little* harsh

parson, but hang him, hang him!" Mention was made that our agricultural Instructors will be with us at the beginning of next month, when the judging of the small holdings will take place, and when we hope to carry off one prize or perhaps more. A most helpful and delightful meeting came to a close.—GRACE L. MAXWELL, Secretary.

(The essential oils of lime, lemons, sour and sweet oranges, are all saleable and "rinders" can be obtained to suit all. It is better to get a smaller rinder for limes than what is used for the large fruits. We would not recommend the industry without knowing how to get the oil disposed of. We have arranged for this.—SECRETARY)

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Ulster Spring (Trelawney).—The monthly meeting came off at the Baptist schoolroom on the 6th inst., Rev. E. G. Douglas in the chair. The minutes of the last meeting were read and confirmed. The President wished the members a happy new year and hoped that the happy relations that existed hitherto will continue as long as the Society lasts. Read letter from Mr. Fitz Ritson *re* application for a special grant of £15 to improve the road to Cedar Hall, where the show will be held. Read letter from Mr. Barclay stating that the Ulster Spring Branch has been duly affiliated. (Applause.) The Secretary reported that eight merchants had expressed their willingness to advertise on the prize lists and that five had sent in fees at the rate of 8/ per page and 5/ half page. As Easter Monday was generally considered too early for the show, Mr. Joseph Shaw moved, and Mr. South seconded, that it should be held on Thursday, June 3. This was unanimously agreed to. Mr. South enquired about the progress of the jippi jappa hat class, and was told that Mr. J. E. Neita was negotiating for a teacher and that an attempt was being made to find out how many persons in the various districts are willing to join the class. The Secretary read a letter from the Director of Agriculture, stating that 100 jippi jappa plants can be sent to Balaclava at 4/6 per hundred. The aim of the Society is to get the members to plant these plants, that in a short time there will be no need to buy straw from other parts. The half bred ram that has been purchased a few months ago took two weeks French leave and grave fears were entertained for the safety of the young Angora. He is evidently homesick and does not seem to be satisfied with the company. Or is it that he heard that a few members want to sell him and buy an older? Mr. A. L. Neita, a member who resides at Alley, was asked to attend the half-yearly meeting of the parent Society as a delegate, but declined the honour. Mr. J. G. Pike was willing to go, but could give no definite promise. The following are the Society's views *re* the half-yearly meeting: 1. This Branch favours the abolition of the Board of Agriculture and the vesting of its functions in the Jamaica Agricultural Society, and the Department of Agriculture. 2. All instructors should be under the same management, and when an instructor leaves his district to judge holdings, some provision should be made for the continuance of his work. 3. The orange trade should be protected by the Government that it may be impossible for immature or otherwise undesirable fruit to leave the island. After Mr. South promised to read a paper on manning at the next meeting, the meeting adjourned.—G. W. MILLER, Secretary.

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Upper Trelawney (Albert Town).—The usual monthly meeting of this Branch was held at Albert Town on Wednesday, 20th January. In accordance with Rule 13 (of the new Rules) there was a roll called. There were 14 members present and the Secretary. In the unavoidable absence of the President, Mr. D. R. Wright presided. The minutes of the last meeting were read and confirmed. There were nothing arising out of the minutes for discussion. 1. The Secretary read letter from Mr. Barclay *re* members paying up their subscriptions before they can get

get the JOURNAL of the Jamaica Agricultural Society. 2. Read letter from Mr. Barclay *re* amount in hand of Mr. T. F. Forbes (the late Treasurer of the U. T. A. S.) 3. Read letter from Mr. Barclay *re* the Half-yearly General Meeting of the J. A. S. to be held on Thursday, 28th January. 4. Read letter from Mr. E. Arnett (President), expressing his regret in not being able to be present at the meeting, but that he would endeavour to do so at the next of its kind. Mr. Palmer spoke at length of the unnecessary kind of feeling long existing between certain members of the Society, but now that there has been a division, hoped that this Society which is *still aliee* may be of great service to all its members, and that the members should pull together for the attainment of the highest possible good. The following resolution was next moved by Mr. R. J. Allen and seconded by Mr. F. H. Coy: Resolved that this meeting begs to enquire of the Secretary of the parent Society what has been done in reference to the funds of the U. T. Society now in the hands of Mr. T. F. Forbes, the Treasurer. That it is the feeling of this meeting that the matter be expedited in as much as the members of the Society desire to know just where *they are*. The Chairman here advised the Secretary to number all minutes in future. The Secretary next read over the rules for the information of all new members. Mr. J. B. Bryan here paid in his subscription. The Chairman then addressed the meeting. He urged upon the members in a very forcible manner, the great need there was for co-operation, without which the work of the Society could not be carried on, and instead of having a mere talking Society, to forward a working one.—A. A. PALMER, Secretary.

(The parent Society has no control over the late Treasurer of the Upper Trelawney Branch and who has refused to deliver the funds in his hands to the new Treasurer of the Branch. The matter must be fought out by the Branch locally. This decision of the Board of Management was advised to the Secretary of the U. T. Branch.—The SECRETARY.)

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Castleton (St. Mary).—A special meeting of this Branch was held here on the 13th January, the Vice-president in the chair. There were present, 24 members and the officers. Mr. Briscoe, the travelling Instructor, was present, who gave a very lengthy and instructive lecture on cocoa and pests. He showed the importance of draining the soil and how it should be done. He also showed the cause of the black disease, which is caused by wet soil and that the only cure for such a disease is draining of the soil. Next item was the destruction of rats and woodpeckers. Mr. Briscoe strongly advised that the people of the district should all set poison in their cultivations, at the same time in order to destroy the rats. Relative to woodpeckers, this matter was discussed by several of the members, and a very satisfactory explanation given by Mr. Briscoe. This brought a very interesting meeting to a close.—J. D. HARDIE, Secretary.

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Castleton.—The regular monthly meeting of this Branch was held here this evening (January 8th), 14 members were present. The minutes of the last meeting were read and confirmed. The first business dealt with was to fix a day for the framing of the rules of this Branch. It was then fixed to be held on Friday, 22nd January, at 5 o'clock in the afternoon. The Treasurer then read his financial report, showing amount received from members, expenditure, and amount of balance in hand. Letters from Mr. Barclay were read, dated 30th December, 1909. One that the Half-yearly General Meeting of the Jamaica Agricultural Society would be held on the 28th January in Kingston, and that Branch Societies should send one delegate to represent them. The next item was whether Friday was a suitable day for meeting or no. After some discussion it was thought best to continue on Friday as usual. Two mem

bers joined the Society, Messrs. Roe and Peckoo, paying 1s. each. It was then moved by Mr. W. R. Saunders, seconded by the President, that this Society place on record its deep regret of the death of the Hon. H. C. Bourne, Colonial Secretary of Jamaica, who was, up to his death, Chairman of the Board of Agriculture, and that a copy of this resolution be forwarded to Mrs. Bourne. Mr. Saunders also moved, seconded by the Vice-president, that a public service be held at Castleton on the 14th January, 1909, in memory of the last earthquake in Jamaica, and that the collection raised on that day go to help the sufferers of the late disaster in Italy. This resolution was also carried and the meeting came to a close with the National Anthem.—J. D. HARDIE, Secretary.

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St. John's.—The annual general meeting of this Branch was held at Kitson Town on the 2nd January at 6 p.m. None of the presiding officers being present, Mr. D. V. Anderson was voted to the chair. After the minutes were read and confirmed, the Secretary read an explanatory letter from J. Barclay, Esq., and one from the clerk of the Parochial Board, informing this Society that the Superintendent of Roads and Works has been instructed to cover the tank at Kitson Town at once. The Secretary gave a digest of the work of the Society during the past year which showed an increase as far as membership is concerned. He deplored the indifference shown by some. He was sorry to say that owing to a serious accident which has physically incapacitated the President, that gentleman had informed him that he was not prepared to stand for re-election. The senior Vice-president has left the district and the junior Vice-president has resigned. The Secretary was accorded a vote of thanks for the manner in which he has discharged his duties. The following officers were elected: On the motion of Mr. T. J. Richards, seconded by Mr. Charles Wright, Mr. D. V. Anderson was elected President. This officer, in returning thanks for the past, said, among other things: "I shall exert myself to do my best for this Society." On the motion of Mr. Wright, seconded by Mr. G. A. Bell, Mr. T. J. Richards was unanimously elected Vice-president. On the motion of Mr. G. A. Bell, seconded by Mr. McBean, Mr. J. H. Gonzales was also unanimously elected junior Vice-president. On the motion of Mr. Anderson the same Secretary was re-elected. The Secretary returned thanks for the confidence of the members in him. He was always willing to serve his people. Mr. Banton moved that "Rule 9" of the Society should be deleted, for the time has now come when it was obvious that another day should be substituted for Saturday. That day, in these days of hustle and bustle, is rather unfavourable to the majority of the members and he was quite certain that larger numbers would be got on any other day. After much discussion, on the motion of the Chairman, Tuesdays were substituted for Saturdays. It was ultimately decided to hold the meetings monthly on Tuesdays at 6 p.m. The following resolution was adopted and the Secretary was instructed to forward a copy to the authorities:—Seeing that letters and resolutions in accordance with the decision of the Parochial Board on the 15th July, 1908, had been forwarded repeatedly, in order that the members of this Society may be informed in what way the Board intend to do one half of the clearing of the roads at Aylmers and Belmont respectively, and seeing that we are still uninformed, resolved that the Board be respectfully asked to say whether the people who have already pledged themselves to co-operate with the Board, should work until the works are completed when they will receive one half payment for what they do or whether the Board intend to divide each pond in two and clean one half, while the people do the remainder."

NOTE.—Very high winds and cold nights. The potato crop is rather poor and disappointing, but on a whole the prospect is brighter than the same period of last year. Some ground provisions can be got in the local market.—S. A. BANTON, Hon. Secretary