

THE PLANTERS' MONTHLY,

PUBLISHED BY THE
Planters' Labor and Supply Company,
OF THE HAWAIIAN ISLANDS.

VOL. III]

HONOLULU, MAY, 1884.

[NO. 2

PLANTERS' LABOR AND SUPPLY COMPANY.

INCORPORATED MARCH, 1882

OFFICE—HONOLULU, HAWAIIAN ISLANDS.

ANNUAL MEETING IN OCTOBER OF EACH YEAR.

OFFICERS ELECTED OCTOBER 16, 1883.

Z. S. SPALDING.....President	W. O. SMITH.....Secretary
S. B. DOLE.....Vice-President	J. B. ATHERTON.....Auditor
P. C. JONES, Jr.....Treasurer	

TRUSTEES ELECTED OCTOBER 16, 1883.

ATHERTON, J. B.	BAILEY, W. H.	BALDWIN, H. P.	HARTWELL, A. S.
JONES, P. C.	SMITH, W. O.	SOBER, J. H.	DOLE, S. B.
GLADE, H. F.	HALSTEAD, R.	SPALDING, Z. S.	UNNA, A.
WILCOX, G. N.			

COMMITTEES OF THE PLANTERS' LABOR AND SUPPLY CO.

APPOINTED OCTOBER 18, 1883.

LABOR.				
Jonathan Austin,	W. O. Smith,	G. N. Wilcox,	J. M. Horner,	James Woods.
CULTIVATION.				
Geo. C. Williams,	Wm. Lydgate,	A. H. Smith,	Chas. Notley,	J. H. Soper.
MACHINERY.				
Wm. E. Rowell,	W. H. Rickard,	R. R. Hinds,	Jas. Renton,	H. F. Glade.
LEGISLATION.				
W. R. Castle,	W. W. Hall,	J. H. Paty,	J. B. Atherton,	P. C. Jones, Jr.
RECIPROCITY.				
E. P. Adams,	F. A. Schaefer,	H. M. Whitney,	H. P. Baldwin,	H. W. Mist.
TRANSPORTATION.				
H. P. Baldwin,	S. L. Austin,	Z. S. Spalding,	C. F. Hart,	H. Turton.
MANUFACTURE OF SUGAR.				
R. A. Macfie, Jr.,	A. Hanneberg,	C. Koelling,	H. P. Baldwin,	E. C. Bond.
LIVE STOCK.				
W. H. Bailey,	J. L. Richardson,	J. N. Wright,	W. H. Cornwell,	B. F. Dillingham.
FORESTRY.				
C. R. Bishop,	W. H. Purvis,	C. F. Hart,	E. Bailey,	J. K. Smith,
Chas. Notley,	R. Halstead,	S. B. Dole.		
FERTILIZERS AND SEED CANE.				
G. N. Wilcox,	G. H. Dole,	R. Halstead,	T. J. Hayselden,	S. L. Austin.
VARIETIES OF CANE.				
T. H. Davies,	C. S. Kinnersley,	A. Unna,	A. S. Wilcox,	W. H. Bailey.
STATISTICS.				
W. O. Smith,	P. C. Jones, Jr.,	T. H. Davies,	C. M. Cooke,	H. F. Glade,
				J. B. Atherton.

EDITORIAL AND GENERAL.

CONSTITUTIONAL GOVERNMENT.

Before this number of the *PLANTERS' MONTHLY* is issued, the Legislature will have been convened for its biennial work. It becomes a graver question every year, every day in fact, whether Hawaii is under a constitutional government. The theory of our government is supposed to be in the main, that of Great Britain, excepting that that favored land has no written constitution. Ours is supposed to embody in its pages the points of the experience of other nations, and is to be read and interpreted by the light of the understanding of similar instruments or bodies of rights in such nations. The veto power exists in England, but that it is rarely used is shown by the fact that it has been exercised but once or twice during the present long reign. It is, indeed, said by some writers on constitutional law, that for the sovereign to veto a bill which has been passed by both Houses of Parliament, is unconstitutional though not illegal. The marked difference between the fundamental law of Great Britain and that of her constitution, is that the former is unwritten and consists of a series of precedents, which are sustained by the judiciary and by the legislature, yet, which change from time to time with the progress of the age. The English constitution of to-day presents a marked contrast to that of a hundred years ago. A single instance illustrates this: The growth of the power of the House of Commons, surpassing the now almost insignificant House of Lords, usurping the place or functions almost of the sovereign through the ministry which governs and which represents the controlling power of the Commons, England furnishes the world with the finest and best example of constitutional government. She teaches and leads the nations.

The machinery of change is so ponderous in the United States that it is next to impossible to alter or amend the national constitution, the result of which is that the fundamental law is in some respects antiquated and unfitted for the requirements of the day. The teachings of the age on all questions of government is towards a liberal conservatism; towards government in accordance with the sentiment and judgment of an enlightened people. All attempts to curtail this governing power have met with disaster. It is contrary to the spirit of the age, opposed to the inevitable tendency of these times. The growth of the power of the people in England has been incidental and has kept pace with the growth of her commerce, manufactures, riches, enlightenment and general prosperity. The same is true in the United States. The government of both countries have been safe.

A comparison of these great and intelligent nations with Hawaii may appear foolish; yet the principles of government of those countries ought to govern here, for we tried to follow them. The constitution defines and

restricts the powers of the departments. Each must be kept separate and distinct from the other. Whenever an act is passed by which either takes powers from the other, such law is contrary to the spirit and intent of the fundamental law, even if not in itself strictly unconstitutional. It is just as necessary that the King keep within constitutional limits as for the courts or legislature. The constitution declares that the King governs for the good of the whole people and not for the profit or honor of any class, individual or family. The people have the right, and it may be said it is their duty to see that government is for the common good. It is the duty of the Legislature to inquire into the use, the purpose and object of the numerous foreign embassies of the past two years, and it is the right of the Assembly to approve or condemn the same as the case may be. It is the duty of the Assembly to inquire whether moneys have been drawn from the treasury without the consent of the people. It is a like duty to ascertain whether the government has been conducted in general in accordance with its prescribed powers. It is its duty to ascertain whether the new coins have been made according to law; whether they have been coined of gold and silver in compliance with the act to regulate the currency in about the proportion of three of gold to two of silver; whether the purchase of bullion for such work has been in accordance with the act, and whether all of such money are the coins prescribed by the law. It is the right of the Legislative Assembly to express its view as to what is meant by the "King's pleasure," with reference to the appointment and removal of Ministers of the Cabinet. It is the duty of the Legislature to guard its own honor and integrity by enacting laws which shall prevent its members from accepting or holding any office of trust or profit from the government.

The people expect that the Legislature will jealously guard and defend the people's rights against all encroachment; that it will enforce economy in all expenditure; that it will wholly prevent any foolish or wasteful use of public money; that it will cause it to be understood in no uncertain voice, that the revenues of the country, however derived, come from and belong to the people, and that no one shall foolishly throw them away, in any form, either by pompous display or by chattering attempts to pose Hawaii before the world, nor must dangerous complications be permitted. It is expected that public officers shall be held strictly accountable for their trusts; that they shall perform their duties in accordance with the letter and the spirit of the law and that the Legislature will examine and report to the nation on all matters of public interest.

It is also expected and is the duty of the Legislature to proceed with its functions without fear or favor, but in no spirit of faction or idle faultfinding. If honor be due, let honor be given; if censure is necessary, let the voice of condemnation be clear and certain. It lies with the coming session to further demonstrate before the world whether Hawaii is fit for self-government or whether it must be governed from without.

**METHOD OF DETERMINING THE PROPORTION OF JUICE
LEFT IN MEGASS.**

From the Sugar Cane.

Instead of describing a mill as competent to extract 70 or any other percentage (which is really meaningless, inasmuch as the quantity must vary with the character of canes) it is proposed to describe the efficiency of mills by the *weight of juice associated with 10 pounds of fiber in the megass*. Thus *ten* would describe a very good mill, and *twenty* a bad one. In the example which follows, the mill is 13.7.

Fortunately the planter may cease to concern himself greatly respecting the percentage of juice extracted, and may confine his efforts to determining regularly the *proportion of juice left in the megass*.

Confusion is then not introduced by operating at one time on juicy plants, and at another on dry rattoons. Whatever the source, the megass may contain an equal proportion of juice. A rough and ready rule will be easily remembered. *If more than half the megass be fibre the work is good, if less the work is bad.*

Fortunately the experiments required are easily made, the apparatus is simple and inexpensive and the results perfectly reliable. * * *

The apparatus consists of

- An accurate portable spring balance,
- Several muslin bags about a foot square,
- A bucket and a stout staff,
- A sieve of thin brass work,

* * * * *

The operation is as follows:—

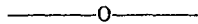
Take from the megass which has just fallen from the mill three separate handfuls, taking care that they *fairly represent the average work of the mill, and not of a specially heavy feed which the mill attendants will promptly supply*. Hence the advantage of taking the sample from the megass which has just fallen from the mill. Place the samples in the empty bucket and mix them together. Weigh a dry, muslin bag. Place in it a good handful of the mixed megass (usually from a pound to a pound-and-a-half) and weigh, recording gross and tare. Then empty the bucket and half fill it with hot water not exceeding 180° Far. Shred the weighed megass in the water and stir and press it with the staff for a few minutes. Pour the contents of the bucket over the seive, and return the megass when wrung out with the hands to the bucket. Again, half fill the bucket with water; press with the staff as before, pour over the seive, wring with the hands, and place all the washed megass loosely into the bag and hang it immediately over and almost in contact with the steam boiler or large, high-pressure steam pipe, cover it with a box without bottom with a few holes in the lid. Note and record its weight next day, and again some hours later. So long as the bag continues to loose weight

the process of drying must be continued. The time required for the drying will be determined after a few experiments. Where the arrangements are good, 24 hours will be found to be sufficient.

The points requiring special care are the perfect drying of the megass and that no portion of the sample be lost in the various processes. An experiment should be made daily, and several bags may be drying at the same time. The bags should each have a number or letter marked or stitched upon them. The following may serve as an example:

Crop weight of fresh megass.....	22.4 oz.
Less weight of bag8
Net weight of fresh megass.....	21.6
Gross weight of dry megass.....	9.9
Less weight of bag.....	.8
Net weight of dry megass.....	9.1
Difference or loss on washing and drying...	12.5

As 9.1 oz. of dry fibre were associated with 12.5 oz. of juice, so 1 pound of fibre will be associated with 1.37 of juice.



UNITED STATES TREATY OF RECIPROCITY WITH MEXICO.

The articles to be admitted free of duty from Mexico are twenty-eight in number, and are as follows :

1. Animals, alive, specially imported for breeding purposes.
2. Barley, not pearl.
3. Beef.
4. Coffee.
5. Eggs.
6. Esparto and other grasses, and pulp of, for the manufacture of paper.
7. Flowers, natural of all kinds.
8. Fruits. All kinds of fresh fruits, such as oranges, lemons, pine-apples, limes, bananas, plantains, mangoes, etc.
9. Goat skins, raw.
10. Hide-ropes.
11. Hides, raw or uncured, whether dry, salted or pickled, and skins, except sheep skins with wool on, Angora goat skins, raw without the wool and asses' skins.
12. India rubber, crude and milk of.
13. Indigo.
14. Ixtle or Tampico fibre.
15. Jalap.
16. Leather, old scrap.
17. Logwood, berries, nuts, archil and vegetables for dyeing or used for composing dyes.
18. Molasses.
19. Palm or cocoanut oil.
20. Quicksilver.
21. Sarsaparilla, crude.

22. Shrimps and other shellfish.
23. Straw, unmanufactured.
24. Sugar, not above No. 16, Dutch standard in color.
25. Tobacco in leaf, unmanufactured.
26. Vegetables, fresh of all kinds.
27. Wood and timber of all kinds, unmanufactured, including ship timber.

The articles which the United States are to have the privilege of shipping to Mexico free are seventy-three in number, as follows :

1. Accordeons and harmonicas.
2. Anvils.
3. Asbestos for roofs.
4. Bars of steel for mines, round or octagonal.
5. Barrows and hand trucks with one or two wheels.
6. Bricks, refractory and all kinds of bricks.
7. Books, printed, unbound or bound in whole or in the greater part with paper or cloth.
8. Beams, small and rafters of iron for roofs, provided they cannot be made use of for other objects in which iron is employed.
9. Coal of all kinds.
10. Cars and carts with springs.
11. Coaches and cars for railways.
12. Crucibles and melting pots of all materials and sizes.
13. Cane-knives.
14. Clocks, mantel or wall.
15. Diligences and road carriages of all kinds and dimensions.
16. Dynamite.
17. Fire pumps, engines, and ordinary pumps for irrigation and other purposes.
18. Faucets.
19. Fuse and wick for mines.
20. Feed, dry and straw.
21. Fruits, fresh.
22. Firewood.
23. Fish, fresh.
24. Guano.
25. Hoes, mattocks and their handles.
26. Houses of wood or iron complete.
27. Hoes, common agricultural knives without their sheathes, scythes, sickles, harrows, rakes, shovels, pick-axes, spades and mattocks for agriculture.
28. Henequen bags, on condition that they be used for subsequent exportation with Mexican products.
29. Ice.
30. Iron and steel made into rails for railways.
31. Instruments, scientific.
32. Ink, printing.
33. Iron beams.
34. Lime, hydraulic.
35. Locomotives.
36. Lithographic stones
37. Masts and anchors, for vessels large or small.
38. Marble in blocks.
39. Marble in flags for pavements not exceeding forty centimeters in square, and polished only on one side.

40. Machines and apparatus of all kinds for industrial, agricultural and mining purposes, science and arts, and any separate extra parts and pieces pertaining thereto.

The extra or separate parts of machinery and the apparatus that may come united or separately with the machinery are included in this provision, comprehending in this the bands of leather or rubber that serve to communicate movement, but only when imported at the same time with the machinery to which they are adapted.

41. Metals, precious, in bullion or in powder.
42. Money, legal of silver or gold, of the United States.
43. Moulds and patterns for the arts.
44. Naptha.
45. Oats in grain or straw.
46. Oars for small vessels.
47. Plows and plowshares.
48. Paper, tarred for roofs.
49. Plants and seeds of any kind, not growing in the country, for cultivation.
50. Pens of any metal not silver or gold.
51. Petroleum, crude.
52. Petroleum or coal oil and its products for illuminating purposes.
53. Powder, common, for mines.
54. Quicksilver.
55. Rags or cloth for the manufacture of paper.
56. Roof tiles of clay or other material.
57. Sulphur.
58. Stoves of iron for cooking and other purposes.
59. Staves and headings for barrels.
60. Soda, hyphosulphite of.
61. Steam engines.
62. Sewing machines.
63. Slates for roofs and pavements.
64. Sausages, large or small.
65. Teasels of wire, mounted on bands for machinery, or vegetable teasels.
66. Tools and instruments of steel, iron, brass, or wood, or composed of these materials for artisans.
67. Types, coats of arms, spaces, rules, vignettes, and accessories for printing of all kinds.
68. Vegetables, fresh.
69. Wire, telegraph, the destination of which will be proven at the respective custom houses by the parties interested.
70. Wire of iron or steel for carding, from No. 26 and upwards.
71. Wire, barbed, for fences and the hooks and nails to fasten the same.
72. Water pipes of all classes, materials and dimensions, not considering as comprehending among them tubes of copper or other metal that do not come closed or soldered with seam or with rivetting in all their length.
73. Window blinds, painted or not painted.

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—“Three things seem essential to success in business: 1. To *know* your business; 2. To attend to it; 3. To keep down expenses until your fortune is safe from public perils.”

— QUARTERLY MEETING OF TRUSTEES. —

The Trustees of the Planters' Company held their quarterly meeting at Honolulu, on the 26th and 28th of last month.

There were present, Messrs. S. B. Dole, P. C. Jones, Jr., J. B. Atherton, A. Unna, H. P. Baldwin, W. H. Bailey, R. Halstead, G. N. Wilcox, and W. O. Smith, trustees; and, by invitation, Messrs. C. R. Bishop, F. A. Schaefer, P. Isenberg, W. R. Castle, Jona. Austin, D. H. Hitchcock, G. H. Dole, and S. T. Alexander, all of whom are members of the Company.

A general statement was made by the Secretary of the business transacted during the past three months; and the Treasurer presented an account of the receipts and disbursements since the annual meeting in October last.

The affairs of the Company were shown to be in a prosperous condition. The most important work which has occupied the attention of the trustees has been relating to treaty matters. Aided by the efficient and laborious efforts of Col. Z. S. Spalding, President of the Company, invaluable service has been rendered to planters, and the country at large, in this direction. The greatest praise is due Col. Spalding. In his undertaking he has been ably assisted by Dr. J. Mott Smith and Hon. H. A. P. Carter in Washington.

The efforts of these gentlemen have not only been of signal service at the present critical juncture, but their influence will tell on the future relations of the United States to these Islands.

Among the subjects discussed at the meeting were, the necessity for retrenchment in plantation expenses; Chinese Immigration; a Registration Act; the World's Exposition at New Orleans; and the political condition of this country.

The Committee on Legislation were instructed on certain points; a Committee was appointed to consider the subject of a representation at the New Orleans Exhibition; and clear and decided views were expressed on some of the more weighty issues now before the country.

Altogether, the conference was a profitable one.

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—The capacity of the clarifiers in general use in our sugar houses, is 500 Imperial gallons each. The number of cart loads of cane required to furnish juice for a clarifier varies with the size of the carts, the manner in which they are loaded, and the quality of the cane. A fair average, with two-wheeled ox carts, is 2½ loads per clarifier. Recently at Koloa, Kauai, 29 cart loads made over 19 clarifiers (9720 gallons). The carts were two-wheeled ox carts, and the cane was hauled two miles.

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—There has been a scarcity of coal in the market during the past two months. But cargoes have lately arrived, and more are coming, and the want is relieved.

COMMERCE BETWEEN CALIFORNIA AND THE HAWAIIAN ISLANDS.

The value of the exports of merchandise and produce from California to the Hawaiian Islands for the past twenty years is as follows:

1864.....	\$650,500	1874.....	\$ 450,700
1865.....	735,700	1875.....	559,600
1866.....	893,900	1876.....	767,000
1867.....	668,800	1877.....	1,177,900
1868.....	816,400	1878.....	1,503,300
1869.....	578,700	1879.....	1,717,000
1870.....	608,200	1880.....	2,136,800
1871.....	570,800	1881.....	2,654,900
1872.....	486,600	1882.....	2,683,800
1873.....	406,700	1883.....	2,971,200

Total twenty years.....\$23,047,600

For the eight years immediately preceding 1864, say 1856 to 1863, both years inclusive, the total was \$2,304,800, making a grand total of \$25,-352,400 for the past twenty-eight years. The growth in trade during the past ten years has been very significant, as will be seen by a division of the total given in the foregoing table, as follows:

1864-73.....	\$ 6,425,400.
1873-84.....	16,625,200.

Total.....\$23,047,600.

In the list of exports from California to the Hawaiian Islands in 1883, the classifications exceeding \$20,000 are as follows:

Dry Goods.....	\$250,600	Whiskey.....	40,000
Flour.....	101,100	Jewelry.....	38,900
Hardware.....	91,300	Groceries.....	36,300
Boots and Shoes.....	86,200	Fruit, etc.....	34,200
Machinery.....	77,200	Furniture.....	34,000
Bone Meal.....	77,000	Bran.....	34,000
Hay.....	64,700	Drugs.....	33,000
Horses.....	61,900	Nut Oil.....	32,800
Canned Goods.....	61,300	Lard.....	29,100
Clothing.....	59,300	Beer.....	27,300
Barley.....	55,000	Brick.....	27,000
Tobacco.....	48,000	Hams.....	16,200
Mules.....	45,300	Potatoes.....	25,400
Butter.....	45,000	Cigars.....	22,600
Bread.....	42,500	Building Materials.....	21,500
Oats.....	40,600	Leather.....	32,600

There are a dozen more articles that exceed \$10,000 for the year, but fall below \$20,000. The goods shipped in transit last year also amount to over \$200,000.

The exports of sugar from the Hawaiian Islands to the United States from 1856 to 1883 have been as follows:

1856, lbs.....	554,800	1870, lbs.....	18,783,600
1857.....	700,600	1871.....	21,760,800
1858.....	1,204,100	1872.....	16,995,400
1859.....	1,826,600	1873.....	22,129,200
1860.....	1,444,300	1874.....	24,566,600
1861.....	2,567,500	1875.....	25,080,200
1862.....	3,005,600	1876.....	26,072,000
1863.....	5,292,100	1877.....	25,576,000
1864.....	10,414,400	1878.....	38,413,000
1865.....	15,318,100	1879.....	48,559,900
1866.....	17,729,100	1880.....	58,705,000
1867.....	17,127,200	1881.....	93,789,500
1868.....	18,312,900	1882.....	114,177,900
1869.....	18,302,100	1883.....	114,107,200

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OUR PLANTATION FUEL AND HOW TO USE IT.

In these days, when labor is high, and sugar low,—very low, the plantation manager naturally turns himself around to see where even the smallest saving can be accomplished, either in the cultivation of the crops, or converting the crops into sugar. It may not be entirely out of place to notice that there is still lots of room, on most plantations, for further economy in both fuel and the labor used in handling it.

That trash right from the mill may be burned and made to generate steam enough to manufacture the juice from the cane producing such trash, into sugar, has been fully demonstrated on some of our plantations lately; and there is not the slightest doubt, that with highly improved furnaces, vacuum evaporation of the most improved type, and careful management of the steam, at least seventy-five per cent. of our plantations could do equally as well.

On some of our moderate sized plantations, as many as twenty hands and sometimes a pair of mules are employed in handling the trash preparatory to burning it, at a cost of from \$20 to \$25 per day. This is when trash is dried on the ground; and in places where fuel is dried in houses, the expense is apparently not quite so great. But when the drawback, from sickness amongst the hands employed in the trash houses, together with the increased fire risks, is considered, the trash house plan is not very much better on the score of economy. It would seem, therefore, that the most reasonable way of dealing with trash fuel is, either to shoot it right from the apron of the mill to the front of the furnaces, so that no handling is necessary, or to put it in piles for, say twenty-four hours, allowing fermentation to begin before burning it. In the latter method a good deal of handling is required, but the trash is said to be much more efficient in generating steam.

It is most unsatisfactory to burn green trash with a dull draught, and it may as well be stated that no matter how well trash furnaces are con-

structed, if the flues are not well proportioned, and the chimney of sufficient height and area the combustion will not be complete.

A good draught depends principally on the height of the chimney, and the greater the proportion of heating surface in the boiler to the grate surface, the greater the need of a high chimney, and, as a general thing, furnaces for burning green trash should not have less than an 80 foot chimney, (vertical height from the grate bars), and 100 foot is better. The flues should not be contracted at one part and enlarged at another, with crooked and long horizontal stretches between boilers and chimneys, as is the case on many of the plantations; but starting with a good deep ash pit, to which abundance of air can be admitted at pleasure, over which the bars are hung, starting down towards the end of the boiler at an angle of about 45°, either on their flat running across the furnace, (2 inches apart like a stepladder) on the old European plan, or running lengthwise in the usual way in vogue on most of the plantations here, the openings being about 3-4 in. and body of bar not more than 1 in. thick.

The trash should be fed either through the top of the furnace or from doors not less than one foot above the upper end of bars. This obviates the displacing of the burning fuel on the bars by the fresh fuel as it is introduced.

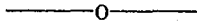
Each furnace should have two openings through which the fuel is fed alternately, keeping one side or the other of each furnace always burning bright. There should be abundance of room in the furnaces, and the introduction of highly heated air on the sides and back of bridge-wall as in the Jarves plan, or through hollow bars or pipes, is exceedingly beneficial when burning either green or dry trash.

The tandem boilers, in spite of all that has been said against them, are the best trash boilers in use on the Islands so far, and when plantation managers find it convenient to remodel their furnaces and exercise a little care in feeding them, the burning of green trash to do the entire cooking of the sugar will be found to be no trick at all. But to do this there must be judicious handling of the steam after it has been generated.

Most of our furnaces are far too small for their boilers and have too little grate surface. From four to five square feet of grate surface per ton of sugar in ten hours is not too much for good trash furnaces, and the flue and chimney should not be less in area than 1-4 square foot for every square foot of grate furnace. Other proportions may answer, but these do answer the purpose.

As a certain portion of the fuel must be dried for starting the fires, it has been thought best by some managers to have a small trash house for that purpose. Others have thought of large trash cars with skeleton bodies, filled from the mill, run out, and the trash allowed to stand in the cars until sufficiently dry and then used as needed. In this way very little labor is needed to handle it and the cost of such cars is very little. In a wet climate it would be necessary to run them under a shed or cover them when raining with canvas covers.

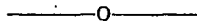
It is not a desirable thing to be often changing furnaces, but it will pay well to have our furnaces so constructed as to deal with the trash right from the mill.



RESOLUTION OF THE CHAMBER OF COMMERCE.

In our last number we published a resolution adopted by the Chamber of Commerce of Honolulu, relative to the renewal of the treaty; reproducing it as given to us. But our attention has been since called to a slight mistake in the wording of the preamble. The word "advisability" should have appeared in place of "sensibility" in the second clause, so that the clause would read:

"Whereas, the advisability of securing the continuance of said treaty for a definite period has lately been partially discussed in the local newspapers, it seems proper that an expression of opinion thereon should be made by this Chamber," etc., etc.



A REMARKABLE YIELD OF SUGAR AT WAIANAÆ.

The following statements and figures of sugar yield at Makaha, Waianae, and work done at the works of the Waianae company, on this Island, are furnished by Mr. J. L. Richardson.

A field of 32½ acres of plant cane, grown at Makaha, yielded 524 clarifiers (500 imp. galls. each) of juice, standing at 10° Baume, and produced

1st sugar,.....	364,553 lbs.....	76 per cent.
2d sugar,.....	90,168 lbs.....	18 per cent.
3d sugar,.....	26,358 lbs.....	6 per cent.

Total,.....481,079 lbs.....100 per cent.

Averaging 918 1-17 lbs. per clarifier, and 7 2-5 tons (2,000 lbs.) per acre.

A field of 48 acres of 3d ratoons yielded 450 clarifiers.

1st sugar,.....	313,893 lbs.....	77 per cent.
2d sugar,.....	67,992 lbs.....	17 per cent.
3d sugar,.....	24,217 lbs.....	6 per cent.

Total,.....406,102 lbs.....100

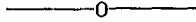
Averaging 902 lbs. per clarifier, and 4¼ tons per acre.

During the month of March last, the Waianae mill ran 167½ hours, and ground 1,569 car loads (steam cars) of cane, producing 608 clarifiers of juice. The mill was run 9 hours per day, and averaged 33 clarifiers of juice per day.

The mill is an eight ton plant, manufactured by Mirlees, Tait & Watson, of Glasgow. The rolls are 16x54 inches. The new triple effect put in last fall is working admirably and saves fuel. Thus far, this season, the trash, or megass from the mill has supplied more fuel than has been required for the whole works, and two carts have been required to take

away the superfluous trash. Fifteen tons of sugar is now being manufactured.

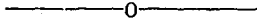
The foregoing yield of sugar is exceptional, being equalled only by the yield at Kekaha, Kauai. Both of these plantations are situated on the leeward side of the islands on which they are located and have great advantages of soil and climate. There are other localities which have produced five tons to the acre, but the average for the whole islands is under three tons.



A TROPICAL HOUSE IN QUEENSLAND.

A correspondent of the *Australian* in writing of the sugar estates in Northern Queensland, Australia, describes the residence of Mr. Macmillan on the Airdmillan Estate, on Plantation Creek, as follows:

Mr. Macmillan has the very *beau ideal* of what a house in the Tropics should be. It is built in the shape of a T, and so constructed that every room in it opens on to each side of the house, thus enabling the happy occupants to enjoy, if they wish, a thorough draught. The house is two storied, with wide verandahs surrounding it on all sides. The floor of the basement is of concrete, always cool. Over the basement on the top of the T is a large dining room, with doors that open on three sides of it. Through those in front one looks out first on to a verandah, then on to bright-hued flower-beds, further to stately gnarled old ti-trees drooping over a small lagoon. The fresh morning breeze creeps lazily in through the open windows, bearing on it the evidences of plantation life. Now it is the distant sound of the mill, and now the whirl of the steam tram as the little locomotive hurries the tons of cane to the crushing. The delicious coolness and repose of the place are something to be remembered, and a visitor wishes it could be breakfast time all day.



THE DINGEE AND CONRAD COMPANY ROSE GROWERS.

The Dingee and Conrad Company, of West Grove, Chester County, Pennsylvania, is a firm well known to many of our readers. Many at these islands have received rose cuttings from them, and some of our best roses have thus been introduced.

For the benefit of those who are unacquainted with the method of sending for these roses we would state that the company publishes annually a catalogue with descriptions and prices of their roses, and full directions for sending. These catalogues are distributed free and contain, besides description and prices, much useful information. Payments can be made by post office orders, and the plants are sent by Wells, Fargo & Co.'s Express, or by mail.

The prices for many of the varieties are two dollars for twelve plants. The cuttings are packed in moss and come fresh and ready for planting.

As a rule few fail to grow if set out promptly and properly cared for. Before ordering, the catalogue should be consulted, and the directions observed, so as to insure delivery.

Eight weeks ago we mailed an order for twelve roses selected from the list, and enclosed a postal order for two dollars, and by the last steamer we received from Wells, Fargo & Co.'s agent at Honolulu a small box containing the plants. The plants were packed in moss, and the leaves were fresh and green, and all promise to grow. The express charges were seventy-five cents.

No more trouble is required to grow choice roses than common and inferior kinds, and in almost every part of these islands the soil is adapted to their culture.

Fresh beautiful roses "are a joy forever," and should adorn every house.

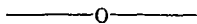
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THE FUTURE.

Several months ago, this journal urged the importance of turning attention to some other industries besides sugar. The present aspect of the sugar market makes it more important than even before, that something be done, or the one failure may ruin or at best seriously disable the whole country. The present decline in the price of sugar is not a mere temporary phase of the business. It is extremely probable that it will not revive, or at least but partially and for brief periods. The continued increase and present enormous production of beet sugar will tend to keep down the prices, but not only beet sugar will have to be met and contended with in the markets of the world, we must now expect a live competition if not almost complete obliteration from sorghum sugar. The chemists of the Agricultural Department in Washington, after careful analysis and experiments have declared that glucose has or contains no injurious constituents, contrary to an opinion almost universal, which has been a serious check in its use. The inevitable result of this must be, an increased demand for glucose, and falling off in the demand for genuine sugar. It is probable that sugar will, for the future, be cheaper than even in the past. If it falls to a price which will prevent its growth and manufacture with us, or which will reduce the margin of profit to a very small figure, a large number of our sugar plantations will be discontinued. What next? Shall we be ruined and shall the Islands be abandoned? Hardly! None but the faint hearted and weak will do that. There are with us yet many undeveloped resources. Rice will be likely to remain in the hands of the Chinese. Bananas are cultivated and exported to some extent. The business admits of some further development, and if carefully conducted it is a profitable business. It affords an opening for twice or thrice the number of people now engaged in it and for the employment of considerable capital. The cocoanut will grow in an almost unbroken ring from Hilo around the southern coast of Hawaii to and beyond Kailua. It will grow equally well on all of the islands. Of course the present objection

to the copra business here lies in the fact that several years must elapse before returns can be looked for. True, yet that constitutes no reason why some of our well-to-do sugar men or others should not forelay for the future and plant now. The introduction of the cinchona into British India, and its extensive growth and production has not materially affected the price of quinine. The demand has vastly increased. It is so valuable that its introduction to these islands and a trial thereof is at least worth the consideration of our people and government.

But perhaps the most available resource now offered is the ramie. There is already a demand for it at remunerative prices; the obstacle there being that England and Germany which are at present the markets are so far away. But tea is grown equally far away from its foreign market. Ramie will grow here; it has been demonstrated to a certainty; stock enough is now growing in the country to plant thousands of acres; it grows with very great rapidity and will permit of two or three cuttings a year, according to the locality. It need not take much land now devoted to cane, for it can be grown in the ravines, on the steep hill-sides, anywhere in fact, where there is soil, moisture and heat. It is prolific, hardy and very productive. The great difficulty in the way in past years has been the difficulty of extracting the fibre. The British Government has offered in the past a very heavy bonus for the invention of a machine to do the work, and at the same time be so light as to be easily transported from place to place. So far no machine has met the requirements. Mr. Coleman of Honolulu has, however, perfected a machine which does the work thoroughly and well, but is so heavy as to fail of the requirement in that only particular. This does not however, interfere in any way with the utility and value of the machine as a ramie cleaner. In order that this industry may be developed, a prospectus has already been issued for a Ramie Company. It is proposed to issue stock to the extent of a thousand shares, of the par value of one hundred dollars each, and with this to thoroughly test the whole matter. In order, however, that this may be done, our men of capital and energy must come forward and take the stock and themselves superintend the work. If it can be undertaken at once, a year may demonstrate that we have an industry which will go far to fill the gap which may yet be caused by the fall in sugar. At any rate our industrial condition will be far better and healthier, if we can have a diversified rather than a single industry on which to depend.



—Hon. J. Mott Smith is expected back on the steamer of the 8th inst. During his residence in Washington the Doctor has rendered valuable service to our Government, and for the planting interests of these Islands. He will be welcomed by his many friends. The country is to be congratulated on his return at this time to take his seat in the Legislature, of which body he is an honorable noble.

WM. BROWN VS. THE KOLOA SUGAR COMPANY.

The above entitled case, tried at the May term of the Supreme Court, was of a nature, and involved questions which are of interest to planters.

A brief statement of the facts of the case is as follows: During the latter part of 1880, Brown made an oral agreement with Wright, the manager of the plantation, that he, Brown, should plant cane on his own land, to be ground by the plantation on shares. Wright encouraged the planting, and assisted by lending tools and furnishing seed cane. Before the cane was ripe, Wright left the plantation, and Cropp became manager. He at first encouraged Brown to proceed, but subsequently refused to grind the cane because of certain acts on the part of Brown which were hostile to the interests of the plantation. The cane became a total loss, and Brown brought suit against the plantation for damages for non-performance of the contract on its part. It appeared at the trial, that the by-laws of the defendant corporation did not give the manager the power to enter into contracts of this nature, although he had made similar ones for a number of years previously, with the knowledge and without objection by the Company.

The evidence concerning the length of time required for maturing cane in Koloa was conflicting, estimates varying from nine to eighteen months, with a preponderance in favor of from twelve to fifteen months.

The two principal points relied upon by the defendant, were:

First—That the contract was void by reason of its not being in writing, under the Statute of Frauds, which reads:

Second—That the manager had such powers only as were conferred upon him by the Company; that as he had exceeded such powers, the Company was not bound by his act.

The Chief Justice instructed the jury that the statute applied, if the intention of the parties was that the contract should not be performed within a year. *But*, that if the defendant, through its agent, the manager, had held out inducements to Brown, assisted and encouraged him to think that the contract would be carried out, it was thereby estopped from setting up the Statute of Frauds, and the contract would be good.

Upon the second point, the instruction was, that the general public could not be expected to know what powers were given to the manager of a plantation, except by observing what he did; and that if the Company had allowed its manager to exercise certain powers for a series of years, with full knowledge and without objection on its parts, it would now be estopped from saying that the manager did not have power to make such contracts. A further instruction was, that the plaintiff must, in a case of this nature, do everything reasonable which lies within his power to diminish the loss. For example—if it is practicable to have the cane ground at another mill, he should do so; the measure of damages would then be the difference between what he actually received, and what he would have received if the contract had been carried out; but that extraordinary efforts to avoid loss need not be made by the plaintiff. The jury gave a verdict for the plaintiff.

COMMUNICATIONS.

HOW TO UTILIZE MILL REFUSE.

NO. II.

There is on every plantation on these Islands made No. 3 sugar and it is a known fact that it pays. It is possible to make a fourth grade, but it pays only under very favorable circumstances and few—if any—make it. The question is therefore: What shall be done with the malasses from No. 3 sugar?

It don't pay to sell it abroad, and it don't pay to run it into the sea, which is generally done; very little is used as animal food, although the stock like it and will eat half a gallon a head daily mixed with their food; it is said to counteract epidemics. The most profitable use of the molasses would be to make rum of it and use the refuse as a fertilizer; and with a free liquor law—as at present—there can be no reasonable objection raised against the manufacture of rum; but if the planters want prohibition again they could not consistently make rum and another use of the molasses would be preferable. The molasses is of course a good fertilizer if used in proper quantities, as we find most of the foreign substances of the juice, together with sugar and inverted sugar here. To get an idea about what molasses consists of, I give an analysis by P. Casamajor:

Sugar	37.5
Inverted Sugar.....	19.0
Impurities.....	18.5
Water.....	25.9
	100.

The impurities consist mostly of the salts found in the juice, which represent the fertilizing power of the molasses. An analysis of the ash of sugar cane by the eminent chemist, Mr. Peligot, gives the following constituents:

Silica.....	10.1
Phosphate of Lime.....	21.2
Carbonate.....	20.7
Sulphate.....	7.2
Carbonate of Magnesia.....	14.7
Carbonate of Potash.....	26.1
	100.0

We might make a practical guess at the proportion in which the molasses ought to be used on the field. We will in the molasses get nearly one-half of the salts contained in the cane; it is absorbed by the cane from the soil; we must therefore give back to the soil twice as much molasses as made from it to bring it back to the same state. Most mills are making 20 gallons of molasses to the ton of sugar; if we calculate on three tons to

the acre we make sixty gallons of molasses per acre and must use 120 gallons as a fertilizer.

Whether the molasses ought to be used as it is, or if it would be better to run it together with the rest of the mill refuse and collect in reservoirs to be used after the grinding is over, or perhaps it ought to be burnt together before applying it to the soil. These are questions which could easily be answered after a few experiments on different plantations.

The mill refuse is a powerful fertilizer and certainly just what is needed for worked-out cane soils, and it is available for every planter with very little expense. The question: how much to use? is to be ascertained by analysis of the manure and by practical experiments.

It does not require a first-class chemist to make an analysis of cane, juice, sugar and refuse, which is sufficiently exact for every day's want, and for helping the practical experiments, without which all the science in the world is good for nothing. No soil analysis, however carefully made, can tell exactly what to use to get six tons of sugar to the acre, but it might point to some deficiency in the soil and suggest a remedy for the same, but the most fertilizing is done by cultivation, sun and rain.

Every plantation needs a different fertilizer and also a chemist; not an A 1 one, but a man who can make a common analysis of the different products on a plantation.

The time is not distant when every mill-owner will want to know how many pounds of cane is ground, how many pounds of juice and trash made, how much sugar he got and how much he lost. At present he only knows how much sugar he made; but to know what is lost is the first step towards bettering the present state of affairs, where but very few mills know how much sugar was lost in the trash by poor grinding, or how much in the molasses by poor boiling.

The molasses made in this country is quite considerable. With 60,000 tons of sugar a year and 20 gallons of molasses to the ton we have 1,200,000 gallons, weighing 14 pounds a gallon, or 16,800,000 pounds. From the analysis above we see that molasses contains 37.5 per cent. of sugar (most molasses contains more), there is therefore 6,300,000 pounds of sugar run into the sea as molasses every year. It might be worth while to try and save some of it.

HOW TO WIN THE SUGAR FROM THE MOLASSES.

To win the sugar from the molasses in beet factories has for many years been the aim of the sugar chemists of Europe, and different means proposed and some carried out in practice with more or less success. I will mention some of the methods in use, which have proven of practical value.

The chemists have chosen two different modes of reaching the same result; some have improved the molasses by extracting the impurities, thereby making it possible to out-crystallize more sugar by boiling and slow cooling; as it is, the molasses proportion, i. e. the proportion between brown sugar, and sugar that determines the possibility of extracting the sugar; this mode is of course correct. This principle is carried out in different ways.

1. The molasses is thinned with water to a density of 10° B, and is then treated as common beet juice, boiled with lime and carbonated, then run over charcoal filters, condensed, saturated with phosphoric acid and again filtered through charcoal. Walkoff finds by practical experiments in the beet factory that the charcoal absorbs during the process 25 per cent. of the salts and 30 per cent. of the organic matter in the juice. The

molasses has to be thinned as the charcoal works far better on juice than syrup, and the temperature must never fall below 160° F, as the thinned molasses by a lower temperature is liable to get sour by the fermentation of lactic acid and mannite, which deteriorates the product considerably. By treating the molasses in this manner from 10 to 15 per cent. of the sugar in it is extracted. Many old beet factories use this method, but in this country it would be too expensive to erect works with charcoal filters with the prospect of getting 400 tons of sugar a year.

2. Another process is invented by the French chemist, Dubrunfaut; it is called "Osmose," and is based upon the same principle as diffusion and upon the fact that the salt will leave the solution and go over in the water before the sugar. As there is in the molasses no cellular tissue, this is substituted by parchment, which is placed between two chambers, one containing molasses, the other, water.

"Osmose" is used extensively, but as there is only a small difference between the exosmosis of the salts and the sugar, the process cannot be carried on too long at one time without too great a loss of sugar; it is therefore worked in this way, that the molasses is treated a short time, thereby loosing some salts, whereby it is made possible by boiling to get some sugar; this is dried and the molasses from that again treated in the same manner and so-forth three or four times. From 30 to 56 per cent. of the sugar in the molasses has been obtained by treating it three or four times over.

One drawback is, that the salts, which by the Osmose are carried off in the water are lost, as it would not pay cost of evaporation to regain them. Lately the process has been improved so that only half the quantity of water is used to get the same results, but it is still too expensive.

"Osmose" is rarely used now for 3d molasses alone, but the syrup, 1st and 2d molasses are put through the process during the daily manufacture whereby the expenses are greatly reduced and a larger yield obtained of No. 1, 2 and 3, etc. It has taken a permanent place in the factories to clean the juice chemically as the filter press does mechanically. This is—after the inventor's opinion—the natural use of the Osmose process. Concerning the use of the Osmose on 3d molasses here, I don't think it would pay; the cane molasses contains very few salts compared with the beet molasses, but then three-fourths of the impurities consist of inverted sugar (which is not found in beet molasses) and other organic matter, which could not be removed by this process, and it would therefore be impossible to obtain more than 15 or 20 per cent. of the sugar in the molasses and that would not pay here. E. MILLER.

LAHAINA, April 18th, 1884.

(To be Continued)

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CENTRAL FACTORIES.

EDITOR PLANTERS' MONTHLY,—The relations between the planters and the mill are not in a satisfactory condition, the former parties nearly in all instances falling behind or being finally wound up and ejected.

A popular explanation of this is that the planter generally ruins himself by extravagance or laziness while no one ever thinks of making any enquiry if the mill might not be directly the leading cause. It will be found, however, that although many have been obliged to give way from their indolence or general inability to do business, many more have had to carry

crushing burdens for years because the mill was not ready in time, or when it did eventually begin, the crushing was so shamelessly loose that only cane raised for nothing can be handled in such a manner to pay the owner. The average extraction of juice over the islands will not exceed 58 per cent., but in many cases it falls below 55 per cent.

There are no published statistics of crushing so far amongst us, but one season's work of the Spreckelsville mill in one of your earlier numbers of the MONTHLY, from it we can see that a yield of 77 per cent. was obtained from a five roll mill.

This high yield is not approached in any of our three roll mills in the country. This part of the business then has not received the attention it deserves, for extravagance on a scale unknown to the cane cultivator, may be witnessed any day in the first part of the mill's work, namely 15 to 20 per cent., the possible yield which has cost the planter 18 months or two years' toil and expense to bring to the mill, is through incompetence run into the trash houses.

A daily run of from 20 to 40 clarifiers according to the size of the works will satisfy the works.

The second part of the business is the handling of the juice, this is practicable alike all over the islands, and is likewise in an indefinite condition. Is the amount of lime merely a subject of caprice when some of our most competent managers will tell us that it sometimes ranges from 2lbs. to 15lbs. per clarifier and that with juice of the same density and as far as any attempt is made it may have the same character.

It is perfectly disgusting to read every now and then of Mr. So-and-so, a spectacled professor in the occult art of boiling, obtaining so many pounds per clarifier more than some other person, when neither a correct measure of gallons nor percentage of dissolved solids are given. In all quotations we ought to have stated amounts of imperial gallons and specific gravity or percentage of dissolved solids for what is called a 500 imperial gallon clarifier is, if well and properly full, 570 imperial gallons and what is conveyed by saying the juice from the rolls is 9° Baume full or 9° Baume very full or 10° nearly.

If a mill be manufacturing its own material such remarks from their indefiniteness may be well enough for a general public who has no money at stake, but the case is otherwise to a man on shares.

As an example, cane juice to correspond to 9° Baume is 10.665 lbs. per imperial gallon, and for 10° Baume 10.744 lbs. per imperial gallon; now, in the above quotation, which is so common as to be almost universal, how can I know which you mean? The first conveys 863 lbs. dissolved solids for 500 imperial gallons, and the second 966 lbs., if I choose either or a mean between them you can humbug me either way, or in other words, you have the margin of my profit or my loss right in your own hands.

No wonder then that sugar boilers can dazzle our eyes with fabulous re-

sults when 100 lbs. of difference lies in one clarifier simply between 9° Baume full and 10° Baume short.

The manager or mill superintendent generally concedes that this is part of the mystery of sugar boiling and satisfies himself if energetic in puttering about a trash house, drawing up a hut, or speculating over a Jarves furnace. I am not aware of a solitary establishment on the islands where an accurately measured quantity of juice of a known specific gravity is so to speak given over to a sugar boiler and a definite amount of No. 1, No. 2 and No. 3 sugar requested.

Such a method means, however, nothing more than is daily demanded of men in most all undertakings having any pretence to business accuracy.

The mill superintendent would in such a case have to know the possible yield of his juice and the measure of perfection he knew the mill could practically attain.

In refineries there is no haphazard as to the obtainable amount, and the evils he has to contend with are precisely what we here from the raw juice have to overcome; the difference is that the refiner is obliged from commercial interests to find out what the impurities are and measure their portentiality for mischief.

On Maui I once heard a sugar boiler complain to the superintendent that the juice would not crystalize because the cane had been, to his idea, imperfectly topped in cutting. Examination was made of the cane, the juice, and subsequently the vacuum pan. The juice was 18° crystallizable sugar; .87 invert sugar; .78 extractive matter; .35 ash, which is about the usual run as regards the constituents of cane juices in the islands, although frequently more water is present than in this case.

The coils of the vacuum pan had become detached and fallen down in places, and hence the evil so quickly laid to the tops was naturally made plain.

By this I don't urge that poor watery tops are valuable and ought to be ground along with the rich cane, but whatever points of mischief may be in them it is the duty of those who dispose of affairs to find out and not make it a subject of blind prejudice, for, in the latter case, many a valuable piece might, and I think is condemned to rot on our fields which might have gone to make sugar.

Now, the evils above complained of are indefiniteness and inaccuracy, neither of them criminal when our institution is doing all its own business and wishes it so, but manifestly unjust were another party has interests, and besides it is easily seen that a mill *per se* may be a good paying concern with incompetent handling *ad libitum* while the planter as stated is getting into evil.

In direct words the planter has no business to bear any of the losses of the mill, and therefore ought to sell his cane either by weight or by the percentage of solids in the juice with a definite extraction of juices by the rolls.

"ACCIDENTS TO MACHINERY."

EDITOR PLANTERS' MONTHLY—*Sir*: With your permission, I should like to notice your valuable article under the above heading in the last number of the MONTHLY, and to add a few remarks on the subject.

No class of machinery suffers more from "misuse, mismanagement" and "carelessness" than sugar machinery, especially sugar mills, and no machinery can be expected to withstand those evils very long, but I think engineers have got over the "inherent weakness" due to "uneven contraction" some time ago, and that it is not quite just of you to say—"Perhaps the most prolific causes of breakdowns, *next* to defects in construction and faults in materials are the overtaxing of our mills," &c. This would make it appear that makers of sugar machinery cannot or do not construct a mill and gearing that will do a given amount of work without breaking down; rather a startling proposition in the present stage of mechanical science! The causes you enumerate all conduce to accidents, but, as a rule, mill foundations in this country are very solid and not likely to settle, though the mill timbers, almost all of "Nor West," require looking after. Since the practice of putting in roller shafts by hydraulic pressure has been adopted, there is not much shifting of the rollers. It is before the cane gets to the rollers that are made for a breakdown through bad feeding, for, no matter how wide the front roller may be set, only the cane on the carrier will go in, and if this is laid straight and kept of a regular and proper thickness, all will be well, but if the cane be all tangled up and consequently of varying thickness on the carrier, no mill can be expected to do its work well and withstand forever the alternate stopping, backing, and starting of the engine, due to the irregularity of the feed. And I would here remark, that much of the ingenuity which has been directed to getting up improved governors and "cut-offs" for cane engines, and hydraulic pressure and double crushing for mills, would have been quite uncalled for,—had managers, or more properly, proprietors—realized the fact, which you and many others have set before them, of the important part the mill performs in sugar-making.

I would deprecate laying down any hard and fast rule for setting rollers, but my experience is, that for a 26×54 mill—a common size here—the openings should be about $\frac{3}{4}$ and $\frac{3}{16}$, for front and back respectively. In setting such a mill, I should first screw down the top roller as hard as possible, then put two pieces of $\frac{3}{4}$ iron between it and the front roller, one at each end, and screw up the side-caps hard, turn the fly-wheel to get out the iron, and proceed in the same way with the back roller, using, of course, $\frac{3}{16}$ instead of $\frac{3}{4}$ iron. Whether these openings are right or not, will be determined by observation, in each particular case, and it might be advisable to adjust the rollers to different kinds of cane.

A mill driven by a common slide-valve engine, running at a slow speed, is not so liable to breakage as one driven by a higher speeded, automatic, cut-off engine, the former being so much more easily brought up standing, and, this being so, it may be remarked, that the employment of the latter, where all the exhaust steam is utilized, seems a misplacement of economy, I should, however, recommend the use of link-motion with the slide-valve, so as to have available cut-off and the means of reversing the engine quickly and of running it backwards, if required. Of course, a cane engine should not, any more than a factory or any other engine, be brought

up standing, and this brings me back again to what I consider the kernel of the question—the feeding of the mill.

The best feeding and crushing I ever saw, was where the cane was all cut into lengths of about 3 feet, brought alongside the carrier in railroad cars, and put on in a layer of even thickness. This principle is recognized at most of our mills, where there are generally two or more men armed with cane knives, near the rollers, to chop up refractory “sticks;” would it not pay to carry it out in its entirety? for it is not possible to feed a mill well with long, crooked cane, more especially if it comes by flume. I have also seen the plan adopted of having a board suspended on edge, along the centre of the carrier, to prevent any cane being thrown across, but this was where the canes were long and straight.

Without endorsing all the opinions of the several writers, I would commend to your readers' attention some recent articles in the *Sugar Cane*—see Vol. XIV. (1882) p. 620; Vol. XV. (1883) pp. 139, 268; and Vol. XVI. (1884) pp. 5, 9, 12;—bearing on this subject and that which is closely allied to it, the “yield of mills.” I would particularly recommend the adoption of Dr. Icery's method, as explained by Mr. Fryer (Vol. XIV., p. 623), of finding out how much moisture is left in the megass, a copy of which explanation I enclose.

Yours truly,

ROBERT CATTON.

KILLING ORANGE TREE PESTS.

Mr. Chas. H. Nauman of Hanover, in Brevard county, sends this remedy for wood lice on orange trees to the *Florida Dispatch*: “Take chamber lye (which is human urine) and throw around the roots of the tree affected, one application for two or more mornings, and the cure is effective. Sweet seedlings are about the only trees affected here.”

J. F. W., of Prospect Park, in Duval county, also writes as follows: “I had three trees in my grove which gave me much annoyance from scale. I tried whale-oil soap and kerosene butter several times but could not get clear of them. I put one tablespoonful of *Pyrethrum Roseum*, or Persian Insect Powder, in a pail and poured on the powder, about two gallons of boiling water, stirred it well and let it stand three to five minutes, until the temperature was about 105°, then I syringed the trees with it. I made three applications, each two days apart, and am free from scale; the hot water will not hurt the trees or foliage. With one tablespoonful in five gallons of cold water I cleared a cabbage patch in five minutes of green worms. I have suffered, as all do, who sow seeds in frames under glass, from ants destroying the seed. The powder, either dry or dissolved, sprinkled on the surface of the ground, will drive them away. I was annoyed very much by rabbits eating off the tender tops of my peas. Soon after the peas came up two sprinklings of the dissolved powder, in cold water, completely stopped them. A little of the dry powder sprinkled in closets or where rats and roaches are, will kill or drive them away. I have also found it effectual in preventing the destruction of seed corn and seed peas, by putting a small quantity, and renew occasionally, of the powder in the bags with the seed.”—*Sugar Bowl*.

ITEMS.

—Col. Spalding contemplates returning ere long.

—The arrival of Chinese from China recently has resulted in a decided fall in the rate of wages.

—The prolonged calms extending through February and into March, have been followed by rains and high winds.

—Mr. S. T. Alexander made a brief visit to these Islands during the past month. On his return to his beautiful home in Oakland, California, he was accompanied by his respected parents, who purpose making a short stay in California.

—By an oversight in preparing our last number, which was the first of volume 3, the paging was continued from the previous volume, so that the first page of the new volume is 357 instead of 1. As the error was not discovered until the number was in the hands of the binder, it was too late to be rectified. The paging will therefore be continued through the volume.

—The wise man profits by his experience, and observation of the experience of others. Recent events in Cuba should be a lesson to us.

—The present season has been most favorable for grinding, and the sugar has been going forward more rapidly than during any winter in the history of sugar manufacture of these Islands. The early harvesting of the crops will admit of earlier and better preparations for planting during the coming summer.

—The past winter has been a mild one, and the rainfall less than usual. A wet summer is predicted.

—The low prices for sugar which have ruled for some months, will effect the profits of the crop very materially. Many of the plantations will do well if they meet expenses this year. The hard times will effect every industry of the country.

—A grave responsibility rests upon the members of the present Legislature to guard the public expenditures. Retrenchment, and more economic administration is demanded by the country. No government, any more than an individual, can persist in a course of spending more than is received, without reaping disaster.

—There is somewhat of a scarcity of taro in Honolulu at present, and poi is dear. This does not entail so much hardship as times of similar scarcity have in former years, for the Hawaiians are not now so entirely dependent upon poi for food. Nevertheless they feel the advanced prices.

—The prices at which limes sell in Honolulu should stimulate those who have suitable land to plant lime trees. There is no doubt that they could be exported to San Francisco at a profit. The tree grows readily and under favorable circumstances bears great numbers of fruit.

—The *S. S. City of Paris* sailed from London for Honolulu, via Madeira and Azores, March 30th. She is to bring the first number of Portuguese immigrants under the new agreement with Mr. A. Hoffnung. This class of immigrants are a benefit to the country, and are needed to offset the large Chinese population.