THE

PLANTERS' MONTHLY

PUBLISHED FOR THE

PLANTERS' LABOR AND SUPPLY COMPANY,

OF THE HAWAIIAN ISLANDS.

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Latest quotation of sugar in New York, Oct. 31, was 3.31, for Cuban Centrifugals, 96 degrees test.

Most of our mills will begin grinding in January, the juice being in better condition for the mill after than before the new year.

The sugar crop of Queensland for 1890–91 was nearly 70,000 tons against 45,000 for the previous year. It exceeds that of any previous year by over 10,000 tons. The average cost is estimated at about 2½ cents per pound.

The Pahala (Kau) Mill is receiving considerable alterations, among them a six-roller plant, and what is known as Farron's system of treating cane juice, which has been introduced in the Paauhau and other mills, and is said to work admirably. These changes in the Pahala Mill will be finished about the middle of February, and it is thought will add greatly to its outcome.

It is reported that Col. Spalding has recently purchased a valuable patent from an Austrian, by which the product of No. 1 sugar is largely increased, and that he intends coming out to the islands to have it put into use in the Makee Sugar

Co.'s mill the coming season. The Colonel is always on the alert for valuable inventions in the sugar line, and if he has succeeded in securing the use of any new method of making more or better sugar at less cost, every one will wish him success.

THE PLANTERS' CONVENTION.

The annual meeting of the Planters, of which the minutes appear in this issue, was as fully attended as these gatherings have been of late years. The proceedings were not marked with any special feature, although there was manifested a feeling of disappointment at the arbitrary termination of the benefits derived under the reciprocity treaty which has several years yet to run, and which was entered into by both parties to it with a firm belief that the situation existing at the date of its renewal would continue unchanged to its termination.

The question as to where the future laborers needed for our sugar and rice industries shall be obtained, regarding which there was a wide difference of opinion in the community, was wisely relegated to the board of trustees, who will take such action as they may deem best for the interests of planters and of the country. The opinion seems to be gaining ground that if any system can be devised by which Chinese may be induced to come and serve as laborers, returning to China at the end of their term of service, as is done in colonies employing Indian laborers, it may solve the problem, prove to be the most satisfactory plan, and not interfere in any way with the skilled labor interests of this country.

The reports presented at the meeting were more lengthy than they have been for several years past, and for this reason we shall be unable to print them all in this issue, but will insert the balance in the December issue. The Secretary's report covers the whole year, and shows that the Trustees have held several sessions and had many matters to consider, all bearing on the interests of the planters. The main points in Mr. Marsden's mission to India are briefly and clearly stated, and he appears to have gathered all the information that could be expected.

Mr. Morrison's report on machinery relates chiefly to the working of five and six-roller mills. As usual, he is very specific in his details, and supports his statements with figures obtained from actual experience. The result shows a steady increase in the outcome of sugar, as the result of new and better machinery, and greater skill in the process of manufacture. Some of his suggestions regarding the manufacture of a class of sugar suitable for consumption here and elsewhere, without refining, will yet be accomplished, and thus secure to the planter a market for his sugar at paying prices.

The several reports which follow (page 502) on coffee give a very hopeful outlook to this resuscitating branch of our domestic industry. Each writer furnishes valuable facts and information such as is sought for by those who are engaging in coffee culture. The report of Mr. Miller, in particular, is the most useful treatise on the subject that we have yet printed. He has had large experience in the cultivation of coffee, and is probably as well prepared to engage in this work as any person in the country. In location, altitude and climate, he has secured as good a location for such a plantation as this group can furnish.

Mr. Wait's paper on "Tea in Ceylon," is interesting reading, and presents facts which will be new to most readers. Had we the labor to engage in starting a tea plantation, it would be a most interesting experiment to ascertain whether Hawaii can produce tea as well as Ceylon, where so great a success has been achieved, with the assistance of the very cheap labor to be had near by, from India.

Mr. Dillingham, in his report on live stock, presents a statement which will arrest attention, and lead people to ask, why hay and feed to the amount of a million dollars annually are imported, when every bale of hay and every bag of oats and other grains can be grown in this kingdom? The live stock imported might all be raised here, particularly hogs and pigs, for which there is such constant demand from our Chinese population, that must continue as long as they are here.

We have in a previous issue alluded to the necessity of having a government statistical bureau referred to by Mr. Dillingham. Each passing year shows its necessity in connection with the import and export trade, the various industries,

agricultural, mechanical and piscatorial, the elements and changes of our heterogeneous population, how they are employed, paid and live, and more complete records of live stock, rain and artesian water supplies, with other topics not enumerated. There is room for advance in this line, which would greatly add to the prestige of the government, and impart more reliable information than is now obtainable.

Mr. Dillingham is somewhat severe on the mynah bird, which he terms a "terrible curse." It is but just to say in behalf of this much-abused bird, that it has also been one of the greatest blessings to this island, in exterminating the swarms of caterpilars which a few years back annually destroyed all our pastures, and made our plains and hillsides as bare as though they had been swept by a fire. Caterpilars and their moths are now very rarely seen, and the pastures and hillsides are covered with green grass wherever the lantana has not secured a foot-hold. The mynah has no doubt helped to scatter the lantana seed, so also have the doves and other birds that are seen everywhere. If the mynah must be outlawed and exterminated, then the other seed-carrying birds should be served the same way.

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COST OF MANUFACTURING SUGAR IN CUBA.

We find the following relative to the cost of manufacturing sugar in Cuba, in an exchange. Owing to the figures being stated in Spanish terms, the result may not be so readily ascertained, as if stated in English.

"Assuming that the yield in sugar be 9 per cent. of first and second class; 670 arrobes, (16,750 pounds) of cane will be needed to produce one hogshead of centrifugated sugar.

Assuming that the average crop in five years, of one caballeria (33⅓ acres) be 40,000 arrobes (500 tons), and that cost of cultivation, cutting, raising and cartage be $2.44 for each cartload of 100 arrobes (2,500 pounds), the cost of 670 arrobes of cane needed to manufacture one hogshead of sugar will thus be $14.36.

Assuming that the average salaries to workmen be $2.75, each hhd. of sugar will thus cost: $14.36 plus $2.75, equals $17.11.

Assuming that the 60 arrobes (1,500 pounds) of sugars contained in one hhd., comprises 5,333 arrobes of centrifugated and 6.67 arrobes of molasses sugar, and that 8 per cent. should be the yield of the first jet and one per cent. that of the second, and admitting 6¼ rs. (3⅛ cents pound) per arrobe, as the average price for the former and 4 rs. arrobe. (2 cents pound) for the latter, the hhd. would produce $53.33. plus 6.25 rs. equals $33.33 ; $6.67 plus 4 rs. equals $3.34 ; total $36.67 ; less cost. $17.11 ; difference $19.56.

This is the net profit on one hhd., equivalent to $78,240 on a crop of 4,000 hhds.

Assuming that $50,000 is annually deducted from above total to be applied to the sinking of the capital ($500,000) invested in the plantation, renewing and repairing machinery, etc., etc., and keeping the estate running, the part corresponding to each hhd. would be $12.50, thus reducing the profit of $19.56 to $7.06, or $28,240 on 4,000 hhds. equivalent to 5.65 per cent. interest on $500,000 value of the estate.

It must be understood that the above calculations are applicable only to the district of Cienfuegos, and to centrals producing no less than 20,000 bags ; by some means or other, said district is the most favored, and the only one on the whole island, we think, where sugar can be manufactured at a cost of $17.11 per hhd."

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REPORT OF COMMITTEE ON RAMIE.

To the President of the Planters' and Labor Supply Co.

Sir :—The Committee respectfully report that the sum total of their labors during the year has been observation and a collecting of facts for possible use. The present depressed condition of the sugar business, with the rather uncertain outlook for the future, renders it more important than ever that the circle of our industries be widened and extended. It is believed by most of those who have given the subject any attention or thought that there is a future of considerable promise for the ramie industry. It needs no argument nor proof to show that the ramie fibre is one of the most valuable in existence in its adaptability to the

wants of mankind. It is a perfect appliance for the roughest needs, such as cordage, heavy sacking, etc., as well as the very next thing to silk for the finest and most delicate of fabrics. It is not excelled by linen in its various uses, but for nearly all practical purposes, the door to the use of ramie has been closed on account of the great expense of freeing the fibre from the woody and gummy substances in which it lies imbedded.

It is well known that ramie grows to great perfection in many parts of the Hawaiian Islands. It attains its best development in those places where it is both warm and moist such as portions of Kona, the districts of Hilo, Puna and portions of Hamakua in Hawaii, the districts of Kaupo, Hana and Koolau on Maui, and similar localities on the other Islands.

It is asserted from California, by parties who have been experimenting in the cultivation of ramie that it is exhausting to the soil. This does not seem to be the case here so far as the appearance of the plant is concerned. The lack of tests upon the fibre of the plant which has been growing in the same spot continuously for a number of years prevents any opinion as to whether or not it deteriorates from long growth in one spot.

The experiments and labor of the Hawaiian Ramie Company, organized some years ago and still in existence but not engaged in the active pursuit of its objects, show that the ramie fibre can be detached from the surrounding material with probable profit. but the lack of funds prevented the Company from continuing its work, and the ramie decorticating machine, with other machinery and the buildings, stand to-day not far from the new Volcano road to show what has been done, but not necessarily to prove that ramie in this country need be a failure. The ground in that location should be to-day full of ramie roots and plants. The fact, however, that it has been over run with cattle will probably prevent any plants from being seen, the cattle eating it down with avidity, though the plant belongs to the nettle species.

For the past two or three years Mr. Frank L. Winter, cashier and book-keeper of the Pacific Hardware Company,

has turned his attention to the ramie question and he states that the promise for the future is great. New machines have been invented and new methods of degumming have been perfected by which the fibre can be produced and rendered of marketable value for much less expense than formerly. He has made an arrangement with the Hawaiian Ramie Company for the use of its machine and plants and expects within a short time to be able to demonstrate the practical value of other machinery, of which he has become the agent. If Mr. Winter's expectations prove well founded there is no reason why, within a very short time, the growing of ramie should not be a profitable industry for this country. It is peculiarly adapted to the small cultivators. Its growing is not expensive and it can be raised with probable profit upon very small parcels of ground, waste corners, so to speak, of house lots and kuleanas, the fibre being detached by machines which probably can be transported without much expense from place to place, like the traveling mowing and reaping machines in the United States, or which perhaps would better be established from place to place throughout the country, where there is sufficient demand.

The time allotted for the consideration of reports is so brief that your Committee instead of lengthening their report would refer the members of the Company to Mr. Frank L. Winter for further information and facts, which it is believed will be of advantage in a prompt development of this industry.

Respectfully Submitted,

W. R. CASTLE, Chairman.

Honolulu, October 26, 1891.

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REPORT OF COMMITTEE ON LEGISLATION.

The records of the Association do not show that any report of the annually appointed Committee on Legislation has been made since the year 1887; and this fact cannot fail to be generally regarded as an indication of the satisfaction of the Association with the laws passed since that time.

Of the constitutional amendments proposed during the last session of Legislature and awaiting ratification or disapproval next year, those relating to the Royal veto and to the alter-

ation of representative qualification and electoral franchise do not technically require the attention of a Committee of this Association.

Those proposed amendments, however, which deal with agricultural immigration, properly claim your consideration; and in the opinion of this Committee, measures should be taken to express a distinct opinion as to the probable success or non-success for the public welfare of the passage of the proposed acts.

The constitutionality in this country of the proposed legislation is likely to be thoroughly tested during the course of a lawsuit at present in progress respecting the validity of contracts made here by certain recent immigrants from China. Should these contracts be held by the Supreme Court as unassailable on the ground of unconstitutional character, the Association has to deal simply with the question whether under the proposed laws immigration would continue or would be checked. The report of the Hon. Joseph Marsden conveys his belief that immigration would continue, except in the cases of persons from Hongkong, British India and Java; and that in these instances the restrictions placed upon emigration might be satisfied by a proper representation of the laws existing here for the regulation of labor and protection of the laborer. This Committee thinks that the Association should consider the desirability of introducing into future contracts a condition such as that suggested by Mr. J. J. Francis to Mr. Marsden, vide page 9 of Mr. Marsden's report, modified to suit the laws of this country regarding the compulsory return of immigrants who give up contracted agricultural labor.

In the interest of further immigration, the Association should be watchful over the methods practised by police magistrates and other police officers; such incidents as that reported of the recent affray between the police and some of the recently arrived Chinese laborers in Kohala are likely, if not disproved, to hinder our chances of obtaining labor supply from probably each of the countries we have mentioned.

Thomas Rain Walker,
W. O. Smith.

Honolulu, October 27, 1891.

MINUTES OF THE TENTH ANNUAL MEETING OF THE PLANTERS' LABOR AND SUPPLY COMPANY, OCTOBER, 1891.

OCTOBER 26, 1891.

The meeting was called to order at 10 A. M. by President Mr. A. Young. The roll being called the following members were found to be present in person, or represented by proxy:

Paia Plantation.	Heeia Agricultural Co.
Haiku Sugar Co.	Waimanalo Sugar Co.
Ewa Plantation.	Kukaiau Mill Co.
Kohala Plantation.	Baldwin, H. P.
Pacific Sugar Mill Co.	Schaefer, F. A.
Honokaa Sugar Co.	Marsden, J.
Eleele Plantation.	Glade, H. F.
Koloa Sugar Co.	Wilcox, G. N.
J. M. Horner & Sons.	Davies, T. H. & Co.
Lihue Plantation.	Walker, T. R.
Pioneer Mill.	Young, A.
Kekaha Sugar Co.	Castle, W. R.
Grove Farm.	Smith, W. O.
Hanamaulu Plantation.	Whitney, H. M.
Pepeekeo Plantation.	Bolte, C.
Hamakua Mill.	Kynnersley, C. S.
Union Mill Co.	Williams, J. N. S.
Laupahoehoe Sugar Co.	Wright, J. N.
Waiakea Mill Co.	Lowrie, W. J.
Kahuku Plantation.	Austin, Jona.
Hawaiian Sugar Co.	Tenney, E. D.
Hana Plantation Co.	

On motion, the reading of the minutes of last annual meeting was omitted.

The secretary presented and read his annual report. Voted that the report be accepted, placed on file, and printed in the PLANTERS' MONTHLY.

The Treasurer's Report, in the absence of Mr. Swanzy, was presented and read by Mr. T. R. Walker, showing:

Total Receipts	$10,298 17
Total Disbursements	10,154 78
Balance on Hand	$ 143 39
Outstanding Liabilities of	$2,923.39.

Voted that the report be accepted and referred to the Auditor.

On motion, the Company proceeded to the election of Trustees for the coming year, with the following result:

F. M. Swanzy,	W. O. Smith,	W. G. Irwin,
J. B. Atherton,	F. A. Schaefer,	H. P. Baldwin,
H. F. Glade,	A. Young,	J. O. Carter.

Reports were then called for.

Mr. H. P. Baldwin, chairman of Committee on Labor, stated that owing to absence from the country during the past two months, he had not prepared a report. But he made a verbal statement, and proceeded to discuss the subject.

A general discussion followed, in which many members engaged.

Recess till 2:15 P. M.

2:15 P. M.—The Secretary reported that the Trustees had held a meeting and elected the following officers, for the coming year:

A. Young, President.	F. M. Swanzy, Treasurer.
J. B. Atherton, Vice-President.	W. O. Smith, Secretary.

J. O. Carter, Auditor.

The subject of labor was again discussed.

It was voted that Mr. Marsden's report be referred to the Trustees for their consideration and action.

A vote of thanks and appreciation of the Company was tendered to Mr. Marsden.

It was voted that the whole subject of labor be referred to the Trustees, and they be urged to take immediate steps to procure cheaper labor.

It was voted that the Treasurer's Report, together with the matter of financial requirements for the coming year, and ways and means of raising the necessary funds for current expenses and present obligations, be referred to the Trustees to report to-morrow morning.

The matter of the desertion of Japanese laborers was brought up and discussed.

The recommendations from Mr. W. H. Rickard and other Hamakua planters were presented. It was in the form of an agreement for employees to enter into, in regard to employing Japanese and Chinese day laborers.

Voted that the matter be referred to the Trustees, and that they make such modifications in the form of agreement as they deem best, and that forms be supplied to the Agents to be forwarded to planters recommending the adoption of the agreement. The agreement to apply only to Japanese.

Voted that the Trustees confer with the Board of Immigration as to whether or not the expenses of recovering runaway Japanese, cannot be recovered from the 25 per cent. reserve fund.

The Secretary on behalf of Mr. H. Morrison, chairman, presented and read the report of the Committee on Machinery.

Voted that the report be accepted, placed on file and printed.

The Committee on Legislation asked for further time.

The next report presented was that on Fertilizers, which, in the absence of the Chairman of the Committee, was read by the Secretary.

Voted that the report be accepted, placed on file and printed in the PLANTERS' MONTHLY.

Mr. Baldwin spoke of his practice of placing fertilizers in irrigating flumes, and thus applying it with the water on the fields. A general discussion followed. And the importance of employing chemists on plantations was discussed.

Voted that the Trustees seek to obtain information from what countries, and at what cost chemists can be obtained for the various districts.

Adjourned to 10:30 A. M. to-morrow.

OCTOBER 27, 1891.

The meeting was called to order at 10:30 A. M.

Besides the plantations represented there were present: Messrs. A. Young, H. P. Baldwin, J. Marsden, F. A. Schaefer, G. N. Wilcox, S. B. Dole, W. J. Lowrie, C. S. Kynnersley, H. F. Glade, T. R. Walker, E. D. Tenney, J. H. Paty, H. W. Mist, Jona Austin, J. O. Carter, J. M. Horner, W. O. Smith, H. M. Whitney, C. M. Cooke.

The Secretary reported that the Trustees had met and considered the matter of the financial requirements for the coming year, and recommend the following appropriations:

To meet Liabilities to W. G. Irwin & Co. on acct. J. Marsden's Mission	$2,923 39
PLANTERS' MONTHLY	600 00
Printing and Incidental	250 00
Secretary's Salary	600 00
	$4,373 39

And further recommend an assessment at the rate of five (5) cents per ton on the yield of sugar for crop of 1890–91, to meet the expenses of the coming year.

Reports of the Committees being called for, Mr. J. M. Horner presented and read the report on transportation.

Voted that the report be accepted, placed on file and printed in the PLANTERS' MONTHLY.

The report on Live stock having been called for, Mr. J. H. Paty stated on behalf of the Committee, that Mr. Dillingham was preparing the report, and if not ready in time for reading before this meeting it would be ready for publication in PLANTERS' MONTHLY.

Voted that on receipt of the report it be published in the PLANTERS' MONTHLY.

The report on Forestry was then presented and read by Mr. W. W. Hall.

Voted that the report be accepted, placed on file and published in the PLANTERS' MONTHLY, and recommendations referred to the attention of the Trustees.

The valuable services rendered by Mr. A. Jaeger to the agricultural interests of the country were mentioned and applauded.

Voted that the Trustees be instructed to procure a microscope and present the same to Mr. Jaeger with a suitable letter.

The report on Coffee and Tea being called for, Mr. F. A. Schaefer in the absence of Mr. C. Koelling, Chairman of the Committee, presented and read the report.

Voted that the report be accepted, placed on file and published in the PLANTERS' MONTHLY.

Recess till 1:30 P. M.

Mr. J. Marsden on behalf of the Committee on Tobacco made a verbal report.

Voted that the Trustees be requested to seek to obtain tobacco seed from Sumatra, and information as to curing it.

The Secretary, on behalf of the Committee, presented and read the report on Ramie.

Voted it be accepted, placed on file and published in the PLANTERS' MONTHLY.

Mr. T. R. Walker presented and read the report of the Committee on Legislation.

Voted to accept, file and publish the report.

There being no more reports, the President announced the following Committees for the coming year, as follows:

COMMITTEES, 1892.

LABOR—R. D. Walbridge, C. Koelling, H. Morrison.
CULTIVATION—J. M. Horner, O. Unna, J. Renton, Jr.
MACHINERY—J. N. S. Williams, R. R. Hind, J. B. Atherton.
LEGISLATION—W. R. Castle, C. Bolte, F. A. Schaefer.
RECIPROCITY—H. F. Glade, W. G. Irwin, C. R. Bishop.
TRANSPORTATION—W. J. Lowrie, A. S. Wilcox, J. N. Wright.
MANUFACTURE—H. P. Baldwin, A. Young, T. S. Kay.
LIVE STOCK—W. C. Weedon, A. H. Smith, C. M. Cooke.
FORESTRY—T. R. Walker, G. N. Wilcox, W. W. Goodale.
FERTILIZERS—J. F. Hackfeld, W. H. Rickard, G. F. Renton.
COFFEE AND TEA—W. W. Hall, J. Marsden, J. H. Paty.
TOBACCO—J. Marsden, S. B. Dole, C. S. Kynnersley.
RAMIE—H. M. Whitney, B. F. Dillingham, E. C. Bond.
FRUIT CULTURE—L. A. Thurston, V. Knudsen, F. M. Swanzy.
STATISTICS—J. O. Carter, J. Austin, W. O. Smith.

On motion, a vote of thanks was given to the Secretary, Treasurer and Trustees for their services.

Adjourned *sine die*.

W. O. SMITH, Secretary.

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SECRETARY'S REPORT.

TENTH ANNUAL MEETING.

Since the last Annual Meeting of the Planters' Labor and Supply Company there have been held one Special meeting of members of the Company, and twenty-seven meetings of the Board of Trustees.

During no year since the organization of the Company have the Trustees met so often, nor have they ever had to consider questions of greater importance to the planting interests of the country.

The removal by the United States Government of the whole of the tariff on sugar has raised issues requiring very serious consideration. The necessity of producing sugar at a less cost than in the past has become imperative.

Among the first considerations was that of labor; its supply and cost.

After attending to the matter of returning certain South Sea Islanders to the New Hebrides Islands, and arranging for the expenses incurred in attempting to

obtain Portuguese immigrants during the previous year, the Trustees gave earnest attention to the subject of

JAPANESE IMMIGRATION.

Information was received from Japan that new conditions were proposed, and that in future the $65.00 passage money charged for each immigrant would have to be paid by the employer and not borne by the servants as formerly.

The matter was of such importance, and the need of laborers so great, that the Trustees decided to send an agent to Yokohama to negotiate better terms; and if possible to procure laborers on the former terms.

Mr. Paul Neuman was engaged to go on this mission, and he sailed for Yokohama, in company with Mr. C. O. Nakayama, December 8th.

Mr. Neuman returned in March, having been partially successful. The concession obtained was a reduction of $20.00 per capita of the passage money, so that the employers should pay $45.00 for each passage instead of $65.00 as proposed.

The immigration was resumed, and 5,793 Japanese arrived at Honolulu this year, as follows:

	MEN.	WOMEN.
March 11, ex Yamashiro Maru	780	274
March 30, " Omi Maru	800	280
April 28, " Yamashiro Maru	800	280
May 29, " Miike Maru	1103	378
June 18, " Yamashiro Maru	814	284
Totals	4297	1496

INDIAN AND JAVANESE IMMIGRATION.

The cost of Japanese labor being so great, and the necessity of obtaining cheaper labor being so urgent, the Trustees gave earnest attention to the feasibility of procuring people from other sources. And it having been suggested that the people of the Portuguese Colony of Goa, in India, and perhaps the people of the Island of Timor, in the Malay Archipelago, could be obtained, it was deemed advisable to send an agent to those countries upon a tour of investigation.

Hon. J. Marsden consenting to undertake the mission, he was appointed an agent of the Company for the purpose.

The following extract from the letter from the Company to Mr. Marsden, under date of December 23, 1890, gives the substance of his instructions:

"In entering upon your duties as Special Agent of the Planters' Labor and Supply Company to visit China, India and the Malay Achipelago, the Company desires to give the following general instructions for your guidance.

"You will sail from Honolulu for Hongkong by first opportunity and from there proceed to Macao. At Macao you will confer with the Governor, to whom you will have letters of introduction from Mr. Canavarro, Charge d'Affairs and Consul for Portugal at Honolulu.

"It is believed that you will obtain information from the Governor and others in Macao, which will decide you whither to proceed next.

"After procuring all the information available at Macao, you will probably proceed either to Goa, in India, or to the Island of Timor in the Malay Archipelago.

"The primary object of your mission is to ascertain if possible where a supply of laborers can be obtained who will prove acceptable on our sugar plantations, and at rates of wages which we can afford to pay. To this end, while it is desired, especially that you visit the places named, a large discretion is given you in the matter. You may find it best to proceed to other points as well as those named, or perhaps to omit visiting Goa or Timor.

"In seeking information it is desired that you direct attention to such matters as the following:

1. (*a.*) Physical qualifications of the laborers—their habits, disposition and clothing and cost of clothing.

(*b.*) The kind of labor they are accustomed to.

(*c.*) The hours of labor per day that they are required to work.

(*d.*) The amount of work they accomplish.

2. (*a.*) The food—kind, quality, quantity and cost.

(*b.*) The kind of discipline they are used to.

(*c.*) Their disposition to emigrate to other countries; and the attitude of their respective Governments in regard to such emigration.

3. The rates of wages they receive in their own countries; and if any have emigrated to other countries, the rates of wages paid them in such countries.

4. When emigrating do they take their women with them. If so, what percentage of women.

5. The rates of wages at which they can be engaged to emigrate to these Islands and the cost of passage to Honolulu.

6. What financial arrangements can be made for carrying on emigration to Honolulu. And the best means of transportation."

Mr. Marsden sailed from Honolulu December 26, 1890, and visited Yokohama, Hongkong, Macao, Bombay, Goa, Ceylon, Java and other places, and returned to Honolulu in September, 1891. His report, which has been published in pamphlet form, has been distributed among planters, and is presented herewith.

Mr. Marsden performed his errand well, and has obtained information of much value.

CHINESE IMMIGRATION.

Various propositions relating to obtaining Chinese under the recent Act of the Hawaiian Legislature have been proposed and considered during the year. But the trustees have not entered into any engagement or undertaking in this direction.

The effort of Messrs. L. Aseu and J. E. Brown for private parties has been followed with interest. The difficulties and misunderstandings that have arisen out of this enterprise are greatly to be regretted.

Could Chinese laborers be brought here under proper restrictions and regulations the result would be beneficial to this country and to the Chinese.

The subject of a labor convention with China suggested by the Legislature of 1890, and referred at the last Annual Meeting of the Company, has been considered and discussed. No steps, however, have been taken towards attempting to accomplish such a convention.

DESERTING LABORERS.

The employment of special Japanese constables to detect runaway laborers was discontinued in June last, on account of it appearing to be of little value, and in some cases these officers were charged with inciting the laborers to leave their employment.

The complaints of desertion during the year have been very few until within the past two or three months.

In June, a circular letter was sent out to the Planters, requesting them not to employ Japanese seeking work as day laborers unless they produced either cancelled contracts, or honorable discharges from their former employers. It is believed that a strict adherance to such a rule would be the way to prevent desertions and would otherwise have a beneficial effect upon the laborers.

LABOR STATISTICS.

After the consideration and discussion of various plans of co-operation, and for dissemination of information among planters, it was suggested that a monthly statement of all laborers employed and rates of wages paid upon the different plantations would be of value. And in June blank forms for reports were sent to each planter, with the request that each month the report be made up and sent to the Secretary of the Company who would tabulate them, and send a copy to each planter. So that each one might know the number of laborers employed and wages paid during the previous month by all the other planters of the Islands.

The majority of planters have responded, and a tabulated statement was issued. in July, and each month since.

It is to be regretted that returns have not been received from all of the plantations. For the more complete the tabulated statements the more valuable they will prove.

One fact, among others, which suggested the plan, was the incorrect reports which are frequently carried from one plantation to another of the higher wages paid by other plantations.

Such reports are mischievous—tending to cause dissatisfaction among the laborers, and to mislead the employers.

And further, in view of the necessity of reducing the cost of producing sugar, the importance of co-operation cannot be overestimated.

RECIPROCITY TREATY.

The United States new tariff bill removing the tariff on raw sugars has greatly impaired the benefits to this country of the treaty of reciprocity. The various aspects of the question have engaged the attention of the Trustees, and earnest consideration and discussion have been directed to the subject.

WORLD'S EXPOSITION OF 1893.

The Minister of Foreign Affairs invited the co-operation of the Company in having these Islands represented at the World's Exposition at Chicago in 1893, and in August the Trustees appointed a Committee consisting of Messrs. W. O. Smith, F. M. Swanzy and J. F. Hackfeld, to confer with the Committee appointed by the Chamber of Commerce, and endeavor to ascertain what can be done in the matter.

It is to be hoped that a hearty effort will be made, and proper steps taken to have a creditable representation at this great fair. The benefits that may be derived may be very great.

RICE.

In considering the ways in which the cost of production of sugar might be reduced, the subject of the high cost of living has been presented. And among other items the price of rice has attracted attention. The duty on imported rice is 2½ cents per pound. If this duty could be partially or wholly removed without injuring the rice industry of the Islands, it would lessen the cost of living to laborers.

This matter demands the calm and dispassionate consideration of the country.

Questions of economy and close calculation are forcing themselves upon the minds of all prudent men in the country, and they must all be met in a spirit of fairness, and a desire that no injustice be done.

STATISTICS.

Attention is again called to the value of statistics, and the benefit that would result from an intelligent use of carefully prepared reports upon the subject.

During the early years after the organization of the Company a Committee on statistics was appointed annually, as one of the Standing Committees of the Company. But since 1886 the practice has been abandoned.

The action of the Trustees in seeking to obtain monthly labor reports is a step in the right direction, but the figures thus obtained relate to only one branch of the business.

One of the primary objects of this association was to obtain and disseminate information among planters, and to enable them to profit by the experiences of others.

This object has been largely attained, and the organization has been of great assistance to planters. But much more might be done.

The value of statistics is recognized in other organizations and in commercial circles. With the changes that have taken place and the rapid development of the resources of the country, the importance and necessity of more intelligent work and co-operation is becoming manifest.

Greater accuracy and knowledge is needed in every branch of the sugar industry to insure successful competition with other sugar producing countries.

The planters of this country are an able body of men, and the improvements in methods of cultivation, transportation and manufacture attest their intelligence and enterprise. But with the work and responsibilities which constantly absorb their attention and occupy their time, they can rarely visit other estates and profit by the experiences of others. And in too many cases they have not preserved accurate records of the results of their own experiments and experiences.

Statistics are suggestive, and often lead to inquiries and investigations which result to the advantage of those who study them.

Respectfully submitted,

W. O. SMITH, Secretary.

Honolulu, Oct. 26, 1891.

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REPORT OF THE COMMITTEE ON MACHINERY.

To the President of the Planters' Labor and Supply Company:

SIR:—The machinery and manufacturing departments are so closely dependent on each other, that for our purposes, at least, they have usually been treated together and the results obtained placed to the debit or credit of the machinery employed, and this has gone so far with us that it has finally become a question of mill versus diffusion.

The working of cane mills is simple and well known generally, although very few managers arrange their business or care enough to have systematic accounts rendered, as to what is being done in this branch of their business.

The class of sugars hitherto made here being designed for the refiner, has given rise to a uniformity in one way of working and occasioned very nearly an exact similarity in the machinery in all our mills and sugar houses.

The 5 Roll Mill is universal among us now with the exception of two plantations, which have changed for the 6 Rolls in setting of 3 pairs. For this latter style an extraction of 78 per cent., and 80 per cent., of the cane's weight in juice is claimed while the liability to break down is much less than in the usual battery.

At the Wailuku Mill, (a full description of which appeared in PLANTERS' MONTHLY,) during the season '90–'91, the extraction perhaps reached or at times exceeded 80 per cent., when maceration was employed.

The Paauhau works when completed will no doubt give equally good results.

The usual 5 Roll Mill without maceration rarely exceeds 72 per cent. extraction, while maceration may bring it up on an average to 74 per cent., and 76 per cent.

The following items from the Spreckelsville Mills for the season of '90–91 illustrate this point:

Figures from Kilauea Mill are almost identical:

7.75 tons Cane=1 ton Commercial Sugar.
1-7 ton Coal besides bagasse=1 ton Commercial Sugar.
Fibre in Cane 12 per cent. Sucrose 16.60 per cent.

WITHOUT MACERATION.

The 3 Rolls gave.....	12.67 or	76.4	per cent. of all the Sucrose.
The 2 Rolls gave.....	1.27 or	7.6	per cent. of all the Sucrose.
		84.	per cent. of Sucrose obtained.
Lost in Bagasse.....	2.64 or	16.	per cent. of all the Sucrose.

WITH 17 PER CENT. MACERATION.

The 3 Rolls gave.....	12.67 or	76.4	per cent. of all Sucrose.
The 2 Rolls gave.....	1.91 or	11.5	per cent. of all Sucrose.
		87.9	per cent. of Sucrose obtained.
Lost in Bagasse.....	2.00 or	12.10	per cent. of all Sucrose.

In extraction by a 5 roller mill without maceration there is therefore a loss of 16 per cent. of all the sucrose in the cane, and where a free use of water is employed there is a loss of 12.10 per cent. of all the contained sucrose.

Maceration can of course be employed to any degree of dilution, but few would care to go much farther than perhaps 12 per cent. or 18 per cent. It is almost impossible to obtain a uniform saturation of the bagasse in maceration even with very high dilution and abundant time occurring for absorption in its passage to the 2 rolls.

I obtained the following figures from frequent trials :

MACERATION 17 PER CENT.

3 Rolls.....Brix 21½. Polarization 19½. Quot 90.7
2 Rolls.....Brix 10 do 8½. do 85.

The bagasse passed again through the rolls but without adding water gave, juice Brix 15½. Polarization 13. Quot 83.9.

WITHOUT MACERATION.

3 Rolls.....Brix 21 Polarization 19.6. Quot 93.3
2 Rolls.....Brix 20½ do 18.2. do 90.

The bagasse again passed through the rolls and gave juice, Brix 19½. Polarization 16.5. Quot 84.2.

These figures show unequal saturation and a general decline in the purity with each repeated crushing. Maceration, however, is invariably contingent upon and regulated in degree by the amount of available fuel. At this point the mill and diffusion systems meet.

Very few question the superior extraction claimed for diffusion, nor deny it simplicity of method and less liability to expensive stoppages from breakdowns. The principal objections to diffusion among us as far as I have heard are :

1st. It is a night and day business while our immigration population and the great scarcity of labor compel us to pay too high wages for good night work—night work pre-supposes an abundance of hands and consequently the necessity for their obtaining employment at a higher rate of wages than is paid for work performed during daylight.

2nd. The employment of more hands to get the same amount of sugar in a given time. This objection like the first would be reduced to a vanishing point if the labor market were as it should be.

3rd. The extra fuel required. This point is real, and apparently will remain so for some time. We may consider 30 per cent. to 40 per cent. extra evaporation is required in diffusion above ordinary dry milling of 73 per cent. extraction and the chips carry from 52 per cent. to 60 per cent. moisture, as they are passed on to the furnaces. Our engineers claim, and with reason, that the chips are "dead" and burn in a dull smouldering sort of way.

It is not yet six years since we began using our bagasse directly from the rolls, before then all our mills were furn-

ished with trash houses to dry the bagasse before using it. I have seen bands of men spreading the trash over a large yard and exposing it to the sun, and when dry gathering it up again. Is it then unreasonable to anticipate that we may eventually overcome the difficulties connected with using the chips and nothing else as our steam-producing fuel ?

It is besides evident that less steam is required in all the branches of diffusion except in evaporating, than is necessary in milling and as clarification is effected by the chips themselves in the cells, it is also apparent that the lower grades of sugar and perhaps even molasses largely diluted may yield their impurities in a similar manner and thus bring us nearer a one grade of sugar with less loss in manufacture than is at present chargeable to our boiling houses.

The quotient of purity in diffusion juice is somewhat higher than in mill juice, while the clearness of the former suggests even the possibility of eventually reducing the color, so that the planters' sugar may be as acceptable to the consumer as the refined article.

The Ewa Diffusion Works now being constructed by the Union Iron Works of Honolulu show in their arrangement and workmanship a great advance on any diffusion plant in operation in this Kingdom.

Diffusion as a system is popular and has at present the majority on its side, and by its extension among us will demand a more accurate method of operating accounts than has been in vogue by managers and those in charge.

I need not go into details of the various evaporating vessels, centrifugal machines, etc., etc., common in all mills. but may remark that although our advance in the past 10 years is very noticeable, particularly in relation to the employment of triple and quadruple effects, yet but little is known of what loss is attributable to these vessels by extrainment of juice.

Our boiling houses are chargeable with a loss of from 8 per cent. to 10 per cent. of all the sucrose delivered to them from the rolls or cells, and unless this loss is correctly located, we can have no intelligent notions as to what we are doing or how to remedy matters. Ten years ago I know of 28 Imperial gallons of molasses being thrown away in the Hakalau mills to each ton of commercial sugar, while to-day in the

Spreckelsville mills not more than six Imperial gallons of this waste to each ton of sugar is thrown away. Other mills no doubt have a similar record, if care were taken to find it out. The keeping of this refuse in cemented cisterns for the small fraction of low grade sugar obtainable from it will not pay in future, but the quantity and its sugar contents should be known by all in the business of sugar making.

The necessity for more accurate information about boilers and boiler setting, grates and furnace bars, and the value of the bagasse as fuel, was recently touched upon by "Sucrose" in the PLANTERS' MONTHLY. The article demands a more studious review than these contributions usually obtain.

A plantation manager would be a wonderful man if he thoroughly knew all the branches of knowledge which converge to form a complete and successful plantation, but he can and usually does find capable men for the different parts, such as engineer, sugar boiler, etc., etc. Engineers usually blame our boilers or their setting when there is any deficiency in steam. It would be more rational if some experiments were tried to find how many pounds of water could be evaporated in a given time by a known weight of bagasse of a certain extraction, than to condemn a boiler or its setting while this is perhaps but dimly guessed at. We owe our thanks to "Sucrose" for the timely hint, for no subject is so enticing nor so provocative of egotistical opinions from amateurs and jobbers as this boiler question.

Bagasse from a 73 per cent. extraction has, I am told, four-sevenths of the steam value of an equal weight of Sydney coal, provided it has for its combustion plenty of grate surface and a good draught.

In mills where a continuous maceration of a reasonable dilution is employed the begasse is in general supplemented by some other fuel, wood or coal. Neither should mills requiring many pumps to lift their condensing water be compared with others more fortunately circumstanced.

From Mr. Dyer's figures I find the effective value for square foot of our evaporating vessels per hour is wonderfully near each other, considering the differences which must affect each place in its condensing water form of apparatus, pressure of steam, etc.

Spreckelsville Triple Effects.....5 lbs. water per square foot.
Paauhau.....7 lbs. water per square foot.
Pacific Sugar Mill.....6.3 lbs. water per square foot.
Eleele.....5.8 lbs. water per square foot.

These figures would have more meaning if we knew in each instance the temperature of the condensed water as it flowed away from the pump. This branch has not been thoroughly worked up among us, but as the Yaryan and Swenson multiple effects are being introduced in some of our mills we may anticipate that more data will be at our disposal in the near future.

Yours respectfully,
H. MORRISON.

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REPORT OF COMMITTEE ON COFFEE AND TEA.

Hanalei, Kauai, October 23rd, 1891.

To the Planters' Labor and Supply Co:

Gentlemen:—As my experiments in Coffee Culture are very limited, and as a whole, not very successful, I abstain from giving my own observations on the subject.

But in order to make a report of value, I have written to several gentlemen actually engaged in this business, and I take this opportunity of thanking them for their reports, which you will find appended.

I remain, Gentlemen,
Very truly, yours,
CHAS. KOELLING.

Honolulu, October 6th, 1891.

Charles Koelling, Esq., Dear Sir:—I received your letter of the —— ultimo, asking me to give my personal experience regarding coffee culture in the Hawaiian Islands, just prior to my going to Kona, and delayed answering it until my return from there, as I deemed I would be better able to do so after again visited my coffee plantation. On the 7th of November, 1888, I made a contract with Mr. J. W. Kuaimoku to clear sufficient land and plant 50,000 coffee trees on my lands of Kolo and Olelomoana for $650, and in March of the foltowing year when the rains came on, he began to plant and continued to do so during the rainy season of that year. The trees were planted about six feet apart but

not in regular rows. They are planted in the Hawaiian way from plants or shoots taken from under the shade of the Kukui and Ohia trees. The plants were quite carefully selected and were small when planted, I insisting on their planting younger shoots than the Hawaiians plant themselves. Kuaimoku agreed to keep the trees free from undergrowth for the space of four months after planting and in case of any of them not growing to plant others in their place. Some of the trees died during the first four months after they were planted, and have not been replaced as yet, but the greater portion of the trees are growing well and show no signs of blight. They appear to be in a remarkably healthy condition and are from two to five feet high as near as I could judge by the eye. The plantation is as near as I can judge about thirteen hundred feet above the level of the sea. I have gradually cut away the bulk of the Ohia and Kukui trees under which the coffee was planted. A number of the coffee trees have berries and I hope to have a good crop next year. The formation of the land is a-a. I have given you all the information I can regarding my experiment in coffee growing, excepting cost of running the plantation. which I will give you if you so desire. My experience has been necessarily very limited.

I remain, yours very truly,

J. M. MONSARRAT.

Pohoiki, October 3rd, 1891.

Mr. C. Koelling, Dear Sir:—I have received yours of the 19th ultimo, and have noted contents. I do not know that my observations on the subject will be worth much to you as my actual experience in Coffee Culture is very limited, but such as it is you are welcome to it. It is only seven months since I planted my first trees, though I have been very much interested in coffee for many years, and have given the subject much thought.

I first commenced by planting 3½ acres with wild young coffee plants taken from shade and planted out in the open, and found just as Mr. Miller says in his late report that about two thirds of the plants proved too delicate to stand the exposure and died. What survived are fine young trees now, two feet high, strong and thrifty; so much for wild young plants from shade.

My next venture was a thirty acre piece which I planted with 30,000 stumps from about the size of a lead pencil to an inch in diameter. cut off about four inches above the root, and when the plant was well rooted (that is with plenty of fine roots, as some roots resemble a carrot in appearance and these I found to be useless,) I had no difficulty with them. They started in about six weeks and

threw out fine shoots, anywhere from three to twenty. The finest of course I kept, and the rest were rubbed off. At the time I planted the stumps, I made some nursery beds right out in the sun—no shade at all, with the idea of filling up misses with these young nursery plants. My seed was not prepared for planting, it was too old, but what did come up are fine. I have just planted them out filling up vacancies and they never seem to realize that they have been moved at all. Still I am rather in favor of stumps for several reasons, if they can be had—my choice of size would be about ⅝ of an inch in diameter.

In the first place one has a crop in eighteen months or two years sooner than nursery plants, which is an item for people starting in with limited means; again the tree grows more compact and the primaries start closer to the ground. My six months old shoots are sturdy and thrifty looking, two feet high with six and seven pairs of primaries; and thirdly, they make a stiffer tree and will stand the wind better in an exposed place.

So far, I am very well satisfied with the appearance of these thirty acres of coffee. I have seen no better anywhere and I have seen it in many places on nearly every Island of the group. You must understand I plant out in the open—no shade at all, and I am of the opinion that is the proper way to plant in Puna, any how, as we have sufficient rain-fall to keep the roots always moist.

I have also put in a small nursery of cocoa about 400 plants (all the seed I could get). This I also planted in the sun not knowing any thing about it. Since then I saw an article in the PLANTERS' MONTHLY about "cocoa," and it says it should be planted in the shade and in transplanting I shall follow the advice given in that article. At the same time, my cocoa plants look very fine, and when properly planted I think they will do well here and intend putting in more as soon as I can get the seed.

I wish some one who knows would write an article on nutmeg culture, what are its requirements and how propagated. I have already written to the Botanical Gardens, Kingston, Jamaica, in regard to nutmegs.

I hope this will reach you in time to be of some service to you in getting up your paper and shall be happy to do anything in my power to further the interests of coffee in this country. I may say that I know of a good many persons who are anxious to plant coffee in Puna and will do so as soon as the government divides its lands up for sale, and puts a good road through the district, the survey of which is already made.

I remain, yours truly,

R. RYCROFT.

Volcano Road, Puna, Hawaii, October 13, 1891.

Chas. Koelling, Esq., Dear Sir:—My experiments in Coffee Culture are very limited indeed, but the results of my observations together with the experience of others, have confirmed me in certain views which I hold on the subject. It is too large a subject to enter into at length, so I will condense my views as much as possible.

The results of my observations in Kona for a number of years, are, that a-a land lightly shaded is the best for coffee. I had such land in view in coming here. My land is simple a-a covered with Ohia trees, I hold that partial shade is better for young trees than too much sunlight. Large, wide spreading trees are the best, trees from 30 to 40 feet apart, and the branches nearly meeting over head, forming if I may say it, a "cathedral" shade. All small trees and undergrowth to be cut out. My trees are almost too young to bear yet, being only from 16 to 32 months old; but some of the trees, especially close up to the Ohias, the nearer the better, have some of them several hundred berries each. On sunny open spots the trees are not so thrifty.

I have been asked repeatedly, why, in a district like this, where it rains so much, and where the sky is so cloudy, open land without shade would not be better than the forest. Well; it is a mistaken idea that we have no sunny weather here. The most of our rain falls in the night and early morning, leaving us bright sunny days, (and the sun shines here with intense power). The real reason in my opinion, based on observations, both here in Puna, and also in Kona, is, that the so-called coffee blight is more prevalent on open land than in the forest; although I believe, that working intelligently, this obstacle can be overcome. Where I planting in open ground I should begin by planting papaias, which grow rapidly, followed up, (when the papaias are two feet high) by the coffee trees. The papaias can be cut down easily later, if it be found that more sunlight is needed.

The papaias perhaps, if fed to hogs, might pay the whole cost of cultivation.

A nursery of young trees is very convenient. The nursery trees are as good as can be had, but I do not believe that they are the only good trees for planting. I believe medium sized trees—say from ⅓ to ½ inch in diameter are rather better, cut down to within a few inches of the ground; or better still, planted full length, and the top brought over in a sharp curve bending it almost to the breaking point a few inches above the ground, and holding the top to the ground by placing a stone upon it. The result of the last method is, that the sap is all forced into the bent part, and numerous healthy shoots shortly make their appearance, when the top can be cut off, leaving one healthy shoot to grow.

I have tried all methods here. It is not well to take plants from too dense a shade. I reject perhaps nine out of ten. On raising the plant from the earth, I place the roots in a rather thick mud of rich earth prepared for it. Great care must be taken that the mud is clean and free from the seeds of foul weeds. By following the above method it is almost impossible to lose a tree.

My cultivation is altogether by hand which is not so slow or costly as would be imagined. Two or three weedings a year on this ground,

at an expense of $4.00 or $5.00 per acre will keep the ground perfectly clean. Open ground, unless land that can be plowed, would cost very much more.

A-a ground, while apparently no soil would be visible on the surface, by turning over the surface rocks, plenty of black vegetable mould mixed with small pebbles can be found.

I find that low topping of trees, as advocated by some planters, will not do here where the joints of the trees are from four to six inches long, and the primaries from four to five feet in length. Low topping would not give the requisite number of primaries, and the branches would all lay on the ground.

Speaking for this place, topping at seven feet would be the proper height. Great judgment however must be used. In places where the trees are short jointed lesser heights would do as well as planted a lesser distance apart.

Puna reverses all theories about high altitudes being necessary for Coffee Culture. It grows remarkably well from the sea level up, better at low altitudes that at high ones. Some fine groves that bear splendidly are within a few hundred feet of the breakers.

I should, for this place however, prefer the middle elevations. Each district however, has peculiarities of its own in this respect, and people going into coffee must make a special study of all the conditions of soil, climate, etc., in their respective localities.

In regard to pruning coffee trees, I should advise no one to do it unless they have made a special study of it, for if not properly done the tree will be spoiled. For a large plantation, I should certainly advise pruning, that is, if the trees are strong, vigorous growers, and attain a great height, but for trees that only grow to a medium height, perhaps it would be better not to prune. However, I am open to conviction on this point.

I do not believe that natives or Portuguese would ever make a success of pruning trees.

I continually urge natives and others to plant coffee, if only two acres. Two acres will give a family of natives from $300.00 to $500.00 a year income, and they would have all their time, excepting two or three months occupied in harvesting, for other work—plantation work say.

There is nothing that there is so much difference of opinion in, as the proper way to cultivate coffee. I am almost afraid to offer my views on the subject when there are so many veterans in the country who have more experience than myself. It is a vast subject and cannot be treated in these few pages. It promises well for the country if proper people can be induced to take it up and work intelligently, but it will require more active oversight and economy here where labor is so high than it would in a country where the pay is 18 cents or 25 cents per day.

No land is suitable for coffee unless there is proper drainage and freedom from strong winds. Pahoehoe is unsuitable.

I believe it to be the duty of the Government to appoint a salaried scientific man to make a special study of the peculiarities of each district in the Islands, and to publish the result of his observations, also to experiment and find remedies for the so-called coffee blight.

Hoping you may glean an idea here and there from what I have written. I remain, very truly yours, A. SUNTER.

Honolulu, October 26th, 1891.

To the Officers and Members of the Planters' labor and Supply Co., Gentlemen:—I beg to submit to you that as a member of your Committee on Coffee and Tea Cultivation, and not having heard from the Chairman, Mr. Koelling, what he had done in the matter, I felt it my duty to have a report prepared for your annual meeting which might prove both interesting and instructive. * * Being well aware that my lack of practical knowledge of the culture of the above plants and the manipulation of their product, would make any report I might prepare myself, of little value to you, I have taken the liberty to request Mr. Chas. D. Miller, Manager of the Hawaiian Coffee and Tea Co., and Mr. Wm. G. Wait, his assistant, to write out reports on the subject of Coffee and Tea cultivation, which, with your permission I shall now read to you, trusting that they will be acceptable and interesting to you. Very respectfully,

F. A. SCHAEFER.

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COFFEE CULTURE.

The subject of Coffee Planting is one which has occupied the attention of capitalists and others from time to time, but until very lately nothing has been done to develop the enterprise in these Islands.

Any one who has visited the group must have been struck with the climate and wonderful fertility of the soil.

That the Islands are eminently adapted for the successful cultivation of many tropical products other than sugar is a fact that cannot be disputed.

The district of Kona, in particular, is in every way suited not only for coffee culture but also for that of tea.

With the present crisis in the sugar industry, planters and the community at large are awakening to the fact that the resources of these Islands must be sounded if the prosperity of the past is to be continued in the future, and there is no field which affords a better investment for capital than that of coffee planting.

The Hawaiian Coffee & Tea Co., a corporation lately started with the object of cultivating both the above products, proposes to give the enterprise a thorough trial. They have commenced operations in the district of North Kona, and will have 100 acres cleared and ready for planting by next June.

In starting a plantation the first and most important point to be considered is the selection of the proposed site. Great care must be exercised in ths respect, as the climate,—more particularly as regards rainfall,—the soil, and lay of the land play a prominent part in the future success of such an enterprise.

With the exception of the company referred to, so far no systematic cultivation has ever yet been attempted.

Coffee is to be found growing in a semi-wild state throughout the group, but more especially in the district already mentioned.

That Kona possesses many advantages which are not to be found in other parts of the Islands admits of no argument. In the first place, the district commands good harbors with smooth water at all seasons, and of easy access to the lands available for cultivation.

Secondly: There is a good carriage road to Kailua harbor, and another in course of construction from that port in an opposite direction. The Government roads in North Kona, with very little cost, could be converted into good cart roads, and when once made should be permanent as there are no gulches; moreover the material being excellent there would be no fear of wash.

Third: The climate leaves nothing to be desired, and is entirely different to that on the windward side, in the fact that it possesses distinct rainy and dry seasons. This is another important feature in the cultivation of coffee, especially in the maturing and harvesting of crops.

The next point to be considered is the elevation. The general impression in this district is that coffee should be planted at a low elevation, say 1,200 ft. and under; and the basis upon which such statements are founded is from the fact that the greater part of the coffee growing here is to be found at the above mentioned altitude. With all due respect to those who hold such opinions, I must say I cannot agree with them; for I think, one of the greatest drawbacks connected with the coffee trees in Kona lies in their being set out at too low an elevation. In my opinion, coffee will give better results if planted—say between 1,200 and 2,000 ft., and will be less susceptible to the attacks of the blight or white aphis. This

opinion is based on the experience of some of the most successful plantations in India and Ceylon, and also from the fact that there are patches of coffee to be found in Kona at an altitude from 2,000 to 2,500 ft., and even higher in a fine healthy condition, and with every indication of having borne well, as is evidenced by the numerous seedlings on the ground. The bean also from trees at such an elevation is much larger than that of low land coffee.

Mr. von Nostitz, a Guatamala planter of many years' experience, who visited the Company's lands lately, as also Mr. Wait, a Ceylon planter of long standing, both endorse my opinion.

The matter of shade trees is another argument set forth in connection with the planting of coffee. The kukui tree is specially mentioned as being the one most suitable for such purpose. Although I do not for one moment wish to say that coffee will not do well under the shade of the kukui: at the same time I should prefer to dispense with them; for it has not yet been proved, that coffee will not do equally as well if planted and cultivated in the open, as is the custom in most other coffee producing countries.

Shade is entirely a matter which must be decided by climate, elevation, rainfall, etc., and not upon such unreliable data as we now possess on the subject.

The next point in order, after a site has been selected, cleared and prepared for planting, is the operation of planting itself. This is one of the most important works on a coffee plantation, and on the care bestowed on the same, as also the selection of the plants themselves; the whole future success of the enterprise may be said to depend.

The practice of pulling up young plants from under old coffee trees is one which ought never to be adopted; especially in rocky districts, when the tap root in nine cases out of ten will be found to be doubled up, or at right angles to the stem. Such a course will never produce long-lived, healthy, or vigorous trees, and on a large scale would prove a most expensive operation, as more than 75 per cent. of plants so gathered would have to be condemned.

When a clearing has to be planted up with plants gathered from under the old coffee trees, there is a way of proceeding which will ensure the plants coming on at all events.

The plan is to select good plants with a stem about the size of an ordinary lead pencil, and then to "stump" them, or cut them down to within six inches of the roots. The tap root, if crooked, should then be shortened with a sharp knife, and all the lateral roots trimmed. Plants treated in this manner will often produce good results, and will stand a long period of drought: provided, there is sufficient moisture in the soil when set out.

The only real and practical way, however, to procure healthy plants is by raising them in nurseries from carefully selected seed.

Nurseries may be formed in many ways, and at a cost varying with the circumstances and local surroundings. Three things are essential, however:

First: A supply of water proportionate to the area of beds to be watered.

Second: Soil entirely freed of all stems, roots, etc., to a depth of not less than 18 inches.

Third: A means of affording artificial shade to the young seedlings, in such a manner as not to incommode the laborers in watering or weeding the beds: and at the same time so constructed that it can be gradually or entirely removed at any time with as little handling as possible.

The object of a nursery, I think, is clear to any one with ordinary intelligence, viz., to produce healthy, vigorous plants with an abundance of roots, and above all, a straight tap root; as also the means of securing a ball of earth round the plants in the operation of transplanting. This can only be accomplished in nurseries as I have described, where the plants, when they have attained the proper age, will be gradually submitted to the influence of the sun's rays in such a way, that for some months previous to transplanting they will not be protected with any shade whatsoever.

The modus operandi of preparing a clearing ready for planting is as follows: All the trees should be felled, which, together with scrub, grass, etc., must be thoroughly cleared off; but it is not necessary that the stumps should be rooted up.

The land is then ready for lining which consists of marking out with stakes at even distances apart the sites for the trees.

The distance at which the trees should be set out is a mat-

ter of much argument, and varies in different countries. In India and Ceylon the average distance was 6x6 ft., with trees topped at about 3 ft., 6 inches. In Guatamala the practice is to set out the trees at 9x9 ft., and even wider apart, and to allow them to attain their natural height. Each planter has his own opinion, which must in all cases be so modified to meet the requirements of a new country with somewhat altered conditions.

When the lining has been accomplished the next operation is holing, which ought to be carefully and thoroughly executed. The holes should be 18 inches square and 18 inches deep, and all stones and roots removed. After the holes have been left open for a month or so, to the influence of the sun and air, they should be filled in during the rainy season. The clearing is then ready for the final operation of planting. As I have said before this work must be thoroughly attended to. In districts where the rainy season is subject to intervals of sunshine of many days duration, the ordinary method of planting would be attended with more or less risk. A better plan is either to transplant into boxes made of some cheap material or with transplanter. The latter method would be the most practicable and least costly. When the trees have attained the proper age, about 18 months to 2 years, they should be topped or cut down to the desired height which may vary from 3½ ft. to 5 ft. This operation induces them to throw out more vigorous primaries, which in turn produce secondaries, and if art were not brought to bear on the trees in the shape of pruning, they would soon become a dense thicket impenetrable to both sunshine and light.

The operation of handling and pruning is resorted to therefore in order to make the trees conform to their artificial state, as also to remove all the superfluous wood or branches; and retain only such wood as may be necessary from which the succeeding year's crop is to be harvested. I may say that pruning and handling is quite an art, and requires a great deal of patience to break in laborers to perform this work satisfactorily. If steadily persisted in from the first, however, the operation becomes more simple.

I suppose it is scarcely necessary for me to mention that from the time the plants have been set out, the clearing should

be kept thoroughly clear of all weeds, grasses, etc. This work must be performed regularly and systematically, and if strictly attended to, the matter of weeding coffee in Kona will be a very inexpensive operation.

With regard to the probable yield that may be expected from the trees for their maiden crop, it is a matter which remains yet to be demonstrated.

What I have seen of the coffee in the district, however, and the amount of crop on some of the trees, I feel fully confident that a return of 1 lb per tree may be looked for. When the plantation has come to maturity, viz., in the seventh year, probably from 2 lbs to 3 lbs per tree may be harvested. I say probably, for there are no reliable statistics on which to have the returns from matured trees under a state of cultivation.

I may mention that I have myself tested the crop on some of the trees in the district, and although they might be termed exceptional cases, still they show what a tree can actually bear, and that under most disadvantageous circumstances. In several cases I counted the clusters and berries in one cluster, which varied from 15 to 20 clusters on one branch. The trees contained upwards of 12 pairs of primaries or 24 branches. As it takes on an average about 900 berries to make one pound of clean coffee, the crop on these trees would represent over 5 lbs.

With regard to the curing of the crop, machinery must be employed in order to place the article on the market in proper shape. The machinery required is not very expensive and consists of a set of pulpers, peelers, and separators. With the above machinery the crop can be pulped, washed and cured to perfection, and sorted into several grades of coffee.

Pulping and washing coffee is preferable to dry hulling, as such coffee always commands a high price in the London markets.

Before concluding, I would like to say a few words concerning the blight which has been one of the principal obstacles to the investment of capital in the coffee industry.

The blight in Kona is of two kinds, and termed by the natives the white and black blights. The former is the white aphis, and the latter is a fungus which attacks the leaves but does not affect the crop. There is not much cause for alarm

from this, source, however, for I feel sure if proper remedies be systematically and regularly applied, the blight can be held in check, if not eradicated.

In conclusion I would say that the prospects for the future in the district of Kona are most encouraging, and there is no reason why coffee at no very distant date, may not become the staple of export from these islands.

CHAS. D. MILLER,
Manager Hawaiian Coffee and Tea Co.

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TEA IN CEYLON.

After the almost complete collapse of coffee cultivation in Ceylon during the early forties, owing to the reduction of British duties on the foreign grown product, it was resuscitated by men who, having invested their time and fortune in the industry, worked with the energy of despair.

With "Ceylon Plantation" at £6 to £7 10s. in Mincing Lane, and estates yielding from ten hundred weights to a ton an acre, money was freely spent. With the influx of foreign grown coffees into the English market, however, prices dropped to £3, the poverty of the soil demanded fertilizers, the exchequer was empty, and in most places white weed and lantana took possession.

While many fled to seek for new pastures, some remained, and, by pluck, economy and the loyalty of their financial supporters, raised coffee in the poorest of soils, made it pay in the face of the world's competition, and developed for its cultivation a system of scientific method which has never been equaled.

The crisis, however, had its lesson and some remembered that it was poor policy to put one's eggs all in one basket. Among these were the brothers Solomon, Gabriel and Maurice Worms, a name now associated in Europe with those of Rothschild and Baring. These gentlemen owned over 2,000 acres of coffee in the district of Pusselava and were the first to turn their attention to new products. About 1850 they procured from China a quantity of tea seed and a number of Chinamen, experts in the cultivation of tea and its preparation for the market. The tea grew and flourished, but the Chinese laborer was under contract and saw other openings for more lucrative employment. His master could command the work of his hands but the shrewd Chinese withheld the

secrets of his art. In this way the first attempt to cultivate tea outside of China and Japan proved a costly failure. The shrub was, however, distributed throughout the Island and with its close thick growth and the rich varying green of its foliage it sometimes made a very handsome quick set hedge, more frequently it was regarded as a useless weed.

Coffee prospered. District after district was opened, and over 2,000 square miles of land were planted until the view from Horton plains, 9,000 feet above the sea, east and west, north and south was one expanse of coffee. Coffee was King, and Ceylon, became one of the great coffee producing countries of the world.

But again, the truth of the old saying about eggs was verified, and when "leaf disease" made its appearance, the planters, after a long and resolute battle with the insidious foe, defeated but not conquered, turned their attention to new products. Liberian coffee, tea, cinchona, cocoa, rubber and many others were tried with more or less success, but all with that energy and intelligence which had already been applied to the cultivation of coffee. Each man had his hobby and one man vied with another to succeed.

The indigenous Tea of Assam was already being extensively grown in India and it had made a name for itself in the market. Upon its introduction into Ceylon it was not long before cross-fertilization was effected with the Chinese variety already scattered throughout the Island. The hybrid thus produced presents the best features of both varieties. —Like the Chinese tea it is close set in its growth—like the Indian, large and luxuriant. From the first it derives its delicacy of flavor, from the last its richness and body.

Tea was most extensively planted in worn out coffee fields, which, having been totally deprived of all surface soil, presented steep hillsides of red ferruginous clay. Estates were in this way made to pay which year after year had been worked at a loss, owing to the ravages of "leaf disease." When put out in virgin soil, tea has in every case given handsome returns. As to the quality of the produce it is only necessary to say that Ceylon tea tops the market and that certain choice parcels have fetched almost fabulous prices.

The tea plant possesses to an unusual degree the power of adapting itself to extremes of latitude and elevation. In Ceylon, lying between the sixth and tenth parallels of latitude, it is cultivated in a zone extending from 1,500 to 5,000

feet above the level of the sea, while in China and Japan at moderate elevations, it grows as high as 33 degrees north latitude. Another characteristic of tea is that of all indigenous plants it contains by far the largest amount of nitrogen, an important fact which is taken advantage of by the tea planted in forcing a flush, and one which I shall refer to in discussing the adaptability of these Islands for the cultivation of the product.

In proceeding to open a tea plantation the first care is to secure seed. Should either the Chinese or Assam varieties be selected, this is a matter of little difficulty. If, however, the hybrid is desired and the best results expected, it is necessary to have parent trees of both kinds, of as pure stock as possible and to conduct with great care the process of cross-fertilization, scrub plants in the case of tea being of no more value than such plants in the case of coffee. The next step is to prepare proper nurseries and put in the seed at a distance of about four inches apart. A supply of good plants having been provided for, the land is to be thoroughly cleared and holes 18 inches by 18 inches dug at a distance of four or five feet apart, according to the nature of the soil. The holes must be left open for at least a month and when the wet season has fairly set in they are to be carefully filled, the soil being firmly trod in. The best and safest practice is to take the plants out of the nursery into the field in transplanters. In this way an unexpected interval of dry weather can safely be tided over without shade and the plants suffer no "set back" whatever. After planting, it is only necessary to attend to weeding until the end of the second year when the plants are to be "topped" at 24 to 26 inches according to circumstances. The first flush ought to be taken off in the third year, and the first crop limited to 100 pounds to 150 pounds per acre of green leaf, great care being exercised to prevent injury to the bushes and due provision being made for lateral expansion. In the fourth year, the crop may be increased to 300 or 400 pounds, and when the bushes have attained maturity the yield can be brought up to 1,000 pounds or more. I may here mention that 100 pounds of green leaf yields 25 pounds of tea ready for the market. To treat further of the subject is outside the scope of this paper, and without going into the details of curing the leaf it is only necessary to state that after the leaf is gathered all other handling may be entirely avoided by the use of machinery.

In conclusion, I will only say that there are many places on these Islands, and especially in the almost windless regions on the leeward side of Hawaii, where tea could be cultivated at small expense and little trouble. On the up-lands of North Kona, at an elevation of from 2,000 to 3,000 feet, there are large stretches of land on which the best tea in the world could be raised, and to form an estimate of returns one has only to know something of the nature of the tea plant and examine the rich deep volcanic soil of the regions indicated. If tea can be made to pay 10 per cent. on the outlay on the steep unpoverished hillsides of Ceylon, what would it not do here?

The one and only difficulty at present which will prevent the industry being conducted on an *extensive* scale is the want of proper labor at a reasonable price. The solution of this difficulty, however, is in our own hands, and when overtures are made through the proper channels to the Government of India, and when men are selected as agents who know the country and the people, no further trouble may be anticipated and these Islands will have secured the cheapest and best labor in the world. The system of protection claimed by the Indian Government is always referred to as an objection, but it must be remembered that it guarantees to the planter that every man and woman it supplies will be required to do a fair day's work, and that his contract time is reckoned by the number of days he does work, and no sensible man will deny that to secure the best services of a laborer, he must be well treated and well cared for. WILLIAM G. WAIT.

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REPORT OF THE COMMITTEE ON LIVE STOCK.

HONOLULU, H. I., October, 1891.

To the President and Members of the Planters' Labor and Supply Company.

GENTLEMEN:—Glancing back over the records of your valuable PLANTERS' MONTHLY to its first issue, it appears that your Committee on Live Stock have responded to the call for a written report upon the following years only: 1882, 1883, 1884, 1885 and 1888. Certainly an industry representing a taxable value of over $2,500,000 is worthy of careful consideration and an exhaustive report at least once in each year.

It is no easy task, however, and your Committee shrink from the duty imposed upon them, to furnish such data and

statistics as are absolutely essential to a clear and intelligent understanding of the subject. for the reason that this country has not yet waked up to the importance of statistical facts and figures. It is due to Government officials and clerks, however, to say that they are ready and willing to supply all such information as they have at command, but this does not meet the requirements of the times. Nothing short of a permanent bureau of statistics, with a live intelligent head for its department will supply the need. We endorse most fully the remarks of Dr. C. T. Rodgers. General Superintendent of the Census in his report for 1890 on page 48, and we venture to hope that his timely suggestion will receive at the hands of the next legislature the attention it deserves.

The following table, No. 1, will show the kind, number and invoice value of Live Stock imported into the Kingdom from October 1st, 1888, to October 1st, of the present year, a total number of 12,919 animals valued at $418,062.82 to which must be added freight and other charges making the amount say, $500,000, an average of $166,000 per annum. During the preceding three years from October 1st, 1885, to October 1st, 1888, the average imports of Live Stock at invoice va ue was $106,537.21, adding to that amount 20 per cent. for freight and other charges brings the amount up to $127,844.65. Thus we see that the importation of Live Stock during the last three years has averaged, say, 30 per cent. increase upon the former three years.

TABLE I.—IMPORTATION OF LIVE STOCK INTO THE HAWAIIAN ISLANDS, FOR THREE YEARS FROM OCTOBER 1ST, 1888, TO OCTOBER 1ST, 1891.

ANIMALS.	1888. LAST QUARTER		1889.		1890.		1891. 3 QUARTERS.		TOTAL. THREE YEARS.	
	No. Head.	Value.....	No. Head.	Value.....	No. ead.	Value.....	No. Head.	Value.....	No. Head.	Value.....
Horses & mares	28	$ 3,672 00	122	$ 23,582 00	353	$55.117 95	244	$ 39,570 00	747	$121,941 95
Stallions					8	6,550 00	3	1,950 00	11	8,500 00
Mules	91	12,540 00	269	39,399 50	579	80,348 35	165	28,083 00	1,104	160,370 85
Cows & heifers	15	975 00	30	1,535 00	103	5,200 00	91	5,560 00	239	13,270 00
Calves			1	25 00	76	72 00			77	97 00
Bulls	2	584 40	12	6,035 00	12	2,641 76	44	4,345 62	70	13,606 78
Hogs & pigs	1,043	11,309 55	2,356	26,814 18	3 228	26,721 88	3,748	31,231 34	10,375	96,076 95
Sheep	50	1,089 00	105	336 25	103	501 14	10	60 00	268	1,986 39
Rams			10	313 46	4	79 44			14	392 90
Goats	3	100 00	4	100 00			4	120 0(	11	320 00
Jacks			1	500 00	1	500 00	1	500 00	3	1,500 00
	1,232	30,269 95	2,910	98,640 39	4,467	177,732 52	4,310	111,419 96	12,919	418 062 82

Tables Nos. 2, 3, and 4, for 1888, 1889 and 1890 respectively, exhibit the importations of hay, grain, etc., into the Kingdom to the amount of $1,046,833.18 to which may be added freight

and other charges at least $500,000, the freight on Hay alone being fully $250,000 or equal to the invoice cost. Live Stock and imported feed to the amount of $200,000 in three years furnished by the State of California show conclusively in these two items alone that the Treaty of Reciprocity as it existed before the passage of the McKinley bill was by no means all in the interest of this Kingdom, as is frequently represented.

TABLE II.

Imports of Grain and Feed into the Hawaiian Islands for the Year 1888.

	Honolulu.		Kahului.		Hilo.		Mahukona.		Totals.	
	Quantity	Value...	Quantity	Value...	Quantity	Value...	Quantity	Value...	Quantity	Value...
Hay, bls	35,271	$ 68,506 15	50	$	3,700	$ 6,804 41		$	39,021	
sks			230,120	1,865 37					230,120	$ 77,175 93
Bran, lbs	4,702,108		597,235		851,066		49,733		660,142	
sks	1,250	40,410 30	26	5,106 15		7,994 15		422 72	1,276	53,133 32
Barley, lbs	6,044,317		792,466		684,256		167,018		7,688,057	
sks	1,874	52,167 99		6,891 11		6,576 51		1,574 10	1,874	67,209 71
Barley Meal, lbs	4,035,028		466,689						4,501,717	
sks	706	38,201 31		4,526 34					706	42,727 65
Corn, whole, lbs	316,018				54,155				370,173	
sks	45				328				373	
Corn, cracked, lbs	257 785								257,785	
sks	5	8.181 26				797 68			5	8,978 94
Middlings, lbs	1,007,553		4,548		66,602				1,078,703	
sks	539	9,897 19	25	66 18		693 42			564	10,656 79
Oats, lbs	1,676,610		352,220		29,769				2,058,599	
sks	320	24.605 86		4,678 12		445 94			320	29,729 92
Oil cake, lbs	158,979				4,293				163,272	
sks	3	2,353 31				58 24			3	2,411 55
Wheat, lbs	585,583		39,532		44,965		6,120		676,200	
sks	2	8,340 83		561 96		806 93		100 98	2	9,810 70
Sundry Feed, lbs	26,672		5,000						31,672	
sks	1,432								1,432	
bls	45	1,884 38		76 00					45	1,960 38
		$ 254,548 58		$ 23,771 23		$ 23,377 28		$ 2 097 80		$ 303,794 89

TABLE III.

Imports of Grain and Feed into the Hawaiian Islands for the Year 1889.

	Honolulu.		Kahului.		Hilo.		Mahukona.		Totals.	
	Quantity	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Hay, bls	34,628	$ 52,199 41		$	5,358	$	241	$	40,227	$
lbs			227,122	1,448 87		7,311 59		312 62	227,122	
pkg					1				1	61,272 47
Bran, lbs	5,284,114		558,774		875,956		134,944		6,853,788	
sks	1,488	39,886 93	100		1				1,589	
tons			28	4,299 30		6,624 62		893 08	28	51,703 93
Barley, lbs	6,224,481		798,759		914,930		707,201		8,645,371	
sks	415	51,009 52		6,442 16					415	
pkgs					1	7,530 03		5,570 50	1	70,552 21
Barley Meal, lbs	4,536,277		350,654						4,886,931	
sks	1,550	38,697 31		2,945 39					1,550	41,642 70
Corn, Whole, lbs	339,335				45,362		11,280		395,977	
sks	25								25	
do Cracked, lbs	291,167	8,239 84				672 09		163 28	291,167	9,075 21
Middlings, lbs	1,458,617				72,277				1,530,894	
pkgs	556	13,135 68				642 29			556	13,777 97
Oats, lbs	2,289,324		232,836		1,709				2,523,869	
sks	674	30,614 83		2,734 52	171	229 91			844	33,579 32
Oil Cake, lbs	70,825		1,680		1,040		20,041		93,566	
sks	40	1,080 50		23 60		17 16		423 24	40	1,544 50
Wheat, lbs	617,603	8,769 86	23,961	344 20	39,772	613 78	20,762		702,098	10,042 62
Sundry Feed, lbs	98,212		4,006					316 78	102,218	
sks	531								531	
pkgs	6	1,446 79	1	40 51					7	1,487 30
Linseed Meal, lbs					1,116	17 85			1,116	17 85
		$ 245,078 73		$ 18,278 55		$ 23,659 30		$ 7,679 50		$ 294,691 08

TABLE IV.

IMPORTS OF GRAIN AND FEED INTO THE HAWAIIAN ISLANDS FOR THE YEAR 1890.

	HONOLULU.		KAHULUI.		HILO.		MAHUKONA.		TOTALS.	
	Quantity	Value...	Quantity	Value...	Quantity	Value...	Quantity	Value...	Quantity	Value...
Hay, bls	52,746	$ 83,198 64		$	7,344	$ 11,065 58	231	$ 358 31	60,321	$ 96,790 96
lbs			291,064	2 168 43					291 064	
Bran, lbs	6,257,137		571,516		1,280 049		305,080		8,413,782	
pks	2,974	50.040 06	100	4 539 72					3.074	
sks					17,874	10.365 58		2,144 89	17 874	67,088 25
Barley, lbs	7,325 444		656,897	6,836 65	1 154.458		1,277,120		10,413,919	
sks	3,556	85,674 55			13,826	13,613 34		13,460 18	17 382	119,584 72
Barley, Meal, lbs	5,674,841		458,828	5,353 79					1,026,312	
sks	2,574	72,120 96	100	101 64					2,675	77,576 39
Corn, whole, lbs	511,763				53,001		8,057		572,821	
sks	267				426				693	
do cracked, lbs	317.582				9,182				526,764	
sks	124	11,765 70			106	968 71		109 80	230	12.844 21
Middlings, lbs	1,253,953				126,183				1,379.536	
sks	1,159	14,520 89			1.425	1,483 47			2.584	16,004 36
Oats, lbs	2,407,161		195,689		8,086				2.610,936	
sks	1,114	40,329 69		2,983 12	75	133 27			1,189	43.446 08
Oil Cake, lbs	36.397		3,225		1,670		86,981		127,673	
sks	55	564 32		40 84	10	16 05		1,169 38	65	1 790 59
Wheat, lbs	702,312		29,863		43,875		19,129		795,179	
sks	393	10,356 41		413 79	313	647 79		263 32	706	11,681 31
Sundry Feed, lbs	58,204		32,611						90,815	
sks	227								227	
bls	139	1,205 42		334 92					139	1,530 34
		$ 369,779 64		$22,772 90		$38,293 79		$17,503 88		$ 448,347 21

Table No. 5 shows the number of various classes of Live Stock in the Hawaiian Kingdom, (excepting Oahu which was estimated, as the returns were not at hand when this report was written) as returned for taxation for the year 1890. Assuming that the tax returns made in 1884 and again in 1890 are correct, we make the following deductions for a period of six years :

TABLE V.—TABLE SHOWING THE NUMBER OF VARIOUS CLASSES OF LIVE STOCK IN THE HAWAIIAN KINGDOM, AS RETURNED FOR TAXATION, FOR THE YEAR 1890.

	OAHU. (Estimated.)	HAWAII.	MAUI, LANAI, and MOLOKAI.	KAUAI and NIIHAU.	TOTAL.
Horses..... ..	5,590	9,977	7,641	2,831	26,039
Cattle.....	28,841	59,938	48,821	11,652	141,252
Sheep.....	125	16,097	40,315	20 896	77,433
P gs.....	1,000	1.130	8,320	385	10,835
Mules.....	337	2,149	839	185	3,564
	35,893	81,291	105,990	35,949	259,123

On Maui, Molokai and Lanai, there has been an increase of 1196 horses, 29,721 cattle and 363 mules. and a decrease of 43,982 sheep. On Hawaii, an increase of 107 cattle and 176 mules, a decrease of 5,693 horses and 11,133 sheep. On Kauai and Niihau, a decrease of horses 1097, cattle 8189, sheep 21,103 and mules 17.

As we have no returns for the Island of Oahu for 1890 we are unable to make a complete showing of increase and decrease of Live Stock for the whole Kingdom. The figures obtainable point out the following result, excluding Oahu :— Total increase of cattle 21,639 and mules 522. Total decrease of horses 5,594 and sheep 76,218.

Your Committee do not vouch for the accuracy of these figures so far as actual facts are represented, but give the correct deductions from figures obtained.

That we are doing a great deal of very important business, and working at it blindly, must be evident to every one who is acquainted with the true conditions of the statistics as now kept in this Kingdom.

We think it is possible to raise in this country from 50 per cent. to 75 per cent. of the produce named in this report. Possibly one of the general benefits to be derived from the great loss in sugar profits will be the further developement of stock-raising and farming industries. A better knowledge to

be gained by careful study, observation and experience may do as much in proportion for farming as it has done for the sugar production in these islands. If we cannot as a country get the five million dollars profit from America we once enjoyed, perhaps we may learn how to save a few millions by raising what we formerly imported from that country, which will certainly be a movement in the right direction.

One of the financiers of this country remarked a few days since: "Everything depends upon our exports." While that is true to a very large extent, it is also true that a great deal now imported might be raised in this country. Domestic economy is needed now, if never before. We should get our own living as far as possible out of our own soil and not from the soil and labor of another country. If by home enterprise thrift and economy we can supply our own markets with what now costs us from $500,000 to $1,000,000 per annum, we shall be the gainers of at least a portion of the $5,000,000 loss through the new tariff law. We ought to be ashamed to tell the world what a wonderful climate we have, and a soil surpassingly rich, capable of producing in various localities and altitudes, almost anything that can be grown anywhere else, when our actions seem to belie our words, for we publish through our Custom House statistics that we import per annum: corn to the amount of $10,000, horses and mules, $94,000, hogs $32,000 and a long list of other necessaries which can and ought to be supplied here without question. The unoccupied lands on the Island of Hawaii alone could be made to supply all we now import and a great deal more.

The present lack of the proper means of inland transportation upon all our islands is the great drawback. It has been said by those who raise hogs on the island of Hawaii that the cost of getting their animals to market for want of inland transportation is so great that there would be nothing left for the producer; so we send away across the water where people find it convenient and profitable to bring these animals several hundred miles by rail and ship them 2100 miles by sea.

The Kahuku plantation, not long since, wanted to purchase 300 cords of firewood in one lot, and a satisfactory price was agreed upon for the wood delivered at the wharf of the Oahu

Railway and Land Company. After no little trouble in securing means of transportation by water, (the economical method so highly recommended by some of our statesmen in the last Legislature), two cargoes were shipped (37 cords) which was found to cost the plantation $8.00 per cord for transportation; less than half that amount would satisfy the cravings of a hungry railway corporation, any day in the year.

It was said, (though probably not true,) that much adverse legislation to railway enterprise grew out of the fear that steamship stock would suffer in consequence: perhaps some one will tell us how much value steamship stock will have, if the main industry and other industries in the kingdom cannot be made to pay? And possibly all will agree that if railways are built to gather up all kinds of produce inland, and place it at good, safe and convenient points of shipment with regularity and despatch for less than one-half of what it can be done for now, that it would increase rather than retard inter-island transportation. The cost of living in this country is unnecessarily high, but it can be reduced very materially by opening up cheap unoccupied lands for settlement and providing cheap, rapid and regular means of transportation for material and people, so that all markets and all plantations on the islands can be provided with the necessaries of life at from 25 per cent. to 60 per cent. less than the present cost. This great reduction will come through the reduction in cost of transportation and the competition of venders of market produce raised on land not leased to gardeners at $100 per acre as at present, but upon land purchased and owned by them at a cost of $50 to $150 per acre, or leased at $5 to $15 per acre per annum.

An effort in the right direction to reduce the cost and increase at the same time the comfort of living, is quite as essential and as much to the point as the present movement for cheap labor, in fact, it is the key to the very door of cheap labor. Reduce the cost of living as it should be, say 33⅓ per cent. and it will be possible for those now in the country to work for 25 to 33⅓ per cent. less wages, and serve at the same time their own interests as well, if not better.

This country seems to have a mania for importing not only everything we want, and all we think we want, but also

many things we do not want; some of which have proved a terrible curse. We refer particularly in this report to the importation of lantana and its industrious propagator the myner bird (Gracula religiosa). The lantana was introduced into this country from tropical America in the year 1858, and the myner bird was brought here from the East Indies about the year 1866. The one might not have proved so great a curse without the other, but the two combined have already rendered almost worthless thousands of acres of pasture land, and if some prompt, vigorous measures are not adopted by the next Legislature and enforced to the strict letter of the law for the extermination of these two great evils, the day is not far distant when there will be no pasture land in the kingdom upon which to raise either horses or cattle, unless the land is kept clear at a cost that would make stock raising unprofitable with beef at 25 cents per pound.

It is useless now to look back over the past and estimate the small expense and little trouble that would have been involved in the total extermination of this land destroyer. A united effort followed by immediate execution, enforced by the earliest Legislative backing, is all that can now be done to save the grazing lands in this country from sure destruction.

At the request of your Committee, Dr. A. Rowat, V. S. has kindly furnished the following report which will doubtless be found of interest to the whole community. We hope all engaged in stock-raising, especial those on the Island of Oahu will act upon the suggestions offered therein in regard to fencing off all stagnant water. Through the agency of wells and windmills there are very few, if any ranches in this island that cannot provide pure water for their stock, which should be done for the comfort of the animals, if for no other purpose.

"A few remarks on the diseases most prevalent and most dangerous to the live stock of this kingdom may not be without interest to the readers of the PLANTER'S MONTHLY, and a short dissertation on that insidious disease 'Fluke,' which is at the present time creating considerable excitement may be of particular interest. To go minutely into the cause and symptoms of the disease, into the life history of the parasite, (Fasciola Hepatica,) its propagation and transmission to the higher forms of animal life would take up too much space, but I believe that full notes under those heads would be of unusual interest to the stockowners who have suffered severe losses from a disease of which they have had no definite knowledge. My

first practical experience with the disease in this kingdom was at the Woodlawn Dairy, but four years ago, where I killed a diseased Jersey cow, held a post mortem and exposed a liver full of 'Flukes.' This case was communicated to Mr. Dillingham who immediately ordered an examination of the entire dairy stock and gave positive instructions that all diseased animals were to be either segregated or destroyed. We have since that time made examinations of the stock together, and his positive injunction has been—'segregations or destruction of the diseased animals.' The present good condition of the dairy stock is due largely to the stand that was then taken by him. Other influences were at work, however, (perhaps unseen) to bring about this condition. The low lying lands makai of the Pawaa Dairy, formerly owned by Judge L. McCully and used by him for dairy pasturage, were filled with stagnant water pregnant with disease. The Pawaa Dairy was purchased from Judge McCully and consolidated with the Woodlawn Dairy and Stock Co., and shortly after a number of cows of the Pawaa Dairy were found to be diseased; they were killed or died and all stock was taken from the swamp lands to the top lands where only pure water was accessible. The Jersey cow referred to as being the first discovered by me diseased with the 'Flukes,' was one of the herd of the Pawaa Dairy, where the 'Fluke' trouble first appeared among dairy stock.

"These are two factors which have had more influence in producing the present condition of the stock than what they have probably been credited with.

"The history of the 'Fluke' in these islands, according to rumor is ancient, some claiming to have seen it twenty years since in the Kaneohe district. Nearly four years ago, I saw specimens sent to Honolulu from that district which the sender claimed to be snails found in a bullocks liver. They were 'Flukes' however. The next excitement was a little over a year ago when word was received from the same district that the cattle were suffering from leeches in the liver. It seems strange, impossible, that intelligent men could have had experiences with the disease for nearly twenty years, and had got no nearer to the true history of the plague than snails and leeches.

"No matter how ancient the history of the disease on these islands may be it is a well known fact that the Island of Oahu is at the present time infected from its center to its circumference, and that within the last eighteen months the disease has been making rapid strides from ranch to ranch till the present condition of affairs exists.

"Knowing these facts as we do, why should we sit still with idle hands and await the inevitable results, the destruction of the cattle on the island, and the transmission of the disease to those islands which are supposed to be at present free from it.

"The question of most importance to the veterinary practitioner and stockowner at this time is how to effect a cure. I am sorry to

state that up to the present time there has been no specific discovered. Our efforts can only be prophylactic and the old adage 'an ounce of prevention is better than a pound of cure' fits this case exactly. Very much can be done in this way. Fence off the stagnant pools, build water troughs where the cattle can have access to fresh clear water and in a short time the excitement that exists to-day in regard to the 'Fluke' disease will be entirely forgotten."

Your Committee congratulate the country upon the general good health of its live stock. It is the duty of every one to report at once any discovered symptoms of disease among animals. Had there been in this country a few years since a veterinary surgeon, glanders would have been stamped out before it had cost the country a large sum. The loss resulting to several individuals from the unnecessary spread of that dread disease was very heavy, amounting in some cases from $6,000 to over $30,000.

The strains of blood for beef cattle introduced into and bred in this country have been chosen from the short horn, chiefly Durhams, but we have also had of late years the Hereford, Devon, Holstein, Poll Angus, and the Galloway. The Poll Angus were brought into this country by Mr. Jas. I. Dowsett, who imported them direct from Scotland at a cost of about $1000 per head landed here. They have proved a very valuable investment, not only to Mr. Dowsett, but to this country. Mr. Dowsett says:

"I sent to Scotland for thoroughbred Poll Angus cattle. Four bulls and four cows were shipped across the Atlantic to Boston, where they were quarantined for five months, thence by rail to San Francisco and thence to Honolulu, where three bulls, four cows and three heifer calves were landed in good order on September 27th, 1881. One bull died in transit; the importation cost me over $9,500 landed. I have imported the best Durham blood and other strains, but nothing I have ever owned approaches this grade of cattle. They are well adapted to this climate they are hardy and stand the drought better than any other breed, and are lighter feeders than the Durhams. They mature earlier and weigh 30 per cent. heavier at the same age than any other cattle in my herd."

"Youatt and Martin on Cattle, page 71, say of the Angus Polled cattle: "There have always been some polled cattle in Angus: the country people call them humlies or dodded cattle. Their origin is so remote, that no account of their introduction into that country can be obtained from the oldest farmers or breeders. The attention of some enterprising agriculturists appears to have been first directed to them about sixty years ago, and particularly on the eastern coast, and on the borders of Kincardineshire. Some of the first qualities which

seem to have attracted the attention of these breeders were the peculiar quietness and docility of the doddies, the easiness with which they were managed, the few losses that were incurred from their injuring each other in their stalls, and the power of disposing of a greater number of them in the same space. A few experiments upon them developed another valuable quality—their natural fitness for stall-feeding, and the rapidity with which they fattened. This brought them into much repute."

In the middle of 1889, Mr. B. F. Dillingham purchased from Mr. W. C. Weedon in Sacramento, California, a small herd of thoroughbred Galloway bulls, cows and heifers; they all arrived at Honolulu in the month of October of the same year, in good condition. They were much admired by stockmen generally though some objected to them because they were hornless. They were offered at public auction, but only a few were sold. The rest of the herd were taken to Kahuku Ranch and are now owned by the Oahu Railway and Land Company. A few quotations from authorities repecting the "Galloways" may be found interesting to lovers of good stock:

From Youatt and Martin on Cattle, on ch. 4, page 63: "For more than 150 years the surplus cattle of Galloway had been sent far into England and principally into the counties of Norfolk and Sffuolk. The polled beast were always favorities with the English farmers; they fattened as kindly as the others, they attained a larger size, their flesh lost none of its fineness of grain, and they exhibited no wildness and dangerous ferocity which are sometimes serious objections to the Highland breed. Thence it happened that, in process of time, the horn breed decreased, and was at length quite superseded by the polled."

And again on page 69: "There is, perhaps, no breed of cattle which can be more truly said to be indigenous to the country, and incapable of improvement by any foreign cross, than the Galloways. The short-horns almost everywhere else have improved the cattle of the districts to which they have travelled; at least in the first cross produced manifest improvement; but even in the first cross, the short-horns have done little good in Galloway, and, as a permanent mixture, the choicest southern bulls have manifestly failed. The intelligent Galloway breeder is now perfectly satisfied that this stock can only be improved by adherence to the pure breed, and by care in the selection.

"The Galloway cattle are generally very docile. This is a most valuable point about them in every respect. It is rare to find even a bull furious or troublesome."

Again on page 73 of the same work:—"The Angus polled cattle, like many other breeds, are exceedingly valuable in their own climate and on their own soil, but they do not answer the expectations of their purchasers when driven south. They yield a good remunerating price, but they are not quite equal to their ancesters the Galloways in quickness of feeding, or fineness of grain. They attain a larger size, but do not pay the grazier or butcher so well."

NORFOLK POLLED CATTLE:—From Youatt and Martin, page 74, we quote:—"From a very early period, a great part of the Galloway cattle were prepared for the Smithfield market on the pastures of Norfolk and Suffolk. Some of the Galloways, accidentally or selected on account of their superior form and quality, remained in Norfolk; and the farmer attempted to neutralize and to rear in his own county a breed of cattle so highly valued in the London market. To a certain degree he succeeded; and thus the polled cattle gradually gained upon the horned, and became so much more numerous and profitable than the old sort, that they began to be regarded as the peculiar and native breed of the county.

"They retain much of the general form of their ancestors, the Galloways, but not all their excellencies. They have been enlarged but not improved by a southern climate and a richer soil. They are usually red; some, however, are black, or either of these colors mixed with white, with a characteristic golden circle about the eye. They are taller than the Galloways, but thinner in the chine, flatter in the ribs longer in the legs, somewhat better milkers, of greater weight when fattened, but not fattening so kindly, and the meat not quite equal in quality."

THE SUFFOLK COW.—From the same work, pages 75–76, we quote:—"The Suffolk, like the Norfolk beast, undoubtedly sprung from the Galloway; but it is shorter in the leg, broader and rounder than the Norfolk, with a greater propensity to fatten, and reaching to greater weights.

"Whence she obtained the faculty of yielding so much milk, is a question that no one has yet solved. Her progenitor, the Galloway, has it not. The Holderness could scarcely be concerned; for more than a hundred years ago, the Suffolk dun was as celebrated as a milker as the breed of this county is at present, and the Holderness had not then been introduced into the county of Suffolk."

The "Galloways" are doing well at Kahuku: we believe they are the breed of cattle that will do well here, especially as the best results have been obtained by a cross with the "Durham," whose blood predominates in the herds of this Kingdom.

Respectfully submitted,

B. F. DILLINGHAM, Chairman.