

FORESTRY

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THE HAWAIIAN  
FORESTER AND  
AGRICULTURIST



VOL. X.

FEBRUARY, 1913

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AND  
**Agriculturist**

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OF

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## DIVISION OF FORESTRY.

### FOREST AND ORNAMENTAL TREE SEED AND SEEDLINGS FOR SALE AT THE GOVERNMENT NURSERY.

The Division of Forestry keeps constantly on hand at the Government Nursery, seed and seedlings of the important native and introduced trees. These are sold at prices just covering the cost of collection or growing.

The list includes both forest and ornamental trees, such as Silk Oak, Koa, various species of Eucalyptus, Golden and Pink Showers, Pride of India, Poinciana, Albizzia, etc. The price of the seed varies from 10 to 50 cents per ounce. The seedlings may be had for 2½ cents each, except a few kinds which are 5 cents. Seed of the various palms is also for sale; the price per 100 varying from \$1.00 to \$2.50. All seed is tested before being sent out, which insures its being good.

All communications in regard to seed or trees should be addressed to David Haughs, Forest Nurseryman, Box 207, Honolulu, Hawaii.

**RALPH S. HOSMER,**  
Superintendent of Forestry.

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## DIVISION OF ENTOMOLOGY.

To give information about insects free of charge is one of the duties of this Division and Hawaiian readers are hereby invited to make inquiry in person and by mail. In order to be able to advise intelligently or send the right kind of useful insects for relief we like and sometimes it is indispensable for us to see the insect suspected or caught in the act, also specimens of the injury. In a tin with a hole or two, or a wooden box specimens may be mailed at 3rd class rates. When specimens are not accompanied by letter *always* write your name and address in the upper left-hand corner of the package. Address all communications **SUPERINTENDENT DIVISION OF ENTOMOLOGY, P. O. BOX 207 HONOLULU, HAWAII.**

**EDW. M. EHRHOEN,**  
Superintendent.

Handwritten notes:  
12-8-85  
2-4-6-8-12  
P.O. No. 2-4-6-8-12

# THE HAWAIIAN FORESTER AGRICULTURIST

VOL. X.

FEBRUARY, 1913.

No. 2.

Some idea of the damage and destruction of useful vegetation from which these islands are undoubtedly saved through the skill and the vigilance of the Division of Entomology, in keeping pests that are constantly being brought to the gateways of our commerce from entering, may be obtained from any of the monthly reports of the Territorial entomologist. Some notable instances will be found in the report of Mr. Ehrhorn for January in this number.

An article on starting right in the hog business, copied elsewhere from the Live Stock and Dairy Journal, is commended to small and large farmers in Hawaii.

As part of the aim of the Forester is to present suggestions for new agricultural products of commercial value, an article is reprinted in this number from Consular Reports on esparto grass for paper making.

An interesting article is given elsewhere on valuable forest trees of Chiloe Island, Chile, from Consular Reports. Several trees to which peculiarly valuable properties are attributed are briefly described. Mention may be made of the canelo, of beautiful foliage and yielding lumber immune from rats and vermin, also various trees with special merits for manufactures.

Through the kindness of Mr. Wilbur A. Anderson, manager of the Nahiku and the Hawaiian-American rubber companies operating on the Island of Maui, the Forester is enabled to present some preliminary information respecting the First Cotton, Fibre and Tropical Products Exhibition, also the Fourth International Rubber Conference, both of which are to be held in London in June of 1914. It is to be hoped that the organizations and individuals engaged in the diversified industries of Hawaii, as distinguished from the sugar industry, will come together and make arrangements for having such industries properly made known to the world in London. As Mr. Anderson said, in his reports to the stockholders of the rubber companies mentioned, a serious mistake was made in failing to take adequate advantage of the

rubber exhibition in New York last year. Mr. Anderson ably represented the islands on that occasion, but he was not backed as he should have been either by money, assistance or material. The Philippines were enabled to out-show Hawaii, while other rubber producing countries threw it into eclipse. It will be an oversight of the present Legislature greatly to be regretted if it does not provide something for a Hawaiian exhibit in London next year.

This number of the Forester has been delayed owing to causes beyond the control of the editor, the same as delayed the January number.

From the report of the Superintendent of Forestry in this number, it will be seen that the reforestation of these islands is advancing in great strides. The manner in which the sugar planters are taking up tree planting is particularly gratifying, their large resources enabling them to set an example of striking dimensions to smaller landholders. It is safe to say that the tree-planting in Hawaii during the past and the present decade will have created millions of dollars' worth of assets, while the preservation of old forests and the conservation of water, in the many forest reserves established, are of inestimable value.

Later official reports of the cattle distemper at Pupukea, Oahu, described by Dr. Case in his report elsewhere, indicates that it was not one of the contagious animal plagues, but was caused by poisonous growths eaten by the cattle when their pasturage was destroyed by drought.

#### HAWAII NOTIFIED OF LONDON EXHIBITION NEXT YEAR.

The following letter and enclosure of advertisement of the events mentioned are self-explanatory, but comments deemed fitting are made upon them elsewhere:

Exhibition Offices,  
75 Chancery Lane (Holborn),  
London, W. C., 2nd Jan., 1913.

Wilbur A. Anderson, Esq., Nahiku Rubber Co., Ltd., Nahiku,  
Maui, Hawaiian Islands.

Sir:—I beg to advise you that the Fourth International Rubber and Allied Trades Exhibition will be held in London in June of 1914, and during the same time, but in a building adjoining, the First Cotton, Fibre and Tropical Products Exhibition will be held. This means that all countries will be able to exhibit the whole of their products.

During the Rubber Exhibition the Fourth International Rubber Conference will take place.

During the progress of the Cotton and Fibre Exhibition there will be an International Conference of Tropical Agriculturists, of which Professor Wyndham Dunstan, Director of the Imperial Institute, is President.

His Majesty King George V is Patron of the Exhibition; Sir Henry A. Blake, G. C. M. G., is President, and the Right Hon. Lord Elphinstone Vice-President.

I shall be glad if you will kindly join the Honorary Advisory Committee, which will be without responsibility or liability to yourself.

Trusting to receive a favourable reply, I am,

Yours truly,

A. STAINES MANDERS,  
Organising Manager.

(*Enclosure.*)

First International Cotton, Fibre, Tropical Products and Allied Trades Exhibition. London, June, 1914.

#### OBJECTS.

To bring together the Raw Products in every form: Cotton, Fibre, and allied articles.

Every description of Tropical Products, with the exception of Rubber.

All descriptions of Machinery and Appliances required by the Producer, etc.

All the Appliances necessary for the Manufacture: Machinery, Chemicals, etc.

Every description of Goods manufactured from Cotton, Grass, Fibre, etc.

International Conference of Producers, Manufacturers, etc., for the exchange of ideas, etc., on somewhat similar lines to the International Rubber Exhibition Congress.

Further particulars will be announced in due course.

A. STAINES MANDERS,  
Organising Manager.

MISS D. FULTON,  
Secretary.

Offices:—75 Chancery Lane, London, W. C.

## THE BIENNIAL REPORT.

(From the Pacific Commercial Advertiser.)

There has just come from the press the biennial report of the Board of Commissioners of Agriculture and Forestry for 1911 and 1912. It is a book of 258 pages, illustrated by thirty-six full-page illustrations, and covers in detail the activities of the three divisions of the board during the past two years.

First is the report of the commissioners—Messrs. W. M. Giffard, H. M. von Holt, J. M. Dowsett, Albert Waterhouse and Arthur H. Rice. This gives, under the heading of each division, a brief review of the salient points in the work accomplished in entomology, forestry and animal industry, with a summary for each division of the especial needs for the future. The report of the commissioners, having been issued separately a short time ago, in advance of the full report, has already been reviewed in these columns, but it may be said here that in its twenty pages are summarized the facts set forth more at length by the several superintendents.

Following the report of the commissioners are tables showing expenditures and a paper presented by W. M. Giffard to the joint committee on forestry of the Hawaiian Sugar Planters' Association and the Board of Agriculture and Forestry, entitled "Some Observations on Hawaiian Forests and Forest Cover in Their Relation to Water Supply," a comprehensive statement of the underlying reasons why our local watersheds should be well protected.

## DIVISION OF FORESTRY.

The section allotted to the Division of Forestry consists of reports by the superintendent of forestry, Ralph S. Hosmer; the forest nurseryman, David Haughs, and the consulting botanist, Prof. J. F. Rock.

Mr. Hosmer briefly outlines the reasons for practising forestry in Hawaii and argues for the better protection of the forests on the watersheds, especially through fencing, that they may be made more surely to produce their most important crop, water. During the past two years four new forest reserves were set apart in South Kona, and in Puna, Hawaii, on Molokai, and in Kula, Maui. There are now twenty-seven forest reserves in the Territory with a total area of 683,101 acres, of which sixty-seven per cent., 454,810 acres, is government land.

Passing to the second main line of forest work, the encouragement of tree planting, it is shown that in the past two years more seedling trees than ever before were distributed from the Division of Forestry nurseries at Honolulu and the sub-stations at Hilo,

Hawaii, and Homestead, Kauai, the totals being 620,739 for 1911, and 806,537 for 1912.

Tables follow showing the total number of trees reported planted by sugar plantation companies and other corporations throughout the Territory. For 1911 the figure is 1,134,940; for 1912, notwithstanding that it was a phenomenally dry year, 1,303,698. When these figures are compared with 1908, when 498,677 trees were reported set out, the increase of interest in tree planting in Hawaii is very apparent.

Some space is given to experimental forest planting and to plant introduction work, which it is recommended be given more attention.

#### FORESTRY NEEDS.

The needs of the Division of Forestry are summed up as follows:

The better protection of the native forests needed for watershed protection, essentially through fencing and the killing off of wild stock.

Better provision for getting seedling trees and plant material into the hands of those who want to do forest planting, through the establishment of additional sub-nurseries.

The extension of experimental planting with particular reference to the introduction of plants that will supplement the native forest of the wet districts.

The actual planting of areas of government land in various parts of the Territory.

The continuation and strengthening of the existing policies of the Division of Forestry regarding the protection of the forests from fire and the giving of advice and assistance to owners of forest land.

Mr. Haughs' report deals in detail with the work at the government nursery and the giving of advice and assistance to persons desiring to plant trees. It also has an account of the introduction and propagation of the basket willow, which gives promise of some day becoming the basis of a new local industry.

Mr. Rock, botanist, tells of finding new species of plants on the Island of Hawaii and gives further notes about the native Hawaiian rubber-producing tree that he discovered at Puuwaawaa. The illustrations show typical forest scenes and the work being done at the Division of Forestry nurseries.

#### DIVISION OF ENTOMOLOGY.

E. M. Ehrhorn, superintendent of entomology, in the next section of the report, outlines succinctly the work of his division in keeping insect pests from gaining entrance to Hawaii. The importance of this work is manifest, and even to one unacquainted

with entomology the long list of insects intercepted (pp. 122-126) is an impressive showing of what the Islands have escaped.

At Honolulu and Hilo 991 vessels were boarded during the period, and plant or other vegetable matter was found on 556 of these. This shows an increase of eighty-eight vessels boarded and of seventy-two vessels bearing vegetable matter over the previous biennial period. During 1911 and 1912, there were inspected 204,059 and 280,930 packages respectively of fruits, vegetables and plants, making a total for the two years of 484,899 packages. As compared with the same period for 1909-1910, there was shown an increase of 97,928 packages inspected. Owing to the very rigid inspection by the entomological officials a very marked improvement in the quality of fruits and vegetables coming from the mainland has been noticeable.

The tables illustrating the inspection work bring home to one the large quantities of fruits and vegetables that are annually imported, and, incidentally, are an argument for the raising of more of these products locally.

Owing to the fact that Honolulu is the main port of entry for the Territory the importance of inter-island inspection is easily seen as an adjunct to the general horticultural inspection, because should ever any pest be accidentally introduced at Honolulu, its spread to the other islands can thus be more effectively guarded against, if not absolutely prevented. The thoroughness with which this can be done depends on the efficiency, and consequently on the extension, of the inter-island inspection. Recent rules having to do with this matter are reprinted for the better information of the public.

#### FRUIT FLY PARASITE.

In view of the recent discovery made in Africa by Dr. F. Silvestri, the entomologist employed by the Board of Agriculture and Forestry for this purpose, of a parasite for the Mediterranean fruit fly, the portion of the report dealing with fruit fly control will be read with greater interest. Not only has the control work reduced this serious pest, but even the casual observer will have no difficulty in noticing a direct improvement as to present conditions in general, in comparison with those existing two years ago.

This goes to show that a clean culture campaign, or the cleaning up of premises, it does not matter for what particular pest, means much to any community, and especially to Honolulu, where horticultural conditions are entirely different from those of the mainland. The let-alone policy that has been practiced here from time immemorial has seen its day, and the more intelligent classes now are beginning to realize that to enjoy the flower garden and the fruits of the few trees in their yards they must practice closer supervision and adopt more of Burbank's methods,

which many are now doing. The cleaning up of the banana fields, narrated on page 138, shows what clean culture methods have done for this particular industry. The same methods would be equally efficacious with other crops.

The steady increase of fruit and plant shipments arriving in Honolulu from the Orient and the Coast, added to the fact that the completion of the Panama Canal will bring the Territory into direct communication with Central and South America, as well as Mexico, makes it quite apparent that ample funds are necessary for the extension of the work of the Division of Entomology.

#### ANIMAL INDUSTRY.

The report of the Division of Animal Industry occupies ninety-odd pages of the report and treats in an interesting way the important subjects of the live stock industry of the Territory, bovine tuberculosis, glanders and the quarantining of dogs on account of the danger of rabies, as well as outlining the routine work of the division staff. The report is made jointly by Dr. Victor A. Norgaard, Territorial Veterinarian, and Dr. Leonard N. Case, Assistant Territorial Veterinarian.

Under the heading "Live Stock," facts and figures are presented showing the large number and fine quality of animals that are now being brought into the Territory each year for breeding purposes. For one example of the good accomplished, the average weight per carcass and the average price of meat per hundredweight received by the producer, has increased in the past three years, from 449 to 490 pounds, and from \$9.77 to \$9.96, a result in part of the introduction of better blood.

Another important fact in this connection is that the former practice of "stuffing" shipments to Hawaii with one or more worthless animals has practically disappeared. With the present strict inspection and quarantine it does not pay to use Hawaii as a dumping ground.

A number of illustrations show cattle, mules and horses imported by various ranches or individuals, particularly by the Parker ranch on Hawaii. These pictures alone make the report of interest, showing as they do how high a grade of stock is now being introduced.

Under the head of "Diseases of Live Stock," it is stated that "the past year has been practically devoid of any serious outbreaks of either infectious or contagious diseases among live stock, while parasitic diseases have continued to decrease with improved methods in handling and caring for the animals."

#### ONE STARTLING REASON.

The section on the control and eradication of bovine tuberculosis is one that ought to be read by the head of every household, for, as Dr. Norgaard says, when "more than twenty-five

per cent. of all cases of generalized tuberculosis among children under sixteen years are due to the bovine type of tubercle bacilli, it appears indefensible to allow a single tuberculous animal to remain in the Islands."

The record of the tuberculin testing of the dairy herds on Oahu, which resulted, through the destruction of affected animals, in reducing the percentage of disease from 31.26 per cent. at the first test to 5.39 per cent. at the third, is one of which the Territory may well be proud. It points the way to what ought now to be done in the other counties of the Territory, and also to the fact that having gone so far there must be no decrease in continued vigilance through efficient inspection; that alone is the price of liberty in animal industry as in the other affairs. To accomplish this, Dr. Norgaard repeats the recommendations of the milk commission of 1910, and the sanitary commission of 1911, that the control of milk be vested in the Territorial Board of Agriculture and Forestry, in order to secure protection for the entire Territory.

The chapter on the eradication of glanders is one full of interest, especially the almost dramatic account of the suppression of an outbreak of this disease in Waipio Valley, Hamakua, Hawaii, and the treatment of a suspicious case at Schofield Barracks. The reimbursement is advised of owners whose diseased animals have to be killed to insure the safety of the public.

Perhaps of greater scientific than popular interest is the description of the intradermal tests, with mallein and tuberculin, that having been perfected by the Division of Animal Industry, were successfully applied, respectively in investigations of glanders and tuberculosis. But these statements, with those concerning sheep and chicken diseases, give the report weight and character.

#### PROTECTION FROM RABIES.

The occurrence of rabies in California was the occasion, in 1911, for the passage of a regulation by the Board regarding the quarantine of dogs coming into the Territory. This subject is discussed at length, with a description of the dog quarantine station. There is also an account of a newly devised painless method of putting out of the way, by the use of gas, mangy dogs that it is found necessary to dispose of. Pictures illustrate the operation of the "lethal chamber," before and after.

Following that by Dr. Norgaard are reports from the deputy Territorial veterinarians, Dr. H. B. Elliot, Hilo; Dr. J. C. Fitzgerald, Maui, and Dr. A. R. Glaisyer, Kauai. Each takes up the subjects of diseases of live stock and the introduction and breeding of high-class animals. Attention will especially be attracted to this part of the report by the illustrations of thoroughbred horses recently imported into the Territory.

Altogether the report is the most interesting that has come from the Board of Agriculture and Forestry, showing as it clearly does the many directions in which this department of the Territorial government is being of practical service to the people of the Territory. A note on the cover, giving a list of the board's publications, says that this report, as well as the other printed matter put out by the board, will be sent free to any resident of the Territory upon request.

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## DIVISION OF FORESTRY.

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The Board of Commissioners of Agriculture and Forestry.

Gentlemen:—I have the honor to submit as follows the routine report of the Division of Forestry for January, 1913.

### BIENNIAL REPORT.

During practically the whole of the month my own time has been taken up with the preparation of the biennial report of the Division of Forestry for the years 1911 and 1912, and in getting ready for presentation to the Legislature certain other data required by the Board in connection with forest work. This report of the division, now in the hands of the printer, sets forth in detail what has been accomplished during the past period, with a general statement of the reasons why the necessity for practical forestry must always remain one of the essential needs of this community. When printed the report will be available for general distribution.

### PLANT DISTRIBUTION.

The report of the forest nurseryman shows that during this winter a large number of tree seedlings are being sent out to sugar plantation companies for forest planting. One corporation on Oahu alone has ordered half a million seedlings for delivery this winter. A part of this lot goes forward early in February.

In this connection it may be permissible to repeat from my biennial report the totals from a table showing the number of trees reported planted by corporations throughout the Territory during the past two years. For 1911 the figure is 1,134,940; for 1912, a little larger total, 1,303,698. Had it not been for the dry season the figure for 1912 would undoubtedly have been considerably larger than this. In 1908 a similar estimate totaled 498,677. These figures show conclusively that the arguments as to the value of tree planting have made an impression. As the years go by those who have planted stands of trees will have more and more reason to be glad that they did so.

## CONGRESSIONAL VEGETABLE SEED.

Early in January there was received from Washington the usual consignment of Congressional vegetable and flower seed from the Delegate to Congress, Hon. J. K. Kalaniana'ole. Following the custom of former years, this seed is being given general free distribution through the schools, particularly those that are making a specialty of school garden work. But anyone who applies may obtain a packet of seeds, free, for his own use. The kinds available are lettuce, muskmelon, onion, radish, tomato, corn and cucumber.

The flower seeds are candytuft, calendula, kochia, mignonette, poppy, zinnia, nasturtium and dianthus.

The Delegate writes: "Perhaps you might advertise the fact that you have seed on hand for distribution, as I believe you have done in the past. The flower seeds, especially, I would like to reach those people who are interested in having their front yards looking nice." Application for seed should be addressed "Seed Clerk, Box 207, Honolulu, Hawaii."

Very respectfully,

RALPH S. HOSMER,  
Superintendent of Forestry.

## FOREST NURSERYMAN'S REPORT.

R. S. Hosmer, Esq., Superintendent of Forestry.

Dear Sir:—The following is the report of the principal work done by the Forest Nurseryman for the month of January, 1913:

*Nursery.**Distribution of Plants.*

	In seed boxes.	In boxes transplanted.	Pot Grown.	Total.
Sold . . . . .	.....	.....	122	122
Gratis . . . . .	2000	1050	883	3933
	<u>2000</u>	<u>1050</u>	<u>1005</u>	<u>4055</u>

*Collections.*

Collections on account of plants sold amounted to . . . . .	\$ 4.40
Collections on sale of dead wood from Tantalus . . . . .	25.00
Collections from Dr. E. A. Back for rent of building, Nursery grounds, from Oct. 16 to Dec. 31, 1912, at \$35 per month . . . . .	87.90
<b>Total . . . . .</b>	<b>\$116.90</b>

*Plantation Companies and Other Corporations.*

An order for 5000 trees ready to be set out, to be delivered about the middle of March, has been received.

Distributed during the month:

In seed boxes .....	82,000
In boxes transplanted .....	1,000

Total .....	83,000
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About 100,000 trees will be delivered during the month of February and the balance of this season's orders will be completed by the end of March.

*Experimental Garden, Makiki.*

Owing to the great demand for trees during the past few months, including the Arbor Day distribution, our stock has been very much reduced and we are busy both at Makiki and the main nursery trying to get a sufficient quantity ready to meet demands likely to come in.

*U. S. Experimental Station, Nuuanu Valley.*

The man has been doing the regular routine work. The weather has been dry during the month and no planting of trees could be attempted.

Respectfully submitted,

DAVID HAUGHS,  
Forest Nurseryman.

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 DIVISION OF ENTOMOLOGY.
 

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Honolulu, January 31, 1913.

Honorable Board of Commissioners of Agriculture and Forestry.

Gentlemen:—I respectfully submit my report of the work of the Division of Entomology for the month of January, 1913, as follows:

During the month there arrived 43 vessels, of which 27 carried vegetable matter.

## DISPOSAL.

	Lots.	Parcels.
Passed as free from pests.....	863	23,959
Fumigated . . . . .	13	219
Burned . . . . .	67	104
	<hr/>	<hr/>
Total inspected . . . . .	943	24,282

Of these shipments, 24,045 packages came as freight, 172 packages as baggage and 65 packages in the mail.

#### RICE SHIPMENTS.

During the month 29,254 bags of rice arrived from Japan which were found free from weevil and other pests and were passed.

#### PESTS INTERCEPTED.

Sixty-five packages of fruit and 20 packages of vegetables were found in the baggage of the passengers and immigrants from the Orient, and this material was destroyed by burning.

Several small lots of orchids came from Manila which were infested with scale insects and ants. Six boxes of apples from California were destroyed on account of being infested with the codlin moth. A small shipment of gardenia florida from Japan was found badly infested with larvae of a wood-boring moth. This is the second shipment found thus infested and all the plants were destroyed in the garbage incinerator. In a plant shipment from Japan we found in the soil a number of larvae and pupae of a cicada or harvest fly. This is the first time cicadas have been found in plant shipments. The cicadas are very injurious insects in many countries. They include the well-known 17-year locust of the Eastern United States, about which so much has been written and which causes so much damage to farm and forest growth.

Two species of ants were found in soil around plants—*Lasius niger* from Japan, and *Monomorium pharaonis*, the common house ant, in soil from Manila.

Late in the afternoon of the 28th inst. the Makura arrived from Sydney via Suva, and just before sailing, late at night, one of the crew threw a crate of rotten bananas on the dock which belonged to a passenger going to Victoria, B. C. The crate and contents were taken to the incinerator early the next morning and burned. It is very fortunate that this fruit was not infested with maggots of the banana fruit fly, which would no doubt have crawled into the crevices of the dock.

#### HILO INSPECTION.

Brother Matthias Newell reports the arrival at Hilo of six vessels, five of which brought vegetable matter consisting of 157 lots and 3249 packages. Six crates of celery had to be cleaned from adhering soil. One sailing vessel brought 500 tons of clean and dredged sand from San Diego bay, California, and consigned to the Hilo Railroad.

## INTER-ISLAND INSPECTION.

During the month of December 62 steamers were attended to and the following shipments were passed:

Plants . . . . .	66	packages
Taro . . . . .	784	bags
Lily root . . . . .	39	packages
Vegetables . . . . .	9	"
Fruit . . . . .	1	package

Total passed after inspection. . . . . 899 packages

The following packages were refused shipment:

Plants . . . . .	12	packages rejected on account of soil
Lily root . . . . .	6	" " " " " "
Fruit . . . . .	15	" prohibited

Total. . . . . 33 packages refused shipment

Respectfully submitted,

E. M. EHRHORN,  
Superintendent of Entomology.

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 DIVISION OF ANIMAL INDUSTRY.
 

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Honolulu, January 31, 1913.

Hon. W. M. Giffard, President and Executive Officer, and Board of Commissioners of Agriculture and Forestry.

Gentlemen:—I have the honor to submit the following report for the month of January, 1913:

## TUBERCULOSIS CONTROL.

The work in this direction, which was temporarily suspended that sufficient time might be given to the writing of the annual report, has now been resumed, and the fourth annual test of the dairy herds of the city and county has commenced. The dairies so far submitted to the test are as follows:

	T.	P.	C.
Waialae:			
Milking herd . . . . .	190	169	21
Common herd . . . . .	225	184	41
Mrs. Isenberg's herd . . . . .	55	54	1
Carl Waldemeyer . . . . .	4	4	0
Charles Lucas . . . . .	2	2	0
(New cows added to the herd.)			

There still remains above ten per cent., actual figures 13.19%, of tuberculosis in the Waialae herd. In the past three years the proportion has been reduced from seventy-five per cent. to the present figures, 13.19%. That it has not been reduced to a still lower percentage is due entirely to the fact that we have been unable to apply the test each time to the *entire* herd. In that portion of the herd which remained untested each time there were a few, one or more animals, which were infected and which passed the previous test due to the fact that the disease was still in its incubation. These animals, now that the disease has become advanced, become a grave source of danger, and are the ones which infect the others, spread the disease and keep up the percentage of diseased animals. To cut this percentage down and to eliminate the possibility of any animal remaining to spread the disease, frequent tests of the entire herd should be made. On April next every animal connected with the Waialae herd should be submitted to the test.

#### INTRADERMAL MALLEIN TEST.

On the 13th, at the request of Dr. Vans Agnew, Dr. Norgaard and myself proceeded to the military post at Schofield Barracks for the purpose of applying the intradermal mallein test to twenty-six officers' mounts which were to be shipped to the mainland. The object was in the main a demonstration to the post veterinarians of the technique of this new method of mallein testing. The demonstration was a decided success and all of the animals subjected were passed. Dr. Vans Agnew, while fully realizing the great care necessary in making the injections, was very favorably impressed by the simplicity and accuracy of this method, which reduces time and labor to a minimum.

#### FORAGE POISONING AT PUPUKEA.

In the early part of the month Mr. F. S. Lyman called at this office and reported the loss of a considerable number of his cattle, both young and matured animals, from some undetermined cause. He stated that there had been a continual drought for some time, and green feed was very scarce. He had recently cleared a large tract of land from lantana and had turned his stock in there, when they suddenly commenced dying in alarming numbers. Death occurred suddenly with few premonitory symptoms. The symptoms which he was able to observe were loss of appetite, decreased flow of milk, lack of coördination of certain muscles, staggering gait and a more or less sanguinous discharge from nose and anus, following which the animal died in a few hours.

Acting upon this report Dr. Norgaard and myself proceeded at once to Mr. Lyman's place at Pamalu, with all the necessary paraphernalia for microscopical examination. Post mortem ex-

amination was held on one animal which had died the night before, the results of which are as follows:

The animal, a cow, was found to be in good flesh. Upon removing the skin no hemorrhagic, subcutaneous extravasations were found; liver slightly enlarged with evidences of some fatty degeneration, and numerous scars from fluke although no parasites were found; kidneys showing some congestion in both cortex and medulla; considerable enteritis and some enlargement of Peyers patches, the contents of the intestines being considerably blood-stained; spleen considerably enlarged, being four to five times the normal size, dark red in color with a very soft, almost fluid, pulp almost black in color; heart and lungs normal; blood normal. The first, second and third stomachs were found filled with a large amount of a certain weed which was found growing abundantly in the pasture and also a considerable amount of leaves from the kukui tree. Numerous inflammatory submucous patches were observed in all three stomachs and must be attributed to the action of the weed. The fourth or true stomach contained a certain amount of fluid material and appeared to be in every way in a normal condition.

Microscopical examinations from the spleen, intestinal contents and blood revealed putrefactive organisms only. The suspicions of anthrax were thereby allayed.

Working upon the theory that the trouble was due to some poisonous weed, a thorough investigation of the pasture was made and samples taken of the weed which was growing abundantly over the field and with which the paunch of the animal was filled. This weed was the only green thing growing in the pasture with the one exception of the leaves of the kukui tree. The samples collected were submitted to Mr. J. F. Rock, botanist at the College of Hawaii, for classification. Mr. Rock classified the plant as the *Asclepias curassavica* L., the nuumela of the natives belonging to the family *Asclepiadacea*. This species is known to be very poisonous, and has been the cause of considerable cattle poisoning in Australia.

This weed grows abundantly in many of the valleys, springing up quickly after a little rain, but as a rule cattle do not eat it unless forced to do so through the absence of other feed. That they were forced to eat large quantities of it in this instance was apparent from the condition of the pasture, which was entirely bare of grass and afforded nothing else of an edible nature. Therefore our conclusions in the matter were that the cattle were dying from the poisonous effects of these weeds. In an attempt to verify our conclusions we had a couple of bags of this weed forwarded to us with the intention of carrying on a few feeding experiments and noting the results, but so far we have been unsuccessful in our attempts to force the animal at the station to eat any of it. Since our last visit Mr. Lyman has not reported any more deaths.

## IMPORTATIONS.

The following number of vessels entering this port were boarded and the following live stock was inspected, passed and admitted to the Territory.

Twenty-two vessels were boarded, of which number eight were found carrying live stock, as follows :

January 14, U. S. A. T. Sheridan, San Francisco :

1 dog, Lieut. Thatcher.

1 racoon, 25th Infantry.

January 14, S. S. Lurline, San Francisco :

3 horses, Q. M. Department.

1 horse, J. D. McVeigh.

1 cat, W. F. X. Co.

1 dog, C. Breand.

1 dog, E. L. Kelley.

3 dogs, Col. Kennon.

2 dogs, Capt. Norris.

8 crates poultry.

January 15, S. S. Siberia, San Francisco :

1 dog, H. B. Post.

January 20, S. S. Ventura, San Francisco :

1 crate ducks, W. F. X. Co.

January 21, S. S. Wilhelmina, San Francisco :

1 dog, Mrs. E. Behr.

18 crates poultry.

January 26, S. S. Arizonan, Seattle :

2 horses, Q. M. Department.

18 mules, Schumann.

January 28, S. S. Mongolia, Orient :

2 crates ducks, Japanese.

January 28, S. S. Honolulan, San Francisco :

2 dogs, V. R. Isenberg.

26 crates poultry.

4 shorthorn bulls, Hawn. Commercial & Sugar Co.

Very respectfully,

L. N. CASE,  
Assistant Territorial Veterinarian.

## HOW TO START RIGHT IN THE HOG BUSINESS.

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(From *The Live Stock and Dairy Journal*.)

The essential principles for starting with hogs in Colorado and in California are so identical that the following advice given by C. W. Henry, a successful breeder, to the readers of the *Colorado Dairyman* will interest many of our readers:

There is no line of the live stock business one can get into with so small an outlay of capital as hogs, and the first cost of pure-breds is so small, considering the advantages gained, between those and just common stock that no one should hesitate in deciding which to take.

In the matter of equipment all one needs in Colorado is plenty of good alfalfa pasture. Several smaller pastures are better than one large one, as the hogs can be changed from one to another while the one is being irrigated, thus insuring abundance of fresh, tender alfalfa at all times. For shelter I have never found anything to compare with the A-shaped "Lovejoy" individual houses. One great advantage of these is that they can be built as one's business grows, and you don't have to have a lot of money at the start. They will cost around \$10 each, and any one used to using tools on a farm can build them. They are made of drop siding, 2x4s and inch boards for the floor. They are sanitary, and even in the coldest weather are amply warm. I know of a man who built a very expensive concrete hog house, concrete troughs, walls, floors and everything in the most expensive manner, and I don't believe this hog house will ever be as satisfactory as the "Lovejoy" individual, and the cost was ten times as great. These houses can be put on skids and moved anywhere, are always dry and no better farrowing pen could be desired. If a man is starting with only one or two sows he can build a couple of houses, and as his herd increases build more as they are wanted.

The pastures and houses are about all one needs in the way of equipment to start. There could be added such things as a cooler or steamer so that warm feed can be supplied in zero weather. I believe it will always pay to give hogs warm feed in the winter. At least I never could stand to see my pigs fill up on ice-cold feed and then run shivering to shelter.

After the equipment, of course, come hogs, and here is where so many fail. If one is unfortunate and gets inferior stock he is apt to get discouraged at the outset. I believe without doubt that the quickest way to get started is to buy a bred gilt or sow or two and if their litters are raised one has quite a herd at the end of a year.

If I were starting again I would buy the very best bred sow or gilt bred to the best boar in the State, and in that way with

reasonable success with the pigs be at the top at the outset. Whereas, if only fair sows or gilts are bought it will take years of improvement to be where one would be at the end of the first year. I feel that even in Colorado one can sell the best, and usually at a pretty fair figure, but there are always plenty of the inferior kind going begging. If, however, the pigs do not sell readily for breeders one can always sell to the butcher, and at the top of the market, too. For the beginner I think it a good plan to save only a few of the very best for sale as breeders until one has established a reputation, and later on there will always be a market for surplus stock. I know I have sent hundreds of better pigs to the packers than many breeders sold in the East for high prices, as breeding stock. In fact, if any Eastern breeder has ever sent out here an outstanding individual, regardless of price, unless the buyer has been there and picked it out, I would like to hear of it. I never have seen one.

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### ESPARTO GRASS FOR PAPER MAKING.

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(From *Daily Consular and Trade Reports*.)

[Consular Assistant Ripley Wilson, Almeria, Spain.]

Esparto grass ranks third among the exports from Almeria, and this city is the center of the industry in Spain. There are three firms engaged in preparing the grass for shipment, and these buy direct from the villagers who do the gathering and who bring the esparto in from the surrounding country.

At present esparto can be purchased as it comes in from the country for about 67 cents per 46 kilos (101½ pounds); but this grass can not be baled and shipped for paper-making purposes without first being carefully inspected and cleaned of roots and bits of earth and other foreign matter that the natives include in the rough bundles they make. This cleaning in the factories of Almeria is done entirely by women, who are paid according to the amount they look over. One rarely earns more than 35 cents a day. While cleaning the grass these women also sort the esparto into two grades, the first consisting of the full, heavy grass, and the second of the lighter and discolored stock. The first grade seldom yields under 55 per cent. pulp.

The facilities that are offered by the local railway make it very difficult at times to bring the grass in from the outlying districts, and the trouble encountered during certain seasons of the year in getting ships for transport make the business an uncertain one. The fact, as stated in other consular reports, that the esparto root is often picked with the grass is true in this district also, and much damage is being done each year.

At various times the construction of a pulp factory in Almeria

has been considered, but largely on account of the great difficulty in obtaining water, a plentiful supply of which is needed in pulp making, the factory has not materialized. The bulk of esparto exported from this city is sent to Great Britain.

[Consul Rufus Fleming, Edinburgh, Scotland.]

SCOTCH PAPER MAKERS USE ESPARTO EXTENSIVELY.

Paper mills in this district, producing about 1500 tons per week, 1000 tons being writing and printing paper, use large quantities of esparto, both Spanish and African. Almost three times as much esparto (in weight) is imported into the district as of rags and wood pulp combined. It is imported in hydraulically compressed bales, of uniform weight and size, approximately seven bales to the ton (2240 pounds). From Spanish esparto the yield of paper is 55 per cent.; from African, about 50 per cent.; and from rags, 90 per cent. News print is largely made from mechanical wood pulp, with the addition of a small proportion of common rags.

Most of the mills in east Scotland have contracted for their supplies of first-quality Algerian esparto over 1913 on the basis of £3 9s. (\$16.79) per ton, free on rail at Edinburgh. Prices advanced somewhat last fall, and sales were made to English ports for shipment in 1913 at £3 12s. 6d. (\$17.64) free on rail. Tunisian esparto is scarce. As a rule, shippers of this variety sell Tripoli or (and) Tunisian esparto, and the cessation of supplies from Tripoli caused a run on Tunisian, and has indeed affected the price of all African esparto. Tunisian and Tripoli usually sell about 5s. (\$1.21) to 3s. 6d. (85 cents) per ton below Algerian, but there has lately been practically no difference. For best Spanish esparto the average contract price for 1913 has been about £4 15s. (\$23.11) free on rail at Edinburgh. This article appears to be short, and if further quantities were required it is probable that a considerably higher price would have to be paid.

Wholesale prices of esparto papers in this market range from 4½ cents to 6½ cents per pound, according to quality.

## VALUABLE FOREST TREES OF CHILOE ISLAND.

(From *Daily Consular and Trade Reports.*)

[Consul Alfred A. Winslow, Valparaiso, Chile.]

According to lately published reports on the forest lands of Chiloe Island, situated off the coast of Chile, between 41° and 43° south latitude, many kinds of valuable trees and shrubs are found awaiting capital and labor to open up important industries in that part of the country. This island contains 2450 square miles and is covered with dense forests, except for a narrow strip along the west coast. The names, with a short description, of the more useful trees and shrubs are as follows:

Cypress (*Libocedrus tetragona*).—It is not known whether there are great quantities on the main island or not, but the tree abounds in the neighboring archipelago. It is a white timber, with a slight pinkish tint, resinous, and elastic. Its duration is such in all weather and atmospheric conditions that it is said to be almost indestructible. This and the alerce command the highest prices.

Alerce (*Fitzroya patagonica*).—About the same as the cypress, of great duration, fibrous, red, and light. It is said that these trees are found in almost all parts of the island. The wood is used for ceilings of houses and lasts for 50 years and more.

Manui (*Saxcegothea conspiciua*).—A very abundant timber on the island of Chiloe; is very good for cabinetwork on account of soft and beautiful fiber. If exposed to the weather it lasts but a short time, and so is mostly used for flooring.

Ciruelillo (*Embothrium coccineum*).—This timber excels all others on the island for cabinetwork and can compete with the best imported into the country. Its tint is slightly pink, beautifully striped, and when properly polished has a metallic luster. The tree grows rapidly and is appropriate for park and garden ornamentation.

## LAUREL GROWS IN ALL PARTS OF MOUNTAINS.

Laurel (*Laurelia serrata*).—There is not a point in the mountains of the island where this tree does not grow. It is the one most used and commands the lowest price. It is used for inside work, where it will not be subject to the changes of the weather.

Luma (*Myrtus luma*).—A very large tree abounding in the forests of Chiloe. Its lumber is red, very hard, and durable. It is used for the manufacture of carriage wheels and barrels.

Meli (*Myrtus meli*).—About the same as the luma, the only difference being in the color. It has the same properties and uses.

Muermo (*Euceryphia cordifolia*).—A very abundant tree on the island and grows to be very large. It is used in the foundation of buildings and for carriage making. It also produces good charcoal.

Tenio (*Weinmannia trichosperma*).—Large, abundant tree, with red timber. Uses same as muermo.

Avellano (*Geuina avellana*).—Similar to the ciruelillo in its fiber, although it has not the same pinkish tint. Its lumber is beautiful, but cracks and twists if exposed to the weather.

Tiaca (*Weinmannia paniculata*).—Flexible lumber very much used in the construction of boats, etc.

Radal (*Lomatia obliqua*).—Used in the manufacture of furniture; is of inferior quality to the ciruelillo.

Roble (Coigue) (*Nothofagus dombeyi*).—A very large tree of white lumber, soft and abundant in the island. Of short duration if exposed to the elements.

Tique (*Aextoxicon punctatum*).—Abounds only in the interior of the forest and is but little used as yet.

#### LUMBER IMMUNE FROM RATS AND VERMIN.

Canelo (*Drimys chilensis*).—This is a tree of beautiful foliage, which grows to great size and is very abundant in the island. Its timber is used for the interior of buildings. The lumber has the peculiarity of never being attacked by rats or vermin.

Arrayan (*Eugenia apiculata*).—This tree is characterized by having very red bark and being subject to changes every year. Hard lumber used in carriage construction.

Pelu (*Edwardsia macnabiana*).—A beautiful tree with a yellow flower and with very hard timber. It is not very abundant, except perhaps in the interior of the island.

El Tepu (*Tepualia*).—A shrub which spreads horizontally on damp places, forming an impregnable barrier for man and beast. It is used as fuel and is noted for the heat it produces. It is burned in the sawmills of the island.

Quilineja (*Lazuriaga*).—Exported to Europe for the manufacture of baskets and brooms. This plant is a parasite and its roots adhere to the trunks of trees.

Quila (*Chusquea quila*).—A sort of bamboo and very abundant on the island. It is good food for cattle and supplies most of the forage for the stock raised on the island. It has been found to be rich in pulp suitable for the manufacture of paper.

## THE EFFECT OF SOIL AERATION ON PLANT GROWTH.

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C. Hunter, B.Sc., who has contributed an interesting paper to the *Proceedings of the University of Durham Philosophical Society* states that as a result of the various experiments which have been carried out with the object of investigating the connection between soil aeration and plant growth, it has been found that—

The circulation of the air in the soil affects the development of the root system and through that the development of the sub-aerial portions of a plant.

The production of artificial air currents in the soil appears to be beneficial to plant growth. This point is at present undergoing further investigation.

These experiments were undertaken at the suggestion of Professor Potter.

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## DESTRUCTION OF LANTANA.

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This plant is apt to become a great nuisance in tropical countries on cultivated and pasture land, owing to its dense growth and extraordinary vitality. It appears from the *Journal d' Agriculture Tropicale* (1912, 12, 154) that an attempt is now being made in New Caledonia to combat the pest by introducing a species of fly of the Agromyzidae family from Hawaii. The insects have been distributed in the environs of Numea on land infested with lantana. As a result the larvae of the fly have been found in many of the seeds and it is intended to extend its distribution in the colony. The result of the experiment will be watched with interest; it must be borne in mind, however, that where a new animal species has been introduced to destroy some pest it has itself sometimes proved to be injurious in other directions.—*Imperial Institute Bulletin*.

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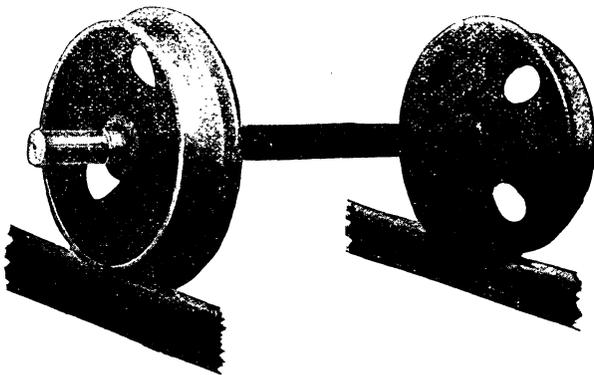
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- "Important Notice to Ship Owners, Fruit Importers and Others. Rules and Regulations Prohibiting the Introduction of Certain Pests and Animals into the Territory of Hawaii." General Circular No. 2; 3 pp.; 1904.
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- \* "Suggestions in Regard to the Arbor Day Tree Planting Contest." Press Bulletin No. 2; 7 pp.; 1905.
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