

THE  
PLANTERS' MONTHLY,  
PUBLISHED FOR THE  
Planters' Labor and Supply Company,  
OF THE HAWAIIAN ISLANDS.

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VOL. IX.] HONOLULU, OCTOBER, 1890. [NO. 10

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The latest quotation of Cuban Centrifugals in New York October 18, was 6 cents.

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The Louisiana crop for 1890-91 is estimated at 175,000 tons against 128,344 tons of 2,240 pounds for the previous year.

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During the past year Germany shipped one hundred thousand tons of beet sugar to India—an entirely new market for beet sugar.

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In a communication to *The Sugar Cane*, N. Lubbock states that a ton of cane sugar is worth £2 (ten dollars) more than a ton of beet sugar.

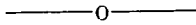
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The Union Iron Works of this city are erecting a diffusion plant for the Waihee Sugar Company. It is hoped to have it ready for the coming crop of 1891.

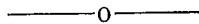
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The latest returns of the European beet crop of 1889-90 show the product to have been 3,626,880 tons. The crop of 1890-91 now just beginning to come in will probably be about the same.

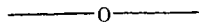
A premium of one thousand dollars is offered by the Louisiana Sugar Planters' Association for a successful machine to harvest sugar cane. The conditions of award to be had from Secretary Planters' Association, 41 North Peters street, New Orleans. Such an invention, if it should do its work as successfully as McCormick's reaper did its work, will be worth millions to the inventor.



Sir J. P. Hennessey in his report to the British Government, states that Mauritius is the most flourishing of British sugar-producing countries. The reason assigned is that when the price of sugar fell, the planters of that island by means of judicious reductions of expenses, and the adoption of the latest and best method of manufacture, have greatly increased the outcome of sugar per acre. The low cost of coolie labor obtained from India is another reason, and perhaps the most important.



We are indebted to the publishers, Messrs. John Wiley & Sons of New York, for a copy of "Sugar Analysis, for refineries, sugar houses, experimental stations, etc., by F. D. Wiechman." Judging from the index, this is not only a very valuable, but really an indispensable book to every one engaged in the manufacture of sugar. It treats of polarization, sampling sugars, sucrose in all its various forms, invert sugar, ash, organic non-sugar, reporting sugar analyses, etc., etc. It will be found exceedingly full in the details of every part of sugar manufacture.



### *VEDALIA CARDINALIS.*

The statement going the rounds, that the *vedalia* has all died in Australia, and that California was supplying them to that country, is not true in any particular. This paper has established a large colony of *vedalia* in the Hawaiian Islands, where the climate is so equable the year round as to insure their perpetuation; and in case of their dying out in this State, as they came near doing last winter, we can furnish a fresh supply.—*S. F. Farmer and Dealer.*

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*THE PLANTERS CONVENTION.*

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The Annual Meeting of the Planters was held in this city from the 6th to the 10th inst. The attendance was smaller than usual, as were also the number of reports presented.

The principal topic discussed was labor, and after a full interchange of views, it became clear that for the present at least, Chinese labor was the most available and the best. But how to arrange for securing laborers on terms that would bind them to the service in which they engaged, and return them to China at its expiration, proved a difficult question to solve. Indeed, it was not solved, and still remains an open question which can probably be solved only by actual experiment.

Not the least difficult point is the first and most important one—who shall undertake the work of obtaining them—the Government, the Planters, or syndicate of Chinese merchants, or shall it be done jointly by them all. The last named (a syndicate) could procure the laborers best,—voluntary immigrants to serve on certain clearly defined terms, which every person among them understood. On arrival here, they might be turned over to the Board of Immigration, subject to Government control and inspection during the entire period of service, and by the Board assigned to the various plantations. At the end of the term of service, to re-engage as laborers, or be returned to China by either the Government or Syndicate, at the joint expense of the laborer and planter.

Of course, there will be much detail to provide for and enforce, in order to carry out the system so as to make it work advantageously to the laborer and planter. But that it can be done, is shown in the case of the Japanese immigrants, who are subject to a thorough system of surveillance.

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*WITH OUR READERS.*

The report of the Secretary of the Planters' Company shows that the Trustees have not been idle during the past year, but have held frequent meetings relative to securing laborers, and also in relation to better supervision of Japanese laborers. It has been clearly demonstrated that no more Portuguese or European immigrants can be had, so long as the inducements to go to Africa and South America are so much greater.

The report of the Committee on Fertilizers, (page 451.) is an instructive one. The statement made by Mr. Morrison that "double milling has added half a ton to every acre cropped" shows what a loss single mills are subjected to. The comments on the various kinds of manures used will be found valuable, based as they are on actual experiments. An increase of from one to two tons per acre by the judicious use of fertilizers is not to be despised by any planter. The time has come when no planter can afford to crop land which gives less than three tons to the acre, and if the average can be raised to four tons per acre by fertilizers, good milling, or expert boiling, or by all these combined, we shall suffer no great loss from the abolition of the American sugar duties, which have heretofore benefited us so largely.

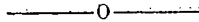
Mr. Williams' report on the manufacture of sugar, which gives statements of the year's work on the Hawaiian Commercial Company's and on the Hamakuapoko plantations, contains details which may be studied to advantage, and must induce other planters to keep similar records for comparison. The interesting point in these two records is that one is a double mill and the other a diffusion plant. There is considerable good-natured rivalry between these two plantations to show the best record, as between first-class milling and diffusion; but probably next year's reports will afford a fairer test, when the record of three diffusion plants will doubtless be added. The main question appears to be whether the greater outcome with diffusion is or is not more than offset by greater expenditure for fuel, etc., than in milling.

An article on the "American Sugar Tariff" (page 471) taken from Willett & Gray's circular, contains about all the information needed by any one to ascertain what the new tariff on sugar is. How the tariff will operate on the price of sugar no one can forecast; but it looks as though sugar will be a very sensitive article in the world's market, and subject to sudden and perhaps great fluctuations in price, at least for a year after the tariff goes into operation, which will be April 1, 1891.

On the last page of this month's issue is a short article showing that the Cubans are alive to any advantages that promise to be derived from a reciprocity treaty with the United States, whereby their sugar will be allowed to enter free of duty in consideration of American products such as flour, wheat, beef,

etc., being permitted to enter Cuba and Spain free. If Spain and Brazil should make such treaties, they could supply the United States with two-thirds of all the foreign sugar wanted, and take in exchange all they might require of American products stipulated in the treaty.

The cost of raising Beets in California is shown on page 479, and according to the report there given, nearly three tons of sugar per acre were obtained. This for six months work is certainly a very good showing. According to this report, it would pay better to have a thousand-acre beet plantation, the planter to own his own factory, and do the whole work as is done here. It will result in this, that every section will have its beet farm and factory, and there will be hundreds of them in the State within ten years.



### *CULTURE OF THE SUGAR-BEET.*

We have received from Commissioner Rusk, Secretary of Agriculture, a pamphlet of 262 pages, issued from the Government Press at Washington, entitled "Culture of the Sugar-beet and Manufacture of Beet Sugar by H. W. Wiley, Chemist." It contains a very full and minute account of the most approved methods of cultivation, harvesting and manufacture, and is copiously illustrated with a large number of clear, well-executed engravings of beets, implements and machinery, and also several maps, which impart great value to the work. Although beet sugar may never be made here, yet the various processes involved in the manufacture of the beet sugar are so intimately allied to those of cane sugar, that no planter can afford to remain ignorant of all that is known concerning the marvelous success which is attending the beet sugar industry.

A chapter is devoted to the new process for the treatment of cane molasses by Steffen's process, which is said to be a perfect success. This is also illustrated, (pp. 248-250) with plans, showing the working apparatus, etc.

Altogether this volume embodies a vast amount of the most recent information regarding the various processes of extracting sugar from beets and cane, and is so full of details, as to almost fascinate a sugar boiler.

From the introduction, we quote a page, giving Dr. Wiley's views regarding beet culture in the United States :

"It has been found in general that the coast valleys of California, and probably large areas near the coast in Oregon and Washington, certain parts of the Dakotas and Nebraska, localities in Minnesota, Iowa, Wisconsin and Michigan, parts of northern Illinois, Indiana, Ohio, and New York present favorable conditions for sugar-beet culture, but in the localities thus broadly intimated there are certain restricted areas most suitable to the sugar-beet, and it is only these restricted areas to which we must look for success. The fact that in one locality, for instance in Nebraska, good sugar-beets can be produced would be no warrant whatever for assuming that all parts of that State were equally suitable for this purpose, and this remark may be applied to every one of the States mentioned above.

"Sugar-beets have also been raised in other localities in the United States, notably in New England, New Jersey, Delaware, and Kansas, and while there may be areas in the New England States where beets can be successfully grown, it must be admitted that the States last named stand in the second rank of beet sugar producing localities. In Kansas, during the last years, as will be shown in the body of this report, sugar-beets were grown and a considerable quantity of sugar manufactured therefrom. This, however, does not show that Kansas will be able to compete with more favorable localities in the production of beet sugar.

"In general it may be said that the summers in Kansas are too hot to expect the production of a sugar-beet uniform in its nature and containing a high percentage of sugar.

"If the sugar-beet industry is to succeed in this country this success must come from sharp competition with the same industry in older countries, where its conditions are better understood and where the localities suited to it have been selected by long and often costly experience. It must also compete with the sugar-cane industry, both of this country and of tropical countries, and for this reason we can only expect it to survive in those localities where soil and climatic conditions, proximity of fuel, cheapness of labor, and other favorable environments are found."

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*ABOUT COFFEE PLANTING.*

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TO THE EDITOR OF THE PLANTERS' MONTHLY :

*Dear Sir:*—As the subject of coffee planting is exciting much interest at present, a few remarks on the subject with special reference to the industry in these islands, may be of interest to your readers.

To any one embarking in this enterprise, the first subject for inquiry would naturally be the kind of land to select. This should be made with reference to soil, elevation and climate. Volcanic formations, such as prevail on these islands, have been found to be best, on account of the large percentage of potash they contain. Recent *aa* (scoria) flows and *puhoehoe* (lava slabs flows) are to be avoided, the one being insufficient to protect the roots from the sun, the other obstructing the downward growth of the tap root and drainage. Any elevation from 1,000 to 6,000 feet where the temperature does not fall below 55° F. or the rainfall exceeds 150 inches will do. I have seen coffee growing luxuriantly and bearing well where the rainfall was greater, its soil being very porous and friable. Care should be taken to shelter the trees from wind by leaving belts of forest sufficiently wide for that purpose, from one to two chains will be ample.

In planting, good and healthy plants only should be taken. I have seen many mistakes on this head both in Puna and Kona. To accomplish this it will be advisable to make a nursery. This should be done on a level piece of ground formed into beds of friable and well drained soil, the seed strewn in rows six inches apart and from one to two inches in depth. The young plants will be fit to transplant in eight months. When planting out care must be taken to remove all rocks that would hinder the downward course of the tap root, and to cover the side roots from the sun. The neglect of these precautions is in my opinion the cause of most of the poor and sickly looking coffee to be seen in south Kona.

Width of trees apart and height of tapping are circumstances that depend entirely on soil, aspect, and elevation. An average width of six to seven feet, and average height of five feet would be most desirable for these islands.

The trees should be trained with only one stem to grow primaries from within six inches of the crown and pruned and

handled in such a manner as to bear fruit only on wood of one and two years growth. If this operation is properly conducted, an average crop should be obtained every year and not every alternate year as is the case at present in Kona.

It would be unnecessary to mention that the plantation should be kept free of weeds, did I not find the opposite custom prevail in Kona, as one of the absurd remedies advanced for the prevention of blight. The loss of coffee caused by blight in Kona is not as great as that caused by injudicious selection of land, bad planting, and destructive picking. Indeed most of the failures at coffee growing on the islands that have come under my notice may easily be traced to one or other of these causes.

The much vexed question of shade is entirely a matter of rainfall. In Kona, at low elevations, where the rainfall would be below seventy inches, a light shade would be beneficial; while in Hilo or Puna shade would be not only unnecessary but a positive hindrance to good crops. Where shade has to be resorted to because of bad planting or using weakly plants, the remedy is as bad as the disease.

A decided advantage in favor of coffee growing in these islands is the entire absence of coffee leaf disease or *Hemeleia Vastatrix* which has wrought such fearful ravages in the old coffee countries of the world. The blight most prevalent here is the white aphid, which in Ceylon disappeared on the advent of cultivation. It would seem that this disease is confined to low elevations where the climate is dry and hot. Hence arose the theory that shade prevents blight. Kona is more afflicted with it than Puna, the coffee region which I found free from all kinds of blight.

I believe a bill is before the legislature at present to encourage the cultivation of coffee which should have the support of every member, as an intelligent and properly conducted plantation will not only benefit the treasury, but be an object lesson to the natives.

In these remarks I have confined myself more especially to coffee, but I would like to mention before closing that the higher elevations of Kona, Puna and Hilo districts where the rainfall is excessive for coffee are admirably adapted to tea.

JOHN S. O'DOWDA.



MINUTES OF THE ANNUAL MEETING OF THE PLANTERS' LABOR AND SUPPLY COMPANY, OCTOBER, 1890.

OCTOBER 6, 1890.

Held at the Chamber of Commerce, October 6, 1890, at 10 A. M. In the absence of the President, Vice-President Atherton presided. Present in person and represented by proxy :

- Ahlborn, Capt.
Alexander, S. T.
Atherton, J. B.
Baldwin, H. P.
Bailey, W. H.
Bishop, C. R.
Bond, E. C.
Castle, W. R.
Davies, T. H. & Co.
Dillingham, B. F.
Giffard, W. M.
Hartwell, A. S.
Hall, W. W.
Halstead, R.
Hind, R. R.
Jones, P. C.
Irwin, W. G.
Isenberg, Paul.
Koelling, C.
Marsden, J.
Morrison, H.
Rickard, W. H.
Renton, G. F.
Renton, Jas.
Schaefer, F. A.
Smith, W. O.
Smith, A. H.
Swanzy, F. M.
Wallbridge, R. D.
Walker, T. R.
Whitney, G. M.
Wilcox, G. N.
Wilcox, A. S.
Williams, J. N. S.
Young, Alex.
Paia Plantation.
Haiku Sugar Co.
Onomea Sugar Co.
Kohala Sugar Co.
W. H. Purvis & Co.
Pacific Sugar Mill.
Honokaa Sugar Co.
Eleele Plantation.
C. Brewer & Co.
Hawaiian Agricultural Co.
Honomu Sugar Co.
Makee Sugar Co.
Waihee Sugar Co.
Wailuku Sugar Co.
Hanalei Sugar Co.
Kaneohe Plantation.
Koloa Sugar Co.
J. M. Horner & Son.
Lihae Plantation.
Pioneer Mill.
Kekaha Sugar Co.
G. N. Wilcox Plantation.
A. S. Wilcox Plantation.
W. Y. Horner Plantation.
Peepeekeo Plantation.
Hamakua Mill.
Union Mill Co.
Laupahoehoe Sugar Co.
Waiakea Sugar Co.
Hart's Plantation.
Kilauea Sugar Co.

Voted that reading of minutes of annual meeting of October, 1889, be omitted.

P. C. Jones, Treasurer, read his annual report, showing :

Table with 2 columns: Description and Amount. Rows include Receipts for the Year (\$2,908.35) and Disbursements (2,879.00).

Balance on Hand,.....\$ 29.35

Voted to adopt Treasurer's Report.

Mr. P. C. Jones stated that he had served the Company for seven years and must decline to serve longer.

A unanimous vote of thanks was tendered to Mr. Jones for his valuable services for so many years.

The Secretary read his annual report, which, after amendment, was adopted.

The reports of Committees were then called, but on account of the absence of many members, the reading of reports was deferred.

The election of Trustees for the new year being in order, the election resulted in the choice of the following gentlemen:

A. Young,	J. F. Hackfeld,	W. M. Giffard,
H. P. Baldwin,	W. O. Smith,	F. A. Schaefer,
F. M. Swanzy,	J. B. Atherton,	P. C. Jones.

Recess taken till 1 P. M.

1 P. M.—The Vice-President announced the election of officers for the year as follows:

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

And stated that the amount of money required for the coming year would be about \$2,000 above the usual current receipts, and also the expenses incurred in attempting to re-establish Portuguese immigration. The account of these expenses had not yet been fully ascertained, but will probably be about \$3,000.

A discussion followed on the matter of the expense incurred in this attempt to reopen Portuguese immigration.

Voted that an immediate assessment of 2 cents per ton on last year's production be levied, and the Trustees be authorized, upon receipt of final accounts of the cost of the expenses connected with the Portuguese immigration, to make an additional assessment, not to exceed 3 cents per ton.

Reports of Committees were then called for.

The Report on Labor not being ready, it was voted that the subject of Labor be discussed to-morrow at 9:15 A. M.

On failure of the Committee on Cultivation to present a report, the Report of the Committee on Fertilizers was called for.

Mr. H. Morrison presented and read the Report on Fertilizers.

Voted to accept the report, and it was ordered to be printed in the PLANTERS' MONTHLY.

A discussion followed on the subject of Fertilizers.

The Report on Manufacture of Sugar and Machinery was then presented and read by Mr. J. N. S. Williams.

Voted to accept the report and publish the same in PLANTERS' MONTHLY.

An interesting discussion was then had of the various processes of extraction of juice, and particularly upon diffusion.

The subject of Ramie was brought up and considered.

Voted that the Company express its appreciation of the services of Mr. H. M. Whitney in editing the PLANTERS' MONTHLY, and of the improvement of the magazine.

Mr. Whitney spoke of the difficulties of editing the magazine, and of the lack of contributions of articles from planters.

Adjourned to 9:15 A. M.

OCTOBER 7, 1890.

Meeting was called to order by Vice-President J. B. Atherton, at 9:15 A. M.

In addition to the members present yesterday, there were present: R. Halstead, P. Isenberg, Capt. Mist, Jas. Renton, J. M. Horner, W. R. Castle, L. A. Thurston, Mr. Fairchild.

After reading of minutes of yesterday, the subject of Labor and Chinese Immigration was taken up.

A Bill was presented, which is pending before the Legislature, relating to Chinese Immigration.

Mr. P. Isenberg moved that a resolution from this Company be presented to the Legislature, requesting that action be taken authorizing the appointment of Commissioners to go to China to propose a Labor Convention with the Chinese Government in regard to Chinese laborers.

A general discussion followed. As a matter of privilege Mr. R. D. Wallbridge presented the subject of the services rendered by Mr. Paul Neumann in the matter of Japanese immigration, and stated that upon investigating the matter, it seemed to him that Mr. Neumann is entitled to an expression of recognition of the value of his services.

Voted that the matter be referred to a Committee of Three, to consider the same and report to the Company.

The Chair appointed the Committee as follows: Mr. F. A. Schaefer, Mr. P. Isenberg and Mr. F. M. Swanzy.

The discussion of the proposed Chinese legislation was again renewed.

Voted that "A Committee of Five be appointed to take into consideration the matter of Chinese Immigration; in their discretion to confer with responsible Chinese parties, and consider the suggestions to be made to the Legislature, and report recommendations to this Company or to the Board of Trustees."

The Chairman appointed: W. R. Castle, H. P. Baldwin, J. Marsden, P. Isenberg, W. M. Giffard.

Mr. Isenberg stated that Mr. Marques had stated to him that he felt sanguine about reviving Portuguese immigration.

The question was asked as to the matter of bringing Italian laborers proposed by Mr. Z. S. Spalding. It was stated that the project had been deferred.

Mr. Fairchild asked if any further efforts were made to introduce New Hebrides laborers, and stated that they were pleased with the services of those formerly employed on the Makee Sugar Co's. Plantation.

Mr. Thurston stated that it would seem very unlikely that more laborers from the New Hebrides can be obtained, and further statements were made upon the subject.

Recess taken till 2 P. M.

2 P. M.--The Vice-President announced the Committees for the coming year as follows:

LABOR—H. P. Baldwin, A. S. Wilcox, P. C. Jones.  
 CULTIVATION—W. H. Rickard, R. A. Macfie, Jr., R. D. Wallbridge.  
 MACHINERY—H. Morrison, E. M. Walsh, Jas. Renton.  
 LEGISLATION—C. R. Bishop, T. R. Walker, W. O. Smith.  
 RECIPROCITY—P. C. Jones, C. M. Cooke, L. A. Thurston.  
 TRANSPORTATION—J. M. Horner, R. R. Hind, T. S. Kay.  
 MANUFACTURE—Z. S. Spaulding, James Renton, Jr., R. Halstead.  
 LIVE STOCK—B. F. Dillingham, J. N. Wright, J. H. Paty.  
 FORESTRY—W. W. Hall, W. M. Giffard, T. R. Walker.  
 FERTILIZERS—W. W. Goodale, J. K. Smith, G. N. Wilcox.  
 COFFEE AND TEA—C. Koelling, F. A. Schaefer, A. Dreier.  
 TOBACCO—J. Marsden, J. F. Hackfeld, W. Y. Horner.  
 RAMIE—W. R. Castle, J. B. Atherton, B. F. Dillingham.  
 FRUIT CULTURE—E. C. Bond, J. K. Smith, S. B. Dole.

Mr. F. M. Swanzy presented and read the report of the Committee on Tobacco.

Voted to accept and publish the report.

Adjourned to 9:30 A. M. to-morrow.

OCTOBER 8, 1890.

The meeting was opened by Vice-President Atherton at 9:30 A. M.

Minutes of meeting of yesterday were read and approved

Mr. W. R. Castle, on behalf of the Special Committee, presented the report of the Committee on Chinese Immigration.

Voted that the report be adopted, and the same Committee draft a Bill embodying their recommendations, to be submitted to the Special Committee of the Legislature, after being first presented to this Company.

Mr. F. A. Schaefer, on behalf of the Special Committee to whom was referred the matter of Mr. P. Neuman's services in relation to Japanese immigration, reported that the Committee had examined the records and made inquiries, and presented the following report :

HONOLULU, October 8, 1890.

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

SIR—Your Committee, appointed to report upon the services rendered by Hon. Paul Neumann to the agricultural interests of this country in facilitating Japanese immigration and so forth, beg leave to state as follows :

Your Committee has carefully perused the correspondence passed between Hon. Paul Neumann and the Hawaiian Government, and also had an interview with Mr. L. A. Thurston, late Minister of the Interior, who also confirms your Committee in the opinion that Hon. Paul Neumann has made successful efforts, without remuneration as far as the Hawaiian Government and the planters are concerned, to have the Convention with the Empire of Japan modified in favor of the planting interests of this country. Thus the numerous physicians and interpreters heretofore required to be paid for by the Hawaiian Government, according to the terms of the Convention, have been done away with, and rates of passage and of wages of the immigrants been reduced, etc.

Your Committee would therefore respectfully recommend that the thanks of the Planters' Labor and Supply Company be tendered to the Hon. Paul Neumann for his services rendered to the interests of Hawaiian planters, by his successful efforts in modifying the Convention with the Empire of Japan to their benefit, and in promoting Japanese immigration under revised and improved conditions, and the Secretary be instructed to communicate the action of the Planters' Labor and Supply Company to Hon. Paul Neumann in a suitable letter.

Also that the Planters' Labor and Supply Company reimburse Hon. Paul Neumann the sum of \$185.25, his outlays for cablegrams, in case the Hawaiian Government has not refunded that amount ere this.

Respectfully submitted,

F. A. SCHAEFER, Chairman.

F. M. SWANZY,

PAUL ISENBERG.

Voted unanimously to adopt the report.

Mr. T. R. Walker spoke upon the subject of Indian immigration.

Voted that the Trustees be instructed to examine further into the subject of Indian immigration.

A letter from Mr. A. Marques, of this date, was read, in which he denied certain statements of W. O. Smith, made in the meeting yesterday, to the effect that he "had nearly brought the company into difficulty" in the matter of Portuguese immigration.

Voted that the Secretary acknowledge the receipt of the letter and state the facts of the case.

Adjourned till 9:30 A. M. to-morrow.

OCTOBER 9, 1890.

The meeting was opened by Vice-President Atherton, at 9:30 A. M.

Minutes of meeting of yesterday read and approved.

The Secretary stated that he had written a reply to the communication of Mr. A. Marques as directed.

Also that he had addressed a letter to Mr. Paul Neumann, conveying a copy of the Resolution adopted yesterday, and had received a reply from Mr. Neumann which was then read :

HONOLULU, H. I., October 8, 1890.

WM. O. SMITH, Esq.,

*Secretary Planters' Labor and Supply Company :*

DEAR SIR:—Your communication of this date gave me, I beg to assure you great pleasure. Even where a man does what may be considered his duty alone, the appreciation of a body of gentlemen like those who form your Company cannot fail to gratify.

I offer through you my grateful acknowledgments to your body for this recognition of my efforts.

For the cable outlays I have been reimbursed by L. A. Thurston, Esq., then Minister of the Interior.

I am, very sincerely, yours,

PAUL NEUMANN.

Mr. W. R. Castle, on behalf of the Special Committee presented printed copies of the proposed Bill on Chinese Immigration.

After a full discussion of the provisions of the Bill, several amendments were adopted.

The meeting adjourned to meet to-morrow at 9 A. M.

OCTOBER 10, 1890.

The meeting opened by Vice-President Atherton, at 9:30 A. M. Minutes of meeting of yesterday read and approved.

The Secretary presented and read a reply from Mr. A. Marques upon the subject of Portuguese Immigration.

Mr. J. F. Hackfeld read copy of a letter from Mr. Carl Henoch, under date of July 1st, to the Board of Immigration upon the subject of Portuguese Immigration, telling of the great inducements offered to them to go to the African Colonies.

Mr. Henoch stated that he went to the Azores in May, and the Governor told him that acting upon urgent advice of Mr. Canavarro he should insist that the provision, compelling the laborers to work by night should be stricken out from the contracts, and further that the passages of all who desired to go should be paid, without limit as to number of children.

And in a subsequent letter, dated July 29, Mr. Henoch wrote that the Portuguese Government was offering still greater inducements for laborers to go to the African Colonies.

The Secretary presented and read a letter from Mr. J. M. Vivas, of this day, upon the subject of the possibility of obtaining agricultural laborers from the Portuguese possessions in India.

The Secretary was instructed to acknowledge receipt of the letter and state that the same would be referred to the Trustees of the company.

A vote of thanks was tendered to the Secretary in recognition of his services.

On motion, the meeting was adjourned *sine die*.

W. O. SMITH, Secretary.

TREASURER'S REPORT.

Planters' Labor and Supply Company, in account with P. C. Jones, Treasurer :

## RECEIPTS.

Oct. 29, 1889.	By Cash on Hand, bal. on acct.....	\$ 118 35
Aug. 5, 1890.	Cash Received, proceeds of note by order of Trustees, for W. O. Smith, on demand, interest at 7 per cent. ....	\$1,500 00
Oct. 6, 1890.	48 Individual Subscriptions, \$5 .....	240 00
	32 Plantation Subscriptions, \$25 .....	800 00
	Donation from C. Brewer & Co.....	250 00
	Total receipts for year.....	<u>2,790 00</u>
		<u>\$2,908 35</u>

## DISBURSEMENTS.

Nov. 4, 1889.	Paid W. O. Smith, Secretary, by vote of Co....	\$ 100 00
Dec. 11, 1889.	Paid <i>Bulletin</i> advertising.....	2 75
Dec. 28, 1889.	Paid <i>Hawaiian Gazette</i> advertising.....	13 00
Jan. 15, 1890.	Paid <i>Bulletin</i> advertising .....	3 75
	Paid H. M. Whitney, Editor PLANTERS' MONTHLY, 6 months to Dec. 31, 1889 .....	300 00
Jan. 16, 1890.	Paid <i>Hawaiian Gazette</i> advertising .....	15 00
July 10, 1890.	Paid H. M. Whitney, Editor PLANTERS' MONTHLY, 6 months to June 30, 1890.....	300 00
Aug. 6, 1890.	Paid President Board of Immigration return 30 N. H. laborers per "C. O. Whitmore"...	1,500 00
Oct. 3, 1890.	Paid <i>Hawaiian Gazette</i> advertising .....	4 50
Oct. 6, 1890.	Paid H. M. Whitney, Editor PLANTERS' MONTHLY, 3 months to Sept. 30, 1890 .....	150 00
	Paid W. O. Smith, bill advances to Japanese Police.....	490 00
	Total disbursements.....	<u>\$2,879 00</u>
	Balance Cash on Hand .....	29 35
		<u>\$2,908 35</u>

## Due by Company.

Note to W. O. Smith and interest for.....\$1,500 00

E. and O. E.

Honolulu, October 6, 1890.

Examined and found correct, F. M. SWANZY, Auditor.

P. C. JONES, Treasurer.



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*REPORT OF THE SECRETARY.*

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GENTLEMEN :—During the year which has past since the last annual meeting, the Trustees of the Company have held fifteen meetings.

PORTUGUESE IMMIGRATION :—Immediately after the adjournment attention was again directed to the matter of Portuguese immigration. Objections had been raised by the Portuguese to the form of the proposed contracts; the banks in Portugal desired further guarantees for the advances to be made for expenses, and other difficulties had arisen.

These points were carefully considered and all arrangements were made so far as practicable for the prosecution of the work. But notwithstanding all the earnest work of the company and of Messrs. H. Hackfeld, Hon. Paul Isenberg, Mr. E. Muller, Mr. P. A. Dias and others the effort to obtain more Portuguese laborers utterly failed.

JAPANESE LABORERS :—The next subject which engaged the attention of the Trustees was the desertion of Japanese laborers. These desertions were becoming very frequent and general. After conferences with the President of the Board of Immigration and careful consideration of ways and means to prevent such desertions, it was agreed that two special Japanese policemen should be appointed to seek out and arrest the deserters; the salaries of such policeman to be paid by the Planters' Labor and Supply Company.

The policemen were appointed and began their work in November. The experiment proved eminently successful, and such desertions have been almost wholly prevented. The Treasurer's report states the amount so far paid for the salaries of these policemen.

NEW HEBRIDES IMMIGRANTS :—It is with pleasure that the announcement is made of the final settlement of the vexed question of the return to their homes of the New Hebrides people who desired to return.

This matter has been under discussion at various times since the summer of 1887, and was finally settled by the Trustees paying to the Board of Immigration the sum of \$1,500 to cover the expense of returning these people.

The records relating to this business and the correspondence upon the subject are too voluminous to publish with this report.

As no funds were available for the purpose, the Treasurer was authorized to borrow the same on account of the Company.

CHINESE IMMIGRATION :—The subject of obtaining more laborers has received much attention during the year. Chinese and Portuguese immigration having been arrested, and the obtaining of more Japanese being uncertain, the question as to where the supply is to come from in the future is of grave importance.

The expansion of the agricultural enterprises of the country with the consequent increased demand for laborers; the probable low price of sugar in the near future, and the restrictions upon Chinese immigration that now exist, combine to make the situation most serious.

Relief must be obtained, or great loss to the country will result.

The present pressing problem demanding solution is how to admit Chinese in sufficient numbers to meet the demands, and at the same time to protect the country from being flooded with an irresponsible and uncontrollable class of Chinese.

While the planting interests of the country demand that more laborers be introduced, no present necessities or gain will justify the adoption of any policy which will result in converting this country into a Chinese colony.

Under our laws, as they now stand, Chinese in any considerable numbers cannot be admitted with safety, for no adequate means for regulating and controlling them can be enforced. And as nothing but large accessions of laborers will meet the exigencies of the case, it is imperative that immediate steps be taken to secure legislation appropriate to the situation.

The whole question is surrounded with difficulties, but they must be met and overcome if permanent prosperity is to be maintained.

Respectfully submitted,

W. O. SMITH, Secretary.

Honolulu, October 6, 1890.

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*REPORT OF COMMITTEE ON FERTILIZERS.*

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

Sugar Cane in the majority of places on the Islands requires from 12 to 18 months to grow and attain maturity and during the most of this period it is drawing the elements of its life from the soil.

Virgin lands or those rich in Nitrogeneous Compounds, if of sufficient depth and under proper agricultural conditions, furnish the plant with its food and yield abundant crops for a series of years with but little apparent diminution.

In some favored localities the lands after 15 or 18 years cropping yield to day a cane, although not so large nor quite so luxuriant as formerly, yet superior in the quality and quantity of its sugar.

While the yield of sugar per acre is on an average not set down in our statistics as less than in years past, we have failed somewhat, I believe, in noticing correctly the reasons of this.

About six years ago double crushing was only beginning to claim our attention and while four to five tons per acre over the entire season's cane were considered good for single milling many who adopted double crushing and maceration, found their estimates overrun and their former work greatly surpassed.

I believe double milling has added half a ton extra to every acre we crop but our fields are certainly not to be credited with this advance, while our mills are closing up on the wide margin yet in their favor, we see our fields more reluctant in starting and less prosperous, even with better cultivation than in former years. We suspect we have planted poor seed, allowed the weeds to gain too great a hold, had bad seasons and so on, but few of us realize we have got to manure the lands or our crops will fail. The kinds of manure and mode of application will yet for a long time be somewhat indefinite, neither can we wonder at it seeing how different the demands of some lands are from others; locality and climate render any generalized statement misleading about all our known fertilizers except stable manure and the refuse from our mills, such as ashes, lime scums, etc.

These we find produce good results everywhere, indeed lands very much exhausted by crops cannot be restored to lost fertility except by these, or a long period of rest.

When we must resort to artificial fertilizers a knowledge of what we require is indispensable, and this knowledge can only come from experience. The information we may obtain regarding our soil and subsoil, their physical and chemical constituents, power of retaining heat and moisture will assist us greatly but cannot supersede a practical knowledge gained by individual experience.

I consider the usual hints found in books of Agricultural Chemistry as to analysis of soil, manner of sampling and interpretation of the analysis are valuable if accompanied by data bearing on the depth of the soil and subsoil, lay of the field, climate, etc.

Usually a chemical analysis is rendered useless for want of these surrounding conditions.

We have over 70 or more such analyses on Spreckelsville with nothing as to depth of land or locality.

What is wanted in this way is not a complete list of the elements after breaking up by a strong mineral acid but an approximate knowledge of those available and ready by solution in water,

As a general remark I may say our lands are different in lime and potash, notably so in some localities. Hilo lands for example respond to a good manuring with fertilizers bearing large percentages of these metals.

Our soils are usually and correctly termed volcanic, yet we have a great variety ranging from light sandy to heavy adobe. I have planted some fields having as much as 50 per cent. coral sand and others of a tenacious clay having too little lime and silica for agriculture.

The sandy lands are difficult to fertilize with anything but stable manure, while the clayey lands always do well with applications of bone meal or superphosphate.

Artificial fertilizers do best when the rainfall is comparatively heavy or when irrigation is practiced.

Bone meal, superphosphates and such like manures ought to be applied to the cane after it has grown four or six months, it has then developed considerable root, and less waste from

the fertilizer being dissolved and washed beyond the roots takes place.

I also prefer to make two applications to the cane, the earlier should carry the greater proportion of nitrogeous elements and the latter the phosphate. If the fertilizer be applied in this manner less per acre may be used yet as far as I have gone my experience seems to point in the direction of a quantity per acre far in excess of what is usually regarded by our Louisiana friends as a good manuring.

The following brands, obtainable in Honolulu or San Francisco, I have found act much as I will now point out.

Law's Chemical Manure, 1,000 lbs. to the acre, is the most expensive I have used and perhaps the most enduring. Its effect on the cane became visible 10 days after application and retained its hold through the entire season.

Olendorff's and Hughes', both high class manures, gave a smart stimulant to the plant applied in 1,000 lbs. per acre. The effect showed easily in 10 days but became less marked after two months.

Oblandt and Buck's Cane Manure, with from 60 to 80 lbs. additional Sulphate Ammonia to the ton, is a very useful article and gives as enduring results as the more expensive variety if applied in two doses of 1,000 or 1,500 lbs. each per acre.

The Mexican Superphosphate applied in the same manner gives I believe a smarter stimulant than the last noted but is not so enduring.

Fish Manures are neither so prompt nor so beneficial and for our purposes are inferior to any of the foregoing.

The local make of bone meal or compounded fertilizers are deserving of attention, I believe addition of potash to this variety would increase its action and value very much.

Planters may reasonably ask what return is derivable from an outlay of from \$30 to \$60 per acre, without calculating the necessary expense of labor in application. I would say wherever a plantation has new lands within reach it will be more economical to open them up than to experiment with fertilizers on worn out lands, yet, although there are serious drawbacks to artificial fertilizers and uncertainty in their operation, in many cases their employment has increased the yield from one to two tons per acre.

As we proceed in the continued cultivation of our land, artificial manures will have to be reckoned more in our annual expenses, it seems only right that the utmost caution be recommended in buying and that a guaranteed minimum of the active elements contained in a given article be demanded of those furnishing the fertilizer. If the article is bought guaranteed to contain certain active elements in the dry state, we ought to see that we don't pay these high prices on the contained moisture for generally all fertilizers contain from 10 to 15 per cent. moisture.

I believe we shall eventually have to resort to compound manures, that is manures having a general phosphate of lime as a backbone to which the other elements, such as potash or sulphate of ammonia, etc., are added to suit the various localities they are intended for.

It is in this direction that I have attended to Ohlandt and Buck's Cane Fertilizer with the addition of sulphate of ammonia and to the Honolulu brands with addition of muriate of potash.

H. MORRISON,

On Committee on Fertilizers.

Spreckelsville, Oct. 4, 1890.

RESULTS OF THE ROTHAMSTEAD EXPERIMENTS.—Sir John Lawes has re-issued the plan and results of his experiments at Rothamstead, brought up to 1889. Where wheat has been grown continuously for forty-seven years on the same land, without manure on two plots and with various manures on others, the average yield is given for different periods. The quoted average for the thirty-eight years ending with 1889—the longest period given—is  $36\frac{1}{2}$  bushels an acre, obtained on a plot dressed annually with 200 lbs. of sulphate of potash, 100 lbs. of sulphate of soda, 100 lbs. of sulphate of magnesia,  $3\frac{1}{2}$  cwts. of superphosphate, and 275 lbs. of nitrate of soda. For the last nineteen years the average has been reduced to 34 bushels, thus showing either that, even with such costly and entirely unremunerative manuring as that just described there has been some loss of fertility through the continuous growth of wheat on the same land, or that the last nineteen seasons have been less productive on an average than the whole thirty-eight. In the first nineteen years, ending

with 1870, the average yield was 39 bushels. On the two plots which have not been manured at all the average yield for the whole thirty-eight years was only  $13\frac{1}{8}$  bushels—14 6-8 bushels during the first nineteen years, and only  $11\frac{1}{2}$  bushels in the last nineteen years. The results of applying 14 tons of farmyard manure annually were  $3\frac{1}{4}$  bushels an acre for the whole period— $35\frac{3}{4}$  bushels for the first nineteen years, and  $32\frac{1}{2}$  bushels for the last nineteen years. Mineral manures alone, as described in the case of the first plot referred to, but without the nitrate of soda, gave only 15 bushels for the whole period— $17\frac{1}{4}$  bushels for the first half of it, and  $12\frac{7}{8}$  bushels for the last half.

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### REPORT OF THE COMMITTEES ON MANUFACTURE OF SUGAR AND MACHINERY.

*Mr. President and Gentlemen of the Planters' Labor & Supply Co.:*

Your committees appointed to draw up reports of the year's progress in methods of manufacture of sugar and the machinery employed therein finding that their work lies in parallel lines, have decided, with your permission, to embody what has to be done in one paper thus avoiding unnecessary repetition, and making a more complete and succinct statement.

As the processes of manufacture depend greatly upon the kind of machinery in use, the statements made with regard to the one will naturally include figures with regard to the other, and for the purposes of this paper it will be necessary only to divide the subject into two Sections; Milling and Diffusing work, and to consider each in detail.

Under the head *milling* we may proceed to state what has been done during this past year. An experiment of some interest was tried at the Eleele Plantation with a four roller crushing mill of peculiar construction, the rolls were set in pairs the line joining the centre of each pair of rolls being inclined away from the cane carrier at an angle of about  $45^{\circ}$ ; the object of this construction is to do away with the excessive friction due to the Returner Bar and consequently to avoid the use of more steam than absolutely necessary. This mill was successful in the direction of using the minimum of power, it also took the cane freely in both pairs of rolls, but the angle of the rolls permitting juice to flow over and through them, and

thus being re-absorbed by the megass or crushed cane, the mill was not put in use; we understand that alterations are being made which it is hoped will remedy the defects, and there is no doubt but that this style of mill will do as good work with less power than the three roll mills in common use. A six roller mill is now in course of construction to be used on this coming crop at Wailuku, Maui, the results from which will be looked for with interest.

Maceration or the application of water to the megass between the rolls has been used this past season to a greater extent than ever before in this country and some places credit the process with a considerable increase in the output of sugar, we present herewith two statements, one of a trial run made at Hamakuapoko, Maui, and the other of the total crop taken off at Spreckelsville, Maui :

RECORD OF TRIAL RUN AT HAMAKUAPOKO MILL, MARCH 22, 1890.

	lbs.
Cane worked up as per weights returned from Fairbanks' scale.....	434,050
Average fibre in cane at 10.2 per cent. on its weight.....	44,273
Juice contained in cane, 89.8 per cent. on its weight..	389,777
Juice extracted from cane, 74.32 per cent. on its weight.....	322,589
Juice left in megass by balance.....	67,191
Water added in macerating per 100 normal juice.....	4.2
Analysis of normal juice, Brix.....	18.45 per cent.
Sucrose .....	15.7 per cent.
Quotient.....	85.1 per cent.
Glucose, .62 per cent; per 100 sucrose in normal juice.	4
Analysis of diluted juice, Brix .....	17.7 per cent.
Sucrose .....	15.0 per cent.
Quotient.....	84.7 per cent.
Glucose in clarifier juice, .93 per cent; per 100 sucrose	6.1
Sucrose in cane, 14.1 per cent.....	61,195
Sucrose in extracted juice .....	50,646
Sucrose left in megass by balance .....	10,549
Sucrose left in megass by analysis, 1.76 of sucrose in cane.....	10,770
Difference due to errors of observation.....	221
	Sucrose.
Commercial Sugar recovered.....	A 32,890 lbs. @ 97.1 pol. = 31,936.19
	B 7,910 lbs. @ 87.7 pol. = 6,937.07
	C 2,207 lbs. @ 84.0 pol. = 1,853.88
	D 860 lbs. @ 80.0 pol. = 688.00
	<hr style="width: 100px; margin-left: 0;"/>
Total Commercial Sugar.....	43,867      94.4 sucrose 41,415.14

ABSTRACT OF LOSSES :

Loss of sucrose in milling the cane.....	10,549 lbs. = 17.23 per cent.
Loss of sucrose in manufacture.....	9,231 lbs. = 15.12 per cent.
Total loss of sucrose calculated upon sucrose in cane.....	= 32.35 per cent.



STATEMENT OF RESULTS FROM ENTIRE CROP, SEASON 1889-1890,  
HAWAIIAN COMMERCIAL CO.'S MILLS, SPRECKELSVILLE, MAUI.

Cane worked up in lbs.....	143,881,160
Average fibre in cane at 14 per cent. on its weight .....	20,143,362.4
Juice contained in cane at 86 per cent. on its weight.....	123,737,797.6
Juice extracted from cane at 72.5 per cent. on its weight .....	104,313,841
Juice left in megass by balance.....	19,423,956.6
Maceration was used intermittently and no especial record was kept of diluted juices as distinct from normal juice.	
Water added per 100 of normal juice when macerating.....	11.2
Analysis of normal juice, Brix.....	19.62
Sucrose.....	18.00
Quotient.....	91.7
Analysis of diluted juice, Brix ..	17.36
Sucrose in the cane 15.48 per cent. on its weight.....	lbs.=22,272,803.6
Sucrose in extracted juice.....	lbs.=18,776,491.4
Sucrose left in megass by balance.....	lbs.= 3,496,312.2
Commercial sugar recovered all grades.....	17,070,009 lbs.=8,535 tons.
Proportions A 83 per cent. B 12 per cent. C 4 per cent. D 1 per cent.	
Total sucrose recovered.....	16,340,000 lbs.
Average polarization of commercial sugars. ....	95.8 per cent.

ABSTRACT OF LOSSES :

Loss of sucrose in milling the cane.....	3,496,312.2 lbs.=15.69 per cent.
Loss of sucrose in manufacture.....	2,436,491.4 lbs.=10.9 per cent.
Total loss of sucrose calculated upon sucrose in cane.....	=26.59 per cent.

The figures from which these results are worked out were, by the kind permission of Hugh Morrison, Esq., Manager for H. C. Co., copied from the chemical books of the Company.

It will be noticed in examining the figures from Spreckelsville that the recovery of sucrose in percentages on total sucrose in the cane nearly equals the extraction of normal juice in percentages on the weight of the cane, it will be found that as a rule this proportion will obtain on the plantations in this country, and as this can easily be carried in the mind it will form a rapid method of approximating to the losses sustained during a milling season.

It has also been demonstrated during the trial runs at Hamakuapoko, Maui, that the addition of a small percentage of water in maceration is of no benefit, that no more saccharine matter has been extracted and that the result has been to lower the purity of the juice without corresponding advantage; it would therefore seem that an addition of water of at least 10 per cent. must be made to secure any increase of production

and that 20 per cent. would probably be more advantageous than 10 per cent.

When macerating to the extent of 11.2 per cent. additional water to the juice considerable outside fuel was used at Spreckelsville, based on the total crop the coal used was one-sixth of a ton to every ton of commercial sugar made.

It is a matter for regret that so few mills in this country keep a chemical record of their work, these records are of the highest value when systematically kept and lead to discoveries of losses and leaks that are unknown otherwise, the apparatus is not expensive and soon repays itself in showing managers where prevention is needed.

*Section Two—Diffusion:* During the past year there have been three Diffusion Plants at work in this country, Kealia, Kauai; Hanalei, Kauai; and Hamakuapoko, Maui, the first named has now completed its third crop, the other two were newly put up last year and were operated for the first time on this crop. There was a great deal of trouble experienced in the starting of the last two named places owing to structural defects and also to the fact that the men in charge were new to the work, but after the first difficulties were overcome the apparatus worked smoothly and satisfactorily to the owners. A valuable experiment has been tried at Waiakea, Hawaii, on continuous diffusion applied to megass resulting from single crushing in a three roller mill; the ends sought however, were not obtained and the apparatus has not been put to use; this settles the question of the practicability of attempting to diffuse the remaining saccharine matter out of crushed cane.

It would only take up valuable time to describe the diffusion machinery now in use in this country, that at Kealia, Kauai, has been thoroughly described and they all have the general features of that plant; it will suffice to say that the batteries of 14 cells are arranged in two lines, that clarification is carried out thoroughly in the cells, the juice being discharged direct to the evaporators, the exhausted chips are conveyed directly to the mills and after passing through are burnt on step-ladder furnaces, the slicing machine used is one that does the work of cutting the cane at one operation and delivers a clean cut slice, as has already been shown to be the correct thing; that the syrups are easily manipulated in the vacuum pans and that

the average polarization of the sugars is raised nearly one degree as is shown by the results from Kealia.

Following we present crop reports from Kealia, Kauai, and Hamakuapoko, Mani, and we wish to call your attention to the fact that all the statements made in this paper as regards sugar returns, are based upon *the sucrose contained in the cane*, that being the only basis upon which any comparison can be made, or in fact upon which any reasonable estimate can be made of the losses sustained either in extraction or manufacture :

STATEMENT OF RESULTS FROM ENTIRE CROP, SEASON 1889-1890,  
MAKEE SUGAR CO.'S MILLS, KEALIA, KAUKAI.

Cane worked up in lbs.....			100,866,429
Average fibre in cane at 11 per cent. on its weight.....			= 11,095,307.2
Normal juice present in cane at 89 per cent. on its weight.....			= 89,771,121.8
Sucrose in cane at 15.14 per cent. on its weight.....			= 15,270,068
Sucrose extracted at 96.04 per cent. of sucrose in cane.....			= 14,665,373
Lost in exhausted chips 3.96 of sucrose in cane.....			= 604,695
Lost in exhausted chips .6 per cent. of weight of cane.			
Average analysis of normal juice, Brix.....		19.12	
Sucrose.....		17.01	
Quotient.....		88.94	
Average analysis of diffusion juice, Brix.....		14.55	
Sucrose.....		12.76	
Quotient.....		87.7	
Water added per 100 of normal juice.....		31.4	
Commercial sugar recovered.....	A 9,412,290	98.2 pol.	= 9,242,869
	B 2,933,770	94.9 pol.	= 2,784,148
	C 1,039,654	87.0 pol.	= 904,499
	D 247,775	84.9 pol.	= 210,361
Total Commercial Sugar.....	13,633,489	96.4	Total sucrose, 13,141,877

ABSTRACT OF LOSSES :

Loss of sucrose in extraction.....	604,695 lbs.	= 3.96 per cent.
Loss of sucrose in manufacture & waste molasses, 1,523,496 lbs.		= 9.97 per cent.
Total loss of sucrose calculated upon sucrose in cane....		= 13.93 per cent.

Total fuel used in manufacturing this sugar cost \$24,340.00 or \$3.57 per ton commercial sugar; the amount of waste molasses per ton commercial sugar is about 16 gallons, no very accurate account was kept of this item.

STATEMENT OF RESULTS FROM PORTION OF CROP WORKED OFF BY  
DIFFUSION, SEASON 1889-1890, HAIKU SUGAR CO.'S

MILL, HAMAKUAPOKO, MAUI.

Cane worked up in lbs.....			14,589,625
Average fibre in cane at 11.3 per cent. on its weight.....			1,645,628
Normal juice present in cane at 88.7 per cent. on its weight.....			12,943,997
Sucrose in the cane at 15.7 per cent. on its weight.....			2,289,564
Sucrose extracted at 95.3 per cent. on its weight.....			2,181,601
Lost in exhausted chips .74 on weight of cane..			= 107,963
Lost in exhausted chips 4.7 on sucrose in cane.			
Average analysis of normal juice, Brix.....		20.33	
Sucrose .....		17.92	
Glucose.....		.71	
Quotient.....		88.16	
Average analysis of diffusion juice, Brix .....		16.45	
Sucrose.....		14.39	
Glucose.....		.59	
Quotient.....		87.5	
Water added per 100 of normal juice.....		23.6	
			Sucrose.
Commercial sugar recovered.....	A 1,463,325	97.0 pol.	=1,419,425
	B 396,786	87.4 pol.	= 346,791
	C 140,360	86.7 pol.	= 121,692
	D 40,054	80.0 pol.	= 32,043
			-----
Total Commercial Sugar.....	2,040,525	94.1	Total sucrose, 1,919,951

ABSTRACT OF LOSSES :

Loss of sucrose in extraction..... 107,963 lbs.= 4.70 per cent.  
 Loss of sucrose in manufacture and waste molasses. 261,650 lbs.=11.43 per cent.  
 Total loss of sucrose, calculated upon sucrose in cane.....=16.13 per cent.

Coal used in manufacturing this sugar was about  $\frac{1}{3}$  ton per ton of commercial sugar, average cost of coal at furnace mouth may be placed at \$10.50 per ton.

REVIEW OF THE LOSSES AS DEMONSTRATED.

Hamakuapoko Mill, milling with Maceration, total loss sucrose. 32.35 per cent.  
 Spreckelsville Mills, milling with Maceration, total loss sucrose. 26.59 per cent.  
 Kealia Mill, Diffusion, total loss sucrose..... 13.93 per cent.  
 Hamakuapoko Mill, Diffusion, total loss sucrose ..... 16.13 per cent.

A simple and reliable formula for the calculating of quantities of additional water in maceration and diffusion juices, when the quantity of dilute juice is known and the quantity of normal juice is unknown, has been asked for and we present the following in the hope that it may be found useful.

Given the Brix reading of normal juice to find from a given quantity of dilute juice, the amount of water added to effect the reduction in density :

Let  $x$  = Normal juice in lbs.

Let  $B^x$  = its Brix reading

Let  $y$  = dilute juice in lbs.

Let  $B^y$  = its Brix reading

Let  $z$  = water of dilution in lbs.

$$\text{Then } \left\{ Y - B^y \times \frac{Y}{100} \right\} - Z = \left\{ X - B^x \times \frac{X}{100} \right\}$$

$$\text{Hence } Z = Y - X$$

$$\text{and } X = B^y \times Y$$

$$\frac{Y}{B^x}$$

EXAMPLE.

Let it be required to find the weight in lbs. of the normal juice resulting from an hours crushing with maceration ; normal Brix is 19.5 per cent., dilute juice weighs 45,000 lbs. and stands 17 per cent. Brix.

Then to find weight of normal juice per formula :

$$X = 45,000 \times \frac{17}{100} = 7,650 = \text{weight normal juice}$$

$$Z = 45,000 - 7,650 = 37,350 = \text{weight of added water.}$$

Proof of this is that the actual weight of solids in both juices should be the same, therefore 17 per cent. of 45,000 = 7,650 per cent. of 37,350 which is the case.

This may be condensed into the following rules :

To find weight of normal juice, Brix being given, from the weight of diluted juice.

Multiply weight of diluted juice by its Brix reading and divide the product by Brix of normal juice, result is weight of normal juice.

To find weight of added water subtract the one from the other.

To find the weight of water required to be added to any given normal juice to reduce it to any given density multiply weight of normal juice by its Brix reading, divide by the Brix of the required density and subtract the weight of normal juice from that result, the remainder is the water to be added.

There is little to add to the foregoing except to notice the facts that a Yaryan evaporator has been put into successful use; the superheaters for exhaust steam introduced last year have proved valuable adjuncts on many places, but we cannot fail, also to notice that on some plantations the superheater has not proved of much value, owing, we think, to the low temperature of the gases at base of smoke stack; from observation we believe that if the temperature of gases at base of chimney is 500° Fahrenheit, or more, then the superheater will do useful work in heating up exhaust steam and thereby economizing fuel.

We also notice that high class machinery for irrigating purposes has been put to work during the past year, the pumps are chiefly of American manufacture, and one of them uses the Triple Expansion principle in its steam end and develops a high duty from the coal burnt.

The progress made during the past year in improvements and processes is markedly satisfactory, but before we close we would call your attention to losses of sugar in manufacture; the juice delivered by mills or batteries contains a given amount of sucrose of which on the average 10 per cent. is lost, where this loss occurs has never to our knowledge been exactly placed; considerable inversion is known to occur during the crystallization, but that does not account for this large loss; some inversion occurs in cleaners and clarifiers but not as much as popularly supposed.

It is thought with some reason that the condensers of triple effects and vacuum pans carry off some of this saccharine matter; and in carefully considering the matter, the overflow from evaporating apparatus seems to be the only place where these losses can occur.

In Australia and Germany, they are careful to have very effective save-alls to their evaporating apparatus, due no doubt to their discoveries of loss in this direction; we wish to call the attention of mill managers to this point and would suggest that efforts be made during the coming season to determine for certain whether loss occurs in this direction or not.

In view of the proposed changes in the Tariff Bill in the United States, we would urge upon all those interested in mills, to locate losses; thousands and thousands of dollars

have been thrown away owing to defects in machinery and methods, all of which might have been saved had some system of checking been in use.

H. P. BALDWIN,  
J. N. S. WILLIAMS.

Honolulu, October 6, 1890.

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*REPORT OF SPECIAL COMMITTEE ON CHINESE  
LABORERS.*

*To J. B. Atherton, Vice-President Planters' Labor & Supply Co.:*

SIR:—The committee appointed by the Company to report upon the question of the introduction of Chinese laborers, respectfully report that they have considered the subject. In connection with such consideration they had an audience with a number of the leading Chinese of the country; men whom your committee believe to be representative; that they obtained from these gentlemen their views upon the question of the most feasible manner to procure Chinese labor for the agricultural interests of the country without interfering with the intent of the Chinese Restriction Acts. The matter was discussed with the Chinese upon the basis of procuring such a modification of the present law as to authorize the introduction of Chinese agricultural laborers, whose labor should be confined during their residence to the agricultural interests of the country wholly. The unanimous opinion of these gentlemen was that if the proposed restrictive permit to enter, was hedged about with very many conditions, that the enactment of a law with such conditions would be futile and would produce no result whatsoever. The requirement of a photograph to accompany the residence permit and copies thereof, is considered by them so obnoxious that it would prevent any laborers at all from taking advantage of the law and coming here.

The matter of procuring labor for the agricultural interests of the country at the present time is of vital importance, and no measure authorizing the importation of such labor will be of any use if surrounded with such restrictions as to prevent such labor from coming. At the same time these Chinese gentlemen believe that if, after permits were issued by the Minister of Foreign Affairs or Board of Immigration as the

case might be, the matter were then left in the hands of a Chinese Company or Companies, that they would introduce laborers and, upon certain conditions and for proper considerations, would be responsible for their good behavior and return at the expiration of their contract period. They were also unanimous in the opinion that no Chinese labor could be procured, if the entering into a labor contract in China shall be made a condition precedent. They believe that Chinese will come here if, in certain senses, they come unrestricted.

To your committee, the practical solution of the difficulty would appear to be such a relaxation of the present restrictive laws as to authorize the issue of permits for the introduction of Chinese agricultural immigrants, to remain for a definite, limited period, such relaxation of the laws should remain in force until the Hawaiian Government can enter into some convention with China, which must necessarily be some years distant. But a labor convention cannot be waited for. The present need is altogether too pressing and the danger to the industries of the country too great to permit of any further delay.

Your committee, after consultation with the Chinese, and discussion of the subject among themselves, and after the examination of Bill No. 161, now before the Legislature, together with the Act proposed by the committee of the Legislature as an amendment to said Act; would unanimously recommend that the Legislature be petitioned to amend the present Chinese Restriction Act, being Chapter 28 of the Laws of 1887, in such manner as to permit of the free importation of Chinese agricultural laborers somewhat upon the lines laid down in said Bill No. 161 and the committee's amendatory bill. But they would recommend that the second proviso in the amendatory bill, with regard to the taking of photographs, be entirely stricken out. Your committee do not believe that this clause can operate in any other way than to render the Act nugatory and even if Chinese should come with that clause in the law, it still could hardly be enforced by officers of the Hawaiian Government without the active assistance of Chinese, such as proposed above. They would also propose that the fifth proviso in said amendatory bill be further amended so that one-fifth and not one-fourth of the monthly wages of laborers



should be retained and then only until the amount of sixty dollars should be so retained.

As your committee believe that the most successful way of dealing with this matter will be through a Chinese Company or Companies, they would further recommend that section 2 of the Legislative amendatory bill be so amended as to do away with the photograph proviso, and that sections 5, 7 and 10 thereof should be stricken out. These recommendations are made in the belief that the Act should be as simple as possible or that it will fail of the intended effect. If the Legislature should consider that the Act might be made stronger by a proviso that the Board of Immigration or Minister of Foreign Affairs shall be authorized to enter into a contract or contracts with one or more Chinese Companies for the introduction of Chinese agricultural laborers, which contract should contain such regulation as said Minister or Board of Immigration might agree upon, your committee would certainly concur in such a recommendation.

In addition to the changes suggested in the Acts now before the Legislature, your committee further recommend that the Minister or Board of Immigration should be authorized by said Act to permit the entry into the Kingdom of any specified number of Chinese agricultural laborers in place of others who might depart the Kingdom either at the expiration of a special residence permit, or such as being resident in the Islands might desire to return permanently to China, and also that the Legislature be petitioned to authorize the Hawaiian Government to enter into a labor convention with the Chinese Government at the earliest opportunity and that until the ratification of such convention, laborers may be imported as hereinbefore provided for.

Respectfully submitted,

WM. R. CASTLE,  
PAUL ISENBERG,  
JOSEPH MARSDEN,  
H. P. BALDWIN,  
W. M. GIFFARD.

Dated Honolulu, October 8, 1890.

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*REPORT OF THE COMMITTEE ON TOBACCO.*

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Before preparing their report, your Committee considered that the best means of making a statement, which might prove of value, would be to gather from tobacco growing countries such information as would be of use to us here, and with this object they wrote several months ago to Cuba and Manila, to make enquiries as to the cost of labor, the rent of lands the average yield, the prices realized for the tobacco, etc. In this way it was hoped that a fair idea might be formed of the possibility of growing tobacco of qualities equal to those of Cuba and Manila, and of conducting such industry on a remunerative basis. We regret to say, however, that from neither of these countries have we been able to get any information. We have been told that the tobacco growers of Cuba are so exceedingly jealous, they will give no information either as to their methods or results. From Manila we have thus far received no reply whatsoever, and the length of time taken by the mails between that country and this renders it likely that it will be sometime yet before the information for which we have again applied reaches us. We have further to state that a quantity of Havana seed which had been sown with the object of practically testing the possibility of raising a high class tobacco here, grew exceedingly well, until a strong wind overthrew the protecting screens in the absence of the caretaker, and completely spoiled the plants, so that the intention to lay before you specimens of fine tobacco grown here has been, for the present, frustrated.

Under these circumstances your Committee have, much to their regret, nothing of any practical value concerning the cultivation of tobacco in this country, to lay before you. One of the chief objects in view when communication was made with Cuba and Manila was to ascertain the cost in those countries of labor, rent, and all the expenses incidental to the cultivation of tobacco, together with particulars as to the quantity of labor required, the yield per acre and the price obtained for the unmanufactured tobacco, in order that the conditions existing here might be compared, and so some idea formed as to how profitable the industry can be made, and there is still some hope of getting the information later in the

year. From the tobacco growing districts of the United States, your Committee has gathered some information which though useful to the tobacco grower is hardly available for a report such as this should be. It appears however that in the cultivation of this plant in the States much juvenile labor is utilized with advantage, and there is no apparent reason why the same may not be done here. It is we think established that there is plenty of soil in these islands which, both as regards quality and situation, is admirably adapted for the cultivation of tobacco, and it seems as though cheap labor, intelligent and economical management, and a determination to succeed, is all that is required to make the industry an important factor in the welfare of these islands, if we can find a market for our produce.

From some articles published in the *American Agriculturist* we glean the interesting fact, which may be some guide to prospective planters, that in Hartford County, Connecticut, it costs \$90 to raise an acre of tobacco. The yield of slightly over 3-4ths of an acre in that district amounted to 1794 lbs. of the value of \$397, which is at the rate of about \$500 per acre, netting to the planter \$410 per acre, exclusive of the cost of transit to market. This is a sufficiently good result to be worth striving for, and might be improved here if the quality of the tobacco was better than that to which these figures refer, but we doubt the possibility of these islands finding a remunerative market for tobacco in the United States unless it was admitted there free of duty. The present duty on manufactured tobacco in the States is 35 cts. per lb. for home consumption for filler purposes, and 75 cts. for wrapper purposes, which 75 cts. under the McKinley bill (now on the verge of becoming law) is increased to \$2. Last month the value of Havana tobacco in the States, for filler purposes, in bond was 65 cts. to 90 cts. per lb. If it was possible to raise as fine tobacco here as that of Havana or Sumatra we might find the States a profitable market, but should the quality of our tobacco be no better than that grown in the States it would appear that we must look elsewhere for an outlet for our produce. In a general way we think a really good article has no difficulty in finding a market for itself. It yet remains to be seen how good the tobacco grown on these islands can be. To the agriculturalist who will demonstrate this the thanks of this country will be due.

F. M. SWANZY.

## CORRESPONDENCE AND SELECTIONS.

*CALIFORNIA ORANGE CULTURE.*

Nature has given orange growers in southern California one decided advantage. Their fruit matures just in time to come upon the eastern markets after the season for Florida oranges has passed. This assures them of a ready sale. In point of quality the Floridas are held by most people to be superior. They have a delicacy of flavor which the California oranges, with a more luxuriant growth, seldom exhibit. The orange in the California groves is ten to eleven months in process of growth. The tree blossoms in March and the fruit is gathered in January and February. Many groves have been picked by the end of February, but others still show rich yellow loads upon the trees. Perfect oranges cling to the stem with great tenacity, so that the period for ingathering is much prolonged.

California oranges, as a rule, are gathered, handled and harvested in a very simple way. Every town of prominence in the orange district has one or more packers of fruit. These packers have business connections with wholesale fruit dealers in Chicago, St. Paul, Minneapolis, New York and other eastern cities. The common practice there is this: When the crop is ripening the farmer sells his oranges to the packer, the packer puts them into boxes and sells them to the eastern wholesaler, and the wholesaler distributes them through the customary channels. The price of California fruit at the place of consumption is thus made up chiefly of the price paid to the producer, the packer's expenses for boxes, labor, etc., with his profit added, freight across the continent, and the wholesaler's and retailer's expenses and profits. Choice oranges singly, or by the dozen, cost quite as much in Los Angeles as New York.

The packers buy fruit at Riverside, Pomona and other places in two or three different ways. Sometimes they buy the oranges on the trees in a lump; sometimes they make a price of them delivered, but the more common practice is to buy by the box on the trees and pick the fruit for themselves. In this event

the payment to the grower is net. There is, of course, a wide range of values according to variety of fruit, size, the general state of the market and other factors. Producers of the finest naval oranges at Riverside, Redlands and elsewhere expect to receive about \$3 a box, with little variation from year to year. This is at the rate approximately of 3 cents each. Other descriptions and smaller sizes run down to \$1.50 a box or less. In the packing houses the oranges are assorted by sizes by the use of a simple mechanical device which works on the same principle as the cash carriers in city stores, the small fruit dropping into boxes at the upper end of the runway, and the larger sizes at the bottom. At the values of the past few years, say \$1.30 @ \$3 per box, the leading growers of Los Angeles and San Bernardino counties are well satisfied with the returns. Given sufficient capital for starting a large orchard, a suitable location and patience to wait for results from four to ten years, and wealth is assured so far as human foresight goes. No Californian is willing to admit the possibility of overproduction of the choice fruits of his state. The belief is universal, and rightly so, that the demand must steadily increase. But experience works against shipments to the east for sale on commission. The regular packers have facilities which individual growers cannot possess, and, with a broad market and only a limited supply of fruit, they are probably able to pay, and generally do pay, all that the crop is worth. Those growers, at all events, who exercise judgment and apply themselves diligently and with sufficient resources to the care of their groves, never fail to realize much more than "living prices" right at their own doors.

Having bought the contents of an orange grove, the packer sets his men to work upon the trees in January. If his business is at all important he buys the shooks for his boxes cut to dimension and puts them together for himself. The supply comes from the mountains. In this department of the industry, however, there is great room for improvement. Eastern handlers complain that the wood is too brittle, and that the boxes are not securely put together, so that there is a great deal of breakage, to the loss and inconvenience of handlers. After the fruit is ready the boxes are filled a little above the top and pressure is applied to a false cover to settle the oranges

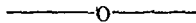
together before the top is nailed on. Shipments are then made in special cars adapted to guard against extreme heat and cold.

In former years there was a great deal of complaint of exorbitant freight rates from Los Angeles to the east. The railroads were said to gauge their charges so carefully by the market as to leave no profits for the producers, whether in good times or bad. Bad blood was therefore very common. This seems to be now mostly a thing of the past. Diligent inquiry has been made upon this point among the producers and packers of southern California without bringing to light any evidence of a general feeling that the present tariffs are unreasonable. From Riverside to New York the rate is \$260 per car. A car will hold from 250 to 300 boxes of oranges. Freight, cartage, etc., from the Pacific to the Atlantic coast is thus usually estimated at about \$1 per box. The fruit appears to be able to stand this charge and still leave fair returns to the growers.

Every town in southern California that makes any pretensions to orange-growing has its board of trade. One of the functions of these bodies is to advertise the merits of their respective neighborhoods. Real estate agents are not backward to do likewise, though it should be understood that there is nothing of the "boom" character in values at such places as Pomona and the other cities and towns up the valley east of Los Angeles. An apparently trustworthy circular published at Riverside says that "the orange crop last year averaged over \$200 per acre for all bearing orchards in the valley, young and old, being \$2.20 each for the 287,000 bearing orange trees in Riverside." The maximum annual cost of caring for a grove five years old is stated at 25 cents a tree. The same publication asserts that "there are hundreds of acres in and about Riverside whose net income, over all cost of cultivation, is more than \$300 per acre each year; many orchards whose net yield is over \$500 per acre, and at least one orchard (the oldest) whose annual product is \$1,000 per acre." These are doubtless the best figures that could be presented, and not average statements for all the towns which raise, or try to raise, oranges. Riverside, by common consent, is the first city in California in the orange culture. That the cultivation of the orange north

of the Bay of San Francisco can be made commercially profitable is stoutly denied in southern California.

Three things are requisite to success in the culture of the orange, viz., ample capital, a suitable location and careful management. The first element is not the least important. A poor man may raise potatoes in the foot-hills of the Sierra Nevadas and support himself after the first season. No poor man can get the land or the trees required for an orange grove in well-proved localities, while if he has the land and the trees he must be able to wait five years for an income. It is estimated that under favorable circumstances an orange grove costing, say, \$2,000 for ten acres, water rights included, and \$1,000 more for 1,000 trees, will rather more than pay expenses the fourth year, and yield a good living the fifth. Thereafter a competence seems to be assured. But up to the fourth year constant care is needed, without return. Non-resident proprietorship will not answer the purpose. Nor will the business pay even the wealthiest horticulturist unless all the aids of experience, good common sense and natural advantages are employed.—*Bradstreets.*



### THE AMERICAN SUGAR TARIFF.

FROM WILLET AND GRAY'S WEEKLY STATISTICS, OCTOBER 2.

#### SCHEDULE E, SUGAR.

That on and after July first, eighteen hundred and ninety-one, and until July first, nineteen hundred and five, there shall be paid, from any moneys in the Treasury not otherwise appropriated, under the provisions of section three thousand six hundred and eighty-nine of the Revised Statutes, to the producer of sugar testing not less than ninety degrees by the polariscope, from beets, sorghum, or sugar cane grown within the United States, or from maple sap produced within the United States, a bounty of two cents per pound; and upon such sugar testing less than ninety degrees by the polariscope, and not less than eighty degrees, a bounty of one and three-fourth cents per pound, under such rules and regulations as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall prescribe.

The producer of said sugar to be entitled to said bounty shall have first filed prior to July first of each year with the Commissioner of Internal Revenue a notice of the place of production, with a general description of the machinery and methods to be employed by him, with an estimate of the amount of sugar proposed to be produced in the current or next ensuing year, including the number of maple trees to be tapped, and an application for a license to so produce, to be accompanied by a bond in a penalty, and with sureties to be approved by the Commissioner of Internal Revenue, conditioned that he will faithfully observe all rules and regulations that shall be prescribed for such manufacture and production of sugar.

The Commissioner of Internal Revenue, upon receiving the application and bond hereinbefore provided for, shall issue to the applicant a license to produce sugar from sorghum, beets, or sugar cane grown within the United States, or from maple sap produced within the United States at the place and with the machinery and by the methods described in the application; but said license shall not extend beyond one year from date thereof.

No bounty shall be paid to any person engaged in refining sugars which have been imported into the United States, or produced in the United States upon which the bounty herein provided for has already been paid or applied for, nor to any person unless he shall have first been licensed as herein provided, and only upon sugar produced by such person from sorghum, beets, or sugar cane grown within the United States. The Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall from time to time make all needful rules and regulations for the manufacture of sugar from sorghum, beets or sugar cane grown within the United States, and shall under the direction of the Secretary of the Treasury, exercise supervision and inspection of the manufacture thereof.

And for the payment of these bounties the Secretary of the Treasury is authorized to draw warrants on the Treasurer of the United States for such sums as shall be necessary, which sums shall be certified to him by the Commissioner of Internal Revenue, by whom the bounties shall be allowed or paid to



any person licensed as aforesaid in any one year upon any quantity of sugar less than five hundred pounds.

That any person who shall knowingly refine or aid in the refining of sugar imported into the United States or upon which the bounty herein provided for has already been paid or applied for, at the place described in the license issued by the Commissioner of Internal Revenue, and any person not entitled to the bounty herein provided for, who shall apply for or receive the same, shall be guilty of a misdemeanor, and, upon conviction thereof, shall pay a fine not exceeding five thousand dollars, or be imprisoned for a period not exceeding five years, or both, in the discretion of the Court.

All sugars above number sixteen Dutch standard in color shall pay a duty of five-tenths of one cent per pound: *Provided*, That all such sugars above number sixteen Dutch standard in color shall pay one-tenth of one cent per pound in addition to the rate herein provided for, when exported from, or the product of any country when and so long as such country pays or shall hereafter pay, directly or indirectly, a bounty on the exportation of any such sugar which may be included in this grade which is greater than is paid on raw sugars of a lower saccharine strength; and the Secretary of the Treasury shall prescribe suitable rules and regulations to carry this provision into effect: *And provided further*, That all machinery purchased abroad and erected in a beet-sugar factory and used in the production of raw sugar in the United States from beets produced therein shall be admitted duty free until the first day of July, eighteen hundred and ninety-two: *Provided*, That any duty collected on any of the above-described machinery purchased abroad and imported into the United States for the uses above indicated since January first, eighteen hundred and ninety, shall be refunded.

Sugar candy and all confectionery, including chocolate confectionery, made wholly or in part of sugar, valued at twelve cents or less per pound, and on sugars after being refined when tintured, colored, or in any way adulterated, five cents per pound.

All other confectionery, including chocolate confectionery, not specially provided for in this act, fifty per centum ad valorem.

Glucose, or grape sugar, three-fourths of one cent per pound.

ON THE FREE LIST.

Sugars, all not above number sixteen Dutch standard in color, all tank bottoms, all sugar drainings and sugar sweepings, sirups of cane juice, melada, concentrated melada, and concrete and concentrated molasses, and molasses.

That the provisions of this act providing terms for the admission of imported sugars and molasses and for the payment of a bounty on sugars of domestic production shall take effect on the first day of April, eighteen hundred and ninety-one: *Provided*, That on and after the first day of March, eighteen hundred and ninety-one, and prior to the first day of April, eighteen hundred and ninety-one, sugars not exceeding number sixteen Dutch standard in color may be refined in bond without payment of duty, and such refined sugar may be transported in bond and stored in bonded warehouse at such points of destination as are provided in existing laws relating to the immediate transportation of dutiable goods in bond, under such rules and regulations as shall be prescribed by the Secretary of the Treasury.

RECIPROCITY.

Section 3.—That with a view to secure reciprocal trade with countries producing the following articles, and for this purpose, on and after the first day of January, eighteen hundred and ninety-two, whenever, and so often as the President shall be satisfied that the Government of any country producing and exporting sugars, molasses, coffee, tea and hides, raw and uncured, or any of such articles, imposes duties or other exactions upon the agricultural or other products of the United States, which in view of the free introduction of such sugar, molasses, coffee, tea and hides into the United States he may deem to be reciprocally unequal and unreasonable, he shall have the power and it shall be his duty to suspend, by proclamation to that effect, the provisions of this act relating to the free introduction of such sugar, molasses, coffee, tea and hides, the production of such country, for such time as he shall deem just, and in such case and during such suspension duties shall be levied, collected, and paid upon sugar, molasses, coffee, tea and hides,

the product of or exported from such designated country as follows, namely:—

All sugars not above number thirteen Dutch standard in color shall pay duty on their polariscopic tests as follows, namely:

All sugars not above number thirteen Dutch standard in color, all tank bottoms, sirups of cane juice or of beet juice, melada, concentrated melada, concrete and concentrated molasses, testing by the polariscope not above seventy-five degrees, seventenths of one cent per pound; and for every additional degree or fraction of a degree shown by the polariscopic test, two hundredths of one cent per pound additional.

All sugars above number thirteen Dutch standard in color shall be classified by the Dutch standard of color, and pay duty as follows, namely: All sugar above number thirteen and not above number sixteen Dutch standard of color, one and three-eighths cents per pound.

All sugar above number sixteen and not above number twenty Dutch standard of color, one and five-eighths cents per pound.

All sugars above number twenty Dutch standard of color, two cents per pound.

Molasses testing above fifty-six degrees, four cents per gallon.

Sugar drainings and sugar sweepings shall be subject to duty either as molasses or sugar, as the case may be, according to polariscopic test.

On Coffee, three cents per pound.

On Tea, ten cents per pound.

Hides, raw or uncured, whether dry, salted, or pickled, Angora goat-skins, raw, without the wool, unmanufactured, asses' skins, raw or unmanufactured, and skins, except sheepskins with the wool on, one and one-half cents per pound.

#### TARIFF.

We give the sugar schedule of the Tariff Bill in this "Statistical" exactly as it has passed both Houses of Congress, and became a law to go into operation on and after April 1st, 1891. Until that time the sugar business will continue to be done as

at present, and the important features connected with the date are that the benefits of free sugar to the people are delayed for six months, and the United States Treasury will continue to absorb the money from duties on sugar for the same length of time. Also that the entire Louisiana crop will be forced to market during five or six months, instead of nine months as customary. As this year's crop is larger than the last crop, say possibly 160,000 tons crop, against 128,344 tons last crop, it will necessitate marketing at the average rate of 7,000 barrels per day, an amount which cannot help having an adverse influence on the refined sugar markets for six months, and indirectly to some extent on the raw sugar market for say four or five months—to near March 1st—after which time refining can be carried on in bond, and the product be delivered free of duty after April 1st. On the 1st day of April, the Louisiana crop will have disappeared, and an immense vacuum will exist throughout the entire country in the supplies of refined sugar, which will absorb the bonded refining of March, and the daily output of April.

On and after April 1, 1891, sugars from all the world can come into the United States free of duty, if not above No. 16 Dutch Standard in color. Heretofore sugars above No. 13 Dutch Standard have been virtually prohibited, and the admitting of Nos. 14, 15, 16 Dutch Standard on the same basis as No. 13 Dutch Standard will influence, and change to an important extent, the sugar business of the world. The Java sugar crop, which reaches 360,000 tons, and consists almost entirely of sugars above No. 13 Dutch Standard in color, have heretofore gone mainly to the United Kingdom, but can now enter the competition for the American market. The bulk of the beet sugar crops of Europe are above No. 13 Dutch Standard, and an extra price has frequently been paid in order to obtain cargoes of not above No. 13 Dutch Standard for the United States, but now the entire beet crops can compete for the American market. Demerara and other countries are also given larger opportunities. This widening of the sources of supplies should cheapen the cost of raw sugar, and keep it closely to the point of lowest cost of production in either cane or beet sugar countries. Whatever demand there may be in the United States for sugar not above No. 16 Dutch Standard

in color for direct consumption must be supplied by cane sugar countries, as such beet root sugar is objectionable on account of flavor and odor. This demand will probably be limited nearly to the preserving of fruits, and manufacture of jams, etc., which business should receive an impetus from free sugar. For table use, refiners will no doubt continue to hold the trade.

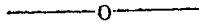
The duty of  $\frac{1}{2}$ c. per lb. on sugars of above No. 16 D. S. is sufficient protection against foreign refined of non-bounty countries. The duty of 6-10c. per lb. is equal to  $\frac{3}{4}$ c. per lb. protection against refined of bounty countries, and is sufficient protection probably unless the bounties are raised.

The influence of the new tariff on the export of refined sugars is uncertain, and remains to be tested.

The boiling of foreign molasses into sugar, which has been carried on in the United States to the extent of 50,000 to 60,000 tons per annum, will be abandoned, leaving the same amount to be supplied from other sources.

The average increase of consumption of sugar in the United States for the past nine years is 5.08 per cent. per annum. The increased consumption resulting from free sugar should be large. It might easily reach several hundred thousand tons increase. This means increased business for refiners, at lower cost of refining, and on smaller capital required, than with duties to be paid.

The duty on sugars above No. 16 D. S. protects consumers against larger profits than  $\frac{3}{4}$ c. to  $\frac{1}{2}$ c. per lb. to refiners, while  $\frac{3}{4}$ c. per lb. profit will assure liberal dividends to their stockholders.



### *WHAT WILL THE NEW SUGAR DUTY ACCOMPLISH?*

A good many inquiries are being made as to the actual effect of the sugar schedule proposed by the Senate tariff bill, which, it is intimated from Washington, is likely to be accepted by the House without further amendment. In the first place, the new bill does away entirely with the polariscope in measuring duties and hereafter all sugar imported is to be classed according to the Dutch standard of color. In the

second place, in this classification everything from No. 13 downward is to be free, and this includes about all the raw sugar that is imported into this country. All the raw material that refiners require for the operation of their establishments will be made either naturally or artificially to conform to this classification, and will therefore come in free of duty. Thirdly, the new bill imposes a duty of three-tenths of one cent per pound upon all sugar above No. 13 and not above No. 16. This includes what are known as yellow or soft sugars, and is intended as a protection for the refineries against the importation of what were known a few years ago as refinery sugars and which might be fit for consumption without the refining process, but the duty is so small that under certain conditions foreign product might be imported and compete with domestic refined of about the same grade. Fourthly, all sugar above No. 16 is subject to a duty of six-tenths of one cent per pound. This will include all the fine or white kinds of refined sugar and is intended to protect our refiners from competition with foreign refined; but in view of the fact that all the continental countries pay a bounty upon exports of refined sugar, this duty will not be prohibitory in all cases, more particularly with respect to France. In other words, the proposed rates of duty will afford fair but not adequate protection to domestic refiners under all contingencies. Fifth, the placing of molasses upon the free list will effectually shut up the molasses boiling industry heretofore carried on in this country. Philadelphia, New York and Boston have carried on for a number of years a profitable industry by the re-boiling of Cuba molasses, extracting therefrom a low grade of sugar used in refining, and disposing of the residuum for mixing and distilling purposes, but with molasses upon the free list, there will be no longer any profit in this operation. Sixth, from the 1st of July, 1891, until the 1st of July, 1895, all domestic sugar produced from beets, sorghum, sugar cane or maple sap grown in the United States, there will be paid from the Treasury a bounty of two cents per pound, which is intended to be a protection to and an encouragement for the development of the home industry. The new rate of duty is not to take effect until the 1st of next March.—*N. Y. Shipping List.*

*COST OF RAISING BEETS.*

The Western Beet Sugar Company has recently published some facts gathered from the experience of last year about Watsonville. The expenses in this and all other cases are stated as if paid for in cash at current rates for labor and teams. Any one can see the difference in favor of the farmer who does his own work. Here is the record in a case where one-fifth of the land was occupied by fruit trees: The following is last year's record of a twenty-acre patch, one and one-half miles from the factory, sown second week in May (after the last spring rains had fallen) with five pounds of seed per acre, rows twenty inches apart, thinned out second week in June and harvested in October:

Yield of beets, 405 160-2000 tons, or 20 508-2000 tons per acre.  
 Yield of sugar, 58 667-2000 tons, or 2 1883-2000 tons per acre.  
 Returns, \$1810 05, or \$90 50 per acre or \$4 50 a ton.

The expenses per acre were:

Value of rent of ground, say.....	\$15 00
Plowing, preparing the land and sowing.....	5 00
Thinning, hoeing and cultivating.....	4 50
Plowing out at 10 cents per ton.....	2 00
Topping at 65 cents per ton.....	13 00
Hauling at 50 cents per ton.....	10 00
Total expenses.....	\$49 50
Net profit per acre.....	\$41 50

These beets were planted in a two-year-old orchard, and in addition to the above mentioned profit the young trees were benefited by the use of the land and also by the stirring of the ground incidental to the cultivation of the beets. Numerous more favorable instances might be given showing profits up to \$70 per acre and polarization as high as 22 per cent., but we wish to point out that even at the price of \$4 50 a ton beets are a good paying crop. This clearly shows that orchards may be grown to advantage, while an interest of 10 per cent. on \$400 an acre can be made on the same land. The cultivation of the beets saves cultivation of the fruit trees. The land must, of course, be plowed deep and well tilled.

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*EFFECTS OF RECIPROCITY IN CUBA.*

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A grand meeting held on the evening of the 5th inst., at the rooms of the Chamber of Commerce of this city, was attended by a large crowd of merchants and planters, and after a slight discussion, several resolutions were passed almost unanimously, to the effect of requesting the government at Madrid not to establish here the new custom house tariffs before consulting the opinion of the Chambers of Commerce and other corporations existing in Cuba, and insisting upon the abrogation of Articles 2 and 4 of the Law of Commercial Relations, establishing between Spain and Cuba the coastwise trade, through the gradual suppression of import duties on all Spanish products imported into Cuba, which prevents any efficacious alterations to be made in the custom house tariffs; and as long as said Articles 2 and 4 are maintained, they will prove highly prejudicial to the development of commerce and industry in Cuba.

The report referring to the adoption of the bill of reciprocity in the Senate at Washington seems to have stirred up the people here, and as we are better aware than they appear to be in Spain of what is to befall Cuba, were the new custom house tariffs enforced and the increase of 20 per cent in import duties maintained, we shall do all in our power to attenuate its effects and to partake of the suppression of duties on sugars in the United States.—*Havana Weekly Report, Sept. 13.*

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The following from the *Barbados Agricultural Reporter* of July 26th, so fully agrees with what has often been said in these columns, that we cannot forbear reproducing them, coming as they appear to do from a competent quarter. "It is only by the introduction of the best crushing machinery, the amalgamation of small estates, and the extensive use of chemical fertilizers to the soil, that estates will be able to hold their own against all comers in the world, and the sooner some steps are taken to accomplish these objects the better it will be for all parties concerned. For those plantations which cannot produce three tons to the acre there is very little hope, and it would be as well to turn their attention to other crops without delay."