

THE HAWAIIAN  
PLANTERS' MONTHLY

PUBLISHED FOR THE  
PLANTERS' LABOR AND SUPPLY COMPANY  
OF THE HAWAIIAN ISLANDS.

---

---

Vol. XIV.]

HONOLULU, JULY, 1895.

[No. 7

---

---

THE latest quotation of sugar in New York, July 1, was 3.20 for Cuba centrifugals, 96° test.

WILLETT AND GRAY's statistical estimates the sugar crop of 1896 will be at least one million tons less than that of 1895.

One of the tea companies in India recently paid a dividend of fifty per cent on its capital, showing the profits of the business of tea culture in that country, despite the present low price of tea.

COFFEE production in Ceylon, says the *Tropical Agriculturist*, is no longer worthy of mention, though renewed attention in several districts is being given to the Liberian variety, which can be readily associated with the cultivation of cacao (the chocolate plant).

AN alligator pear tree in Captain Babcock's garden on Piikoi street, presents a beautiful appearance, as the fruit on it grows in clusters of from three to thirteen in a cluster,

hanging from one stem, like the mango. Two or three pears are often seen on a stem, but very seldom six, eight, ten and thirteen hanging in one large bunch. It indicates good soil and a most vigorous plant.

THE passage of the sugar bounty law by the German Reichstag does not mean that the present bounty paid by Germany will be increased, but that it will be continued at its present figures for two years more. This insures to the beet sugar growers the same protection as was received on last crop. The beet growers desired an increase in the bounty, and the Reichstag has refused to grant that demand.

A PRINTED bulletin has been received from the experiment station of the University of California, relative to the Russian thistle. Fortunately neither this pest nor the Canadian thistle has been introduced into this country as yet, and we hope they never will be. Still there are chances that the seeds of both these thistles may be brought in the bales of hay which are imported on almost every vessel. If ever discovered growing they should be promptly exterminated.

THE *Jamaica Bulletin* of March, 1895, page 35, contains an article on the collection of India rubber milk from trees and its preparation. The milk is collected by tapping the trees in the same way practiced by maple sugar makers. The India rubber tree grows well on these islands, and from a plantation ten years old, a new and profitable business may be introduced. Each gallon of milk will make two pounds of rubber, worth \$8. One large tree will yield eight gallons of milk.

COFFEE DISEASE IN EAST AFRICA.—The coffee-planting industry in East Africa is suffering from the same trouble as that which caused the collapse of coffee planting in Ceylon. A Foreign Office report just issued this week states that the Ceylon coffee disease has unfortunately been discovered this season in East Africa. Every effort is being made to exterminate it, but if it spreads it will naturally throw back the cultivation of what promised to be one of the most successful crops in the Colony.—*Tropical Agriculturist*.

We would call the special attention of planters and mill men to the correspondence published in this issue relative to the variation in the polarization of sugars samples analysed at different dates. A searching inquiry will have to be made into the cause or causes producing this depreciation. Those who keep samples of sugar in small bottles may have noticed the change in color, which takes place in them in the course of a few months, without having suspected any change in the sucrose value or strength of the contents, or given any thought to the causes of such change.

---

It is gratifying to note that the government of the Republic of Hawaii is taking steps to secure the laying of a cable between the California coast and these Islands. A bill to authorize them to act is now before the Legislature, which it is hoped will soon become a law. The cost of the cable itself will probably not exceed two million dollars, and may be much less, while the cost of a vessel kept for the purpose of effecting any needed repairs, may call for an additional hundred thousand dollars. The route on which the cable is to be laid is one of the best known in any ocean, and when once laid the cable may not require repairs for five or ten years. The work of laying the cable, when the vessel with it has arrived at Monterey, need not take more than two weeks, if everything works well.

---

BANANAS.—Few of our readers are aware of the rapid increase of the banana trade in the United States, the importations for 1894 having exceeded eighteen million bunches. The following extract from the last *American Grocer*, of New York, will interest those engaged in the trade: "During the active season the total of receipts of bananas at this port frequently exceeds 150,000 bunches a week, and several cargoes, aggregating from 50,000 to 60,000 bunches, are sometimes sold at wholesale public auction in a single day. Bananas are classified as 'firsts,' 'seconds' and 'thirds,' but these designations simply indicate the size of the bunches and the number of bananas which they contain, and have no reference to the quality of the fruit. The average number of bananas in a bunch of 'firsts' is from 125 to 150, and in sec-

onds' about one-half as many, the average number in bunches of 'thirds' being proportionately less. At the beginning of this year 'firsts' were sold at wholesale for about 90 cents a bunch, but on account of decreased receipts as compared with the corresponding portion of last year, and of the extensive freezing of the fruit while being loaded here, prices were sharply advanced, and when warmer weather set in, accompanied by a largely increased demand, with no commensurate increase of supply, they temporarily reached the unprecedented high price of from \$1.75 to \$2.00 a bunch for 'firsts,' according to size, quality and condition of fruit, 'seconds' and 'thirds' being sold at proportionate prices on May 13th. Since then, on account of greatly increased receipts, prices have declined, and the present quotation for 'firsts' is \$1.25 a bunch, 'seconds' and 'thirds' selling at the usual ratio. Several large cargoes are now due here. These will be followed by others in rapid succession, so that the future supply will be abundant."

:o:  
*REPORT ON THE COFFEE INDUSTRY.*

During the year 1894, a commission was appointed by the Government to inquire into the question of labor, as connected with our various industries, and more especially sugar, coffee, mechanical and farm products. The commission has held numerous sessions during the past eight months, and several of its members have visited Hawaii, Maui and Kauai, to personally interview planters, farmers and others interested in the question of what labor is best suited to our wants, and the means best adapted to secure it. Their investigations having covered a broad field, it became necessary to make several reports, which have been printed in separate pamphlets. One of these, relating to the coffee industry, we have reprinted in this issue, and it will be read with interest by all who are obliged to employ labor. They favor the immigration of American and European farmers and laborers, as providing the best element for permanent settlement, and think that the Government should offer more and better inducements than have already been held out. The report, though lengthy, will be found interesting to all, whether engaged in agricultural pursuits or not.

*THE HAWAIIAN POSTAL SAVINGS BANK.*

Among the agencies that are quietly educating the native Hawaiians to greater industry and thrift, teaching them the value of money and how to place it so that it may be available when needed for improving their dwellings, and for educating their children, is our Postal Savings Bank. It has branches in every district of each of the islands of the group, where they can deposit their monthly earnings, and in time of need withdraw to meet the necessities of sickness and other unforeseen occurrences. When this bank was opened, six years ago, very few among the natives knew its advantages, and that they could go and place their money in the hands of the Government, which would safely keep it without charge, and return it to them with interest when wanted. But each year the knowledge of the bank and its working is spreading among them, and finds new converts to test its benefits, till now 1082 natives, including a few Hawaiian societies, deposit their earnings, which in some few cases have accumulated to considerable sums.

The report of Postmaster-General Oat shows the business of the savings bank for the year ending December 31, 1894. On that date there were 2653 depositors, with a total credit of \$587,401, or an average credit of about \$221 to each one. Although the Chinese and Japanese are so numerous here, we find only 71 depositors among them. The Japanese, however, have a bank of their own—a branch of the Yokohama Specie Bank—and it is reported that their deposits in it often exceed one hundred thousand dollars. The plantation laborers are required to make their deposits in that bank, otherwise they would show a much larger credit in the Hawaiian Postal Bank than they now do.

Wherever postal savings banks have been established in other countries, they have been found to encourage thrifty habits, stimulate industry, and improve the condition of those who deposit in them. Those who have the opportunity to encourage Hawaiians in this respect, should improve every occasion of doing so. It is a cause for pride in Hawaiians that in the matter of postal savings banks, their Government is in advance of that of the United States.

### *WIDE-TIRED WAGON WHEELS.*

As the subject of wide tires for wagon wheels is now being discussed, the following extract possesses interest:—

“The Washington Agricultural Department issued a bulletin, compiled by Roy Stone, special agent in charge of Road Inquiry, containing information concerning the use of wide tires on wagon wheels. Mr. Stone regards it of special importance in the maintenance of the public highways that the vehicles used on them shall have tires of greater width than are now in general use. Extracts from the State laws respecting the width of tires to be used on vehicles are given, some of which offer a rebate of a portion of the highway tax on wagons with rims or tires not less than three and three and one-half inches in width. Ohio makes it unlawful to transport over macademized gravel or stone roads, in any vehicle having a tire of less than three inches in width, a burden of more than two tons. Indiana has a law against hauling on a wet gravel road a load of over 2500 pounds on a broad-tired wagon. Kentucky makes a distinction in favor of broad-tired wagons in fixing toll rates. The results of experiments with wide tires in various States are also given.

The bulletin concludes by printing extracts from the consular reports concerning the width of tires prescribed in various foreign countries. In France every freighting market cart is said to be a road-maker. Their tires are from three to ten inches in width, usually from four to six. The German law prescribes that wagons for heavy loads, such as coal, brick, earth and stone must have a width of tire of at least four inches. Switzerland requires wagons to be provided with wheels having tires of a width proportionate to the largest loads admissible.”

### :O: *SACCHAROSE AND BETOSE.*

A TEST TO DISTINGUISH BETWEEN CANE SUGAR AND BEET SUGAR.

[By DR. T. L. PHIPSON, F. C. S., Graduate of the Faculties of Science and Medicine of the University of Brussels, Director of the Casa Mia Laboratory, London, etc.]

Saccharose is the scientific name given to cane sugar: betose is that given to the sugar of the beetroot. The name of Helianthose has been given to that contained in the *Helian-*

*thus tuberosus* (Jerusalem artichoke), the tubers of which have yielded as much as 14 per cent. of this peculiar sugar.

There exist a vast number of products called *sugars*, some of which have no sweet taste at all, and they all vary one from another by the way they behave with acids, alkalies, and other reagents.

The cane sugar, or saccharose, stands pre-eminent as the most perfect product of this kind which nature has placed at the disposal of mankind. It answers all our purposes better than any other, not only in confectionery and for general household purposes, but also for the manufacture of syrups in pharmacy. Of all the other sugars hitherto discovered, betose, or the sugar of the beetroot, is the nearest approach to cane sugar; but it is going too far, in the present state of science, to assert that they are absolutely identical. Some have admitted that their sweetness is not the same, and others that cane sugar stands the action of acids better than beet sugar, and is therefore preferable for the making of preserves. Such is also the popular notion, and the *vox populi*, which is said to be *vox Dei*, is not to be despised; indeed, it has been shown that popular instinct and modern science often agree.

Some German journals having taken notice of my letter in the April number of the *Sugar Cane*, I determined at once to carry out the experiments which I had there indicated. The German sugar chemists, of course, do not desire to see any difference proved between cane and beet sugars. They are patriotically interested, no doubt. But in science we rely upon experiment and observation, not upon sentiment.

In making experiments to show the difference between saccharose and betose it is essential to have samples of sugar that can be relied upon. Thanks to the kindness of the late Mr. Thorp, then editor of *Sugar Cane*, I am in possession of specimens of perfectly pure beet sugar and perfectly pure cane sugar; both in white crystals, and analysing over 90 per cent. I have made the following experiment with these, and it proves the difference in question:—

Two grammes of cane sugar and two grammes of beet sugar are dissolved, each in 50 cubic centimetres of water, containing exactly 1 per cent. of hydrochloric acid (ordinary

pure laboratory acid). The flasks are covered with a sheet of glass, and allowed to remain for twenty-four hours at a temperature of 65 deg. Fahr. Of each of these liquids five cubic centimetres are taken, placed in two test tubes, and colored blue with two cubic centimetres of Fehling's cupric solution. They are then heated over a spirit lamp to ebullition for a minute.

The result is that the *solution of cane sugar remains blue, and is not affected; whilst the solution of beet sugar is entirely reduced.* This experiment having been made with samples of cane and beet sugars said to be *absolutely pure products*, would tend to prove that saccharose and betose are two distinct kinds of sugar, and that cane sugar is decidedly superior to beet sugar for making preserves, or syrups, etc.

The Casa Mia Laboratory, Putney,

London, S. W. 11th May, 1895.

—*The Sugar Cane.*

—: o:—

#### CORRESPONDENCE RELATIVE TO THE DETERIORATION OF SUGARS.

HONOLULU, H. I., July 11th, 1895.

*H. M. Whitney, Esq., Editor Planters' Monthly.*

DEAR SIR:—In the latter part of April, our chemist, Mr. R. Ziebolz, called our attention to the peculiar appearance of a number of sugar samples, which he was re-arranging in the laboratory. The appearance in question suggested the fact that a strong fermentation of some kind was taking place and he immediately decided to make comparative tests by re-polarizing the samples affected. The result of his investigations are appended herewith, together with his remarks on the subject. The astonishing results of Mr. Ziebolz' examination led us a week or two ago to submit a few of the samples for chemical analysis to Dr. Walter Maxwell, the Director of the Hawaiian Agricultural Association and Experiment Station. The result of his examinations, as well as those of his chemist, are also appended hereto, and we beg to call the attention of all interested to the careful study he has given



the subject in question, feeling assured that his investigations and suggestions will be fully appreciated by all the producers of sugar in these Islands.

Yours very truly,

WM. G. IRWIN & Co., Limited,

By its secretary.

W. M. GIFFARD.

REPORT OF MR. R. ZIEBOLZ TO WM. G. IRWIN & CO., LIMITED.

HONOLULU, June 20th, 1895.

*Messrs. Wm. G. Irwin & Co., Limited, Honolulu.*

DEAR SIRS:—I beg to call your attention to the peculiar appearance of certain samples of sugars in the laboratory. My notice was first drawn to the appearance of these samples in April last, at which time you will remember small white spots were making their appearance on the inside of the bottles. The affected samples were laid aside by me for a couple of weeks, when I noticed that the spots had not only become larger, but more numerous, and at last, to my great astonishment, holes have been eaten into the sugar until the contents of each bottle has the appearance of being honey-combed. I realized the necessity of re-polarizing a few of the affected samples, and the results show a marked difference between the original and second polarization, as you may see by the following tests :

No. of Sample.	Date of Receipt.	Original Polarization.	Date of Re-polarization.	Re-polarization.	Remarks.
144	Feb. 14	86 3	July 3	77.7	corked only.
256	Mar. 2	87.85	" 3	84.7	" "
462	Apr. 17	96.60	" 3	95.2	" "
405	" 8	97.95	" 8	96.60	corked and sealed
407	" 8	96.40	" 8	93.80	" "
515	" 25	95.35	" 3	94.20	corked only
528	" 30	95.75	" 8	93.50	" "
528(a)	" 30	95.75	" 8	94 40	corked and sealed

It evidently makes no difference whether the bottles are hermetically sealed or not, as some of the sealed samples show the same appearance as the corresponding samples unsealed, the latter being tightly fitted with cork only. Some destructive agent must, therefore, makes its appearance in the sugar as soon as it leaves the factory. Whether this is due

to microbical action or fermentation produced by faulty manipulation in producing the sugar, or by an insufficiency of lime, is a mystery still to be solved.

In calling this serious matter to your attention and consideration, I remain,

(Signed)

Yours very respectfully,

R. ZIEBOLZ,  
Chemist

REPORT OF DR. WALTER MAXWELL, DIRECTOR OF HAWAIIAN  
AGRICULTURAL ASSOCIATION AND EXPERIMENT STATION.

HONOLULU, July 8th, 1895.

*Messrs. Irwin & Co., Honolulu.*

GENTLEMEN:—The samples of sugars sent over to the laboratories of this Experiment Station, described by you “as having a very peculiar appearance.” have been examined.

The samples in the bottles, have, certainly, a peculiar appearance, which indicated, however, that a notable fermentation was taking place. The fermentation centers were distributed through the whole of each sample, and were marked by a visible disappearance of sugar, leaving small holes, and by the bleached crystals around these centers.

In order to determine what action had taken place upon the sucrose, the samples were re-polarized; also glucose estimations were made, and other observations taken. Samples were also selected for comparative examination which did not show any symptoms of fermentation, and by comparing these with those that had suffered a serious damage from the ferment action, quite significant results and indications are obtained, which are given in the following table:—

<i>Sugar Received from Plant</i>	<i>No. of Lat.</i>	<i>Sucrose when Received.</i>	<i>Sucrose July 8.</i>	<i>Glucose July 8</i>	<i>Condition of Samplr.</i>
March 11th	279	97.40	97.60	0.75	Not fermented.
“ 11th	281	97.15	97.30	0.97	“ “
April 8th	405	97.95	96.60	1.39	Slightly fermented.
“ 8th	407	96.40	93.80	3.60	Badly “
“ 30th	528	95.75	93.50	2.70	Notably “
“ 30th	528 (a)	95.75	94.40	2.40	“ “
“ 30th	415	95.00	92.00	3.41	Badly “

The glucose estimations, which were made by Mr. J. T. Crawley, assisted by L. D. Havenhill, assist us to determine

what has taken place with the fermented samples. The non-fermented samples have a slightly higher polariscope test in July than in March, which is owing to slight loss of moisture. In the damaged samples we find the glucose amount increased as the polarization went down.

In all the fermented samples I found the sugars to have a very distinctly acid reaction, due to the further fermentation of the glucose. The odor of the sugars indicated that the most active ferment was the lactous, which was succeeded by the butyric, little trace of the vinous fermentation being observed.

In one extremely fermented sample quite an abnormal quantity of degradation gums were precipitated from the water solution of the sugar by strong alcohol, further indicating the course of the fermentation.

The most noteworthy observation is that the sugars which were made in January kept better than the March sugars; in fact, the January sugars did not ferment at all. This fact strongly directs attention to the condition of the sugar houses. When grinding starts up everything is in good and sweet condition, and the conditions for fermentation are absent. As the season goes on it is very difficult to maintain the same degree of cleanliness, and trouble very easily begins. I apprehend that much of this fermentation of sugar is due to the condition of the sugar house. This is specially liable to be so where the mills grind for a few days and are then compelled to stop and go to planting of tops from the ground cane. It is very difficult to keep the house sweet under such conditions. A very liberal use of lime is advisable in all parts of the house, and probably more lime could be used with advantage in the clarifiers, thus aiding in the preservation of raw sugars. Beet sugars fall off rapidly when lime is sparingly used.

I consider this matter serious, and one for our sugar houses to give close attention to. The importance is also suggested of getting the raw sugars as quickly as possible to the refineries, and by the shortest routes.

The samples examined by me are from the different islands, and from several plantations, being furnished, I note, by several of the agents. Consequently, I know nothing of

the sugar houses, nor where the respective sugars were made. If the agents could locate the sugars which have suffered the most damage, it might then be possible to suggest some means of avoiding such results, which is highly desirable.

WALTER MAXWELL.

-----: o :-----  
*EDITORIAL EXCURSION TO WAIANAË ON THE  
OAHU RAILWAY.*  
-----

It was a happy thought on the part of Mr. Dillingham, the enterprising manager of the Oahu Railway Company, to *corral* all the members of the Honolulu editorial fraternity in his private car and send them bouncing over the railway to Waianae, like a band of jovial brothers, as they are, or ought to be. It was the first occasion when the Parthians and Medes and other news-gatherers from Occidental and Oriental climes living here, have had the opportunity to mingle in a social gathering, to become acquainted with foemen worthy of the steel, and dip their pens in the font of brotherly love, while smoking the pipe of peace in the modern wigwam, yecept a palace car. The reunion was a novel one, all the more pleasant for having been unexpected.

The second of July—a month memorable in the annals of America and Hawaii—was chosen for the excursion, and the day being clear, breezy and sunny, was characteristic of our summer land. Mr. Fred C. Smith, the genial passenger agent of the line, had charge of the excursion and spared no efforts to make the occasion pleasant to everyone. The train drew out of the city depot shortly before ten o'clock, and without a stop reached Ewa mill, a distance of eighteen miles in forty minutes or a trifle over. This was not quite up to the New York Central's ninety miles an hour, but it was up to the expectations of all the guests, although one or two did talk about a mile a minute. Here the cane fields looked fresh and heavy, as though they had all the sun, water and phosphate they wanted, and promised to turn out a yield next year that will make this the "boss" plantation of the group. One field of a hundred acres, in particular, reflected as in a mirror "ten tons and nothing less." If it be the beds of lime which underlie and enrich these fields that return such enor-

mous yields, the fact should be ascertained, that others may share in the harvest, for there are in this district millions of tons of it to spare, requiring only the pick, the shovel and transportation.

From this station—the Ewa mill—on to Waianae village, fifteen miles, is the newly-constructed section of the road, which is destined to encircle this island. Heavy 48-pound steel rails stretch across the entire section, the ties resting for the most part on beds of coral lime, easily worked and making a solid foundation for all future time. Trains will thus be able to make better time than on the older sections. The same may be said of the remaining thirty-five miles to Waiialua and Kahuku, if as well constructed. Over the entire distance the road will skirt the seashore, passing all the valleys and villages in that part of the island. It is really a very picturesque route, swinging around the craggy bluffs that separate the valleys in which are the small hamlets and larger settlements of rice and cane growers.

Waianae plantation and village are hidden from view at the railway station by a grove of algaroba trees, which are almost the only trees seen along the shore. The plantation railway, however, extends to the shore, and Mr. Ahrens, the manager of the plantation, had thoughtfully brought a train of cars fitted with temporary seats for the press visitors. With no unnecessary detention, his train started off, and passing the mill, not then at work, moved along the edge of the cane fields which extend for three or four miles. Some of the party, who had visited Waianae years ago, before cane planting was thought of there, found a larger area of land than any casual visitor could have thought available for cultivation. Most of the cane looked very fine and well kept. One field in particular has been planted and cropped for seventeen years in succession, and portions of it have yielded ten tons to the acre. Mr. Ahrens attributes this richness to the deposit of coral lime that underlies the soil at a depth of three to ten feet, and is reached by the roots of the plants.

Six artesian wells, supplemented with steam pumps, that raise the water thirty feet above the sea, and work ten hours daily, furnish two and a half million gallons of the best of water, which supply could be doubled if required. The es-

tate is a valuable property which is paying fair profits, and the extension of the railway to it must render it more valuable to its owners. All this has been done in a small valley, which those who visited it twenty five years ago, as did the writer, could never have thought it possible to accomplish.

During the ride through the canefields, Manager Ahrens pointed out a small grove of twelve or fifteen hundred coffee trees on one of the hills back of the village, and at an elevation of twelve hundred feet above the sea. The trees are in excellent condition and promise to give good yields when in full bearing. They depend entirely on rain and the natural moisture of the location. The incident is mentioned to show that coffee will grow on the side hills, and among the forest trees as well as elsewhere. The same is seen back of Honolulu, where a small grove of coffee trees were in bloom, two years from the planting, at the mountain retreat of Mr. H. W. Schmidt of this city.

On returning to the station at Waianae, the party of news gatherers found a bountiful lunch spread in the cars for them, ending with ice cream and soda water, prepared by passenger superintendant Smith, to whose thoughtful foresight they were indebted for many little attentions which helped to make the trip a most enjoyable one. After this was over the train started homeward about 2 p. m. The excursion will be remembered as among the pleasantest outings of our island experiences of forty years.

—:o:—

### *REPORT OF THE LABOR COMMISSION ON THE COFFEE INDUSTRY.*

*To the Executive and Advisory Councils, Republic of Hawaii:*

GENTLEMEN: The Labor Commission, created by Act 4 of the Executive and Advisory Councils of the Republic, approved August 16th, 1894, respectfully reports as follows:

Paragraph 7 in Section 3 of the above Act, requires the Commission to inquire "whether or not an increased number of agricultural laborers will be needed in the near future, and if so, in connection with what industries, and how many laborers will probably be required," and paragraph 20 of the

same section requires the Commission to inquire into any other matters which will throw light upon the subjects to be considered by it.

Insomuch as the coffee industry is now rapidly growing and the question of a supply of labor for its development will soon be pressing, the Commission has concluded to make a special report on that subject at once, especially as it involves other very important considerations besides that of labor supply merely.

**IMPORTANCE OF LOOKING AHEAD.**—While the supply of labor for the coffee plantations is ample at the present time, owing to a surplus of laborers not under contract in the districts where the coffee is mostly grown; this supply may fail at any time, and the coffee industry be seriously crippled. Instead of waiting for a ruinous and cruel experience in this matter, it would be the wiser course to use reasonable forethought, and so prevent disaster. During the years 1884-85-86 and 1887, the coffee crops in the British protected States of the Malay Peninsula were lost for want of laborers. The very profitable production of coffee in Demerara was abandoned several years ago for want of laborers to pick the berries, and on account of the high rate of wages. There is danger that our own coffee planters will meet the same difficulties, unless measures are taken to anticipate and obviate them.

Another reason for making a consideration of the labor aspect of this industry is that coffee is a staple article, not liable to great fluctuations in value, and admitting of being kept on storage for long periods of time with advantage.

The profits of the coffee crop, will, no doubt, be largely overestimated, and many who engage in the industry will be disappointed, but it seems safe to predict that it will, upon the whole, prove handsomely remunerative, and to many hundreds, if not thousands of small proprietors, it may be the "money crop" that will make them comfortable.

It has been apparent for some years to those who have taken forethought regarding the future of these islands, that our moral and political institutions were altogether too dependent upon the single industry of sugar. In other countries, governed by able and enlightened men, persistent and

far-reaching efforts have been made to induce desirable immigration, and create diversified industries. Here, however, there has been a singular stagnation and indifference of public opinion on these subjects, owing largely to the dominant power of the native monarchy, which was covertly hostile to progress. This statement is illustrated by the fact that a large exodus of the Portuguese from these islands to the Pacific Coast took place in 1884 and subsequently, owing to their inability to obtain lands for homesteads. Moreover, very few substantial or valuable experiments have been tried until the present time with the several hundred economic plants which grow in the tropics, and which require skilled rather than cheap labor for their profitable cultivation. The result is that a considerable portion of our food and fruit supply is now imported from foreign countries, in spite of the cheap labor to be obtained here. This importation includes oranges, grapes, apples, and even common vegetables. Hay and grain for cattle and horse food are also imported, while no thorough and systematic attempts have been made to produce them here. All of these products, if raised with skill, would furnish support to a large number of men and women who are urgently needed to improve the social and political condition of the country.

The coffee industry now offers a remarkable opportunity to improve and benefit these conditions as they now exist.

**PRESENT CONDITION OF THE COFFEE INDUSTRY.**—The soil and climate of several districts are admirably adapted to the cultivation of coffee, and there is no reason why this industry should not in a few years, with proper encouragement, equal in the value of its product the sugar industry.

In order that due and timely action may be taken in providing for such development as will secure us the greatest amount of these indirect benefits, a partial review of the present conditions of the industry is briefly given. The Commission cannot at the present moment obtain or furnish complete and accurate data in the matter, but enough has been obtained to indicate its great and growing importance.

In the Kona district of Hawaii, the land suitable for coffee planting covers an area of more than 80,000 acres. The excellent growth of the coffee plants and the quality of their



fruit during the last forty years, demonstrate the exceptional adaptability of this district for the purpose. Aside from wild or uncultivated plants which cover considerable areas, there are probably 400 acres which have been recently planted and will soon be in bearing. This acreage is being added to every month, while buildings are being erected, and other improvements made. Several plantations have recently been started with considerable capital, men of experience and means are engaging in the business, and the majority of the planters reside on their plantations and superintend their own work. In this district the successful production of coffee has been thoroughly demonstrated. The greatest drawback, however, to its more extended cultivation here is the inability of settlers to acquire lands, owing to the fact that vast areas are covered by leasehold interests, which bring little revenue to their owners or the Government. If arrangements could be made by legal enactment or otherwise, by which these large areas could be generally opened up to settlers, there would be in a few years an extraordinary growth of the coffee industry in this district.

In the Puna and Hilo districts there has also been within two years a great development of this industry. In the Olaa section nearly 14,000 acres have been leased to proprietors who are now engaged in it. About 600 acres have been planted, while nearly 1,000 acres have been cleared at great expense, and are nearly ready for planting. In the Puna, Hilo and Hamakua districts of the island of Hawaii, there are probably 150,000 acres of land on which the coffee plant will grow to more or less advantage, and upon this land, also, fruits and vegetables may be successfully cultivated. None of the land herein referred to as suitable for coffee, is now planted with sugar cane, and most of it is unsuitable for sugar cultivation.

On the Island of Maui there are a number of excellent coffee plantations. In Hamakualoa, about sixty Portuguese families have secured homesteads, and each of them has a coffee patch. The largest planter on the island is a Chinaman in the Kula district. Without attempting to give even approximate figures, it is safe to say that many thousands of acres of land on that island are suitable for this purpose.

There is also a considerable acreage under cultivation on the islands of Oahu and Kauai.

**COFFEE PLANTING ENCOURAGES DESIRABLE SETTLERS.**—It is a significant fact that there are already over 200 intelligent, enterprising white men, mostly small proprietors, engaged in this industry, nearly all of whom will become permanent settlers. Thus in its infancy, and before the first full crop has been gathered, this industry affords us unmistakable evidence of the beneficial influence its further development will have upon the future condition of this country.

Upon considering the conditions fostered and largely produced by the dominance of our present chief industry, we find that after an experience of more than fifty years, the sugar interest cannot show over twenty independent and individual proprietors who live upon and work their own plantations. This contrast is made, not for the purpose of condemning the sugar industry or criticizing the planters, but in order to show how greatly it has failed to bring in, and firmly establish a class of men who, in other civilized countries, furnish the best and surest foundation for social and political prosperity, and to show further how easily and quickly even a moderate development of the coffee industry has induced a settlement of this desirable class.

**LAND TENURES NOT SATISFACTORY.**—These enterprising settlers are, however, confronted with the unsatisfactory tenure of land. So long as only leasehold interests can be obtained, no large number of Americans or Europeans will consent to accept them. Much of the agricultural, as well as other kinds of business in this country, is done on credit. The majority of coffee planters, who must also do their business, in part at least on credit, will find much difficulty in obtaining loans even for the most legitimate purposes, because leasehold interests are considered inferior to fee simple interests as a basis of security. Aside from this, leasehold interests are repugnant to the sentiments of Americans and Europeans. This is a proposition which calls for no discussion.

On the other hand, the continuance of the leasehold system will not discourage Asiatics from engaging in this business. The history of the rice industry shows that the Chinese

especially, are well satisfied with leaseholds, and although they have so far engaged in coffee planting to only a limited extent, it is evident they are ready to swarm into it as soon as they are convinced of its success. Many of them are awaiting the results of experiments now being made by the white pioneers. Their great success in rice cultivation indicates that they are not likely to make failures in coffee planting if they engage in it.

There is, therefore, great danger that with the continuance of the present leasehold system, the coffee industry may pass into the hands of a large and powerful body of Asiatics. It is safe to state, that this movement is now taking place in a quiet but effective way. The attention of this Government is earnestly called to the need of immediate and effective legislation on this subject.

**TWENTY-FIVE HUNDRED ACRES OF COFFEE PLANTATIONS.**—In November, 1892, a committee of the Planters' Labor & Supply Company estimated that the acreage of the cultivated coffee land on Hawaii, Maui and Molokai was 1,325. If to this is added that of Oahu and Kauai, and also the large increase during the last two years, it is safe to estimate that the total acreage is now not far from 2,500. If there should be, as now proposed by the Government, a wise and satisfactory adjustment of the land tenures, there may be within a few years not less than 20,000 acres under coffee.

Moreover, it is very apparent that the sugar planters are closely watching the pioneers in coffee, and if they are successful, many of the former will place large areas of land now uncultivated, under coffee, and make this industry auxiliary to that of sugar.

These facts and estimates make this subject one calling for the most serious consideration, as not only is the question of labor deeply involve, but the permanent political institutions of the country are largely at stake.

**NUMBER OF LABORERS EMPLOYED IN CEYLON.**—In 1875 the official returns of the Island of Ceylon showed that 204,000 acres of land were under coffee, and that 200,000 laborers were required in the cultivation; that is to say, about one laborer to the acre. With a better class of labor and improved methods in these Islands, it is believed that one man can cultivate three, or in some cases, even five acres. But

in the picking season there will probably be needed about one person to the acre. Women and children would supply this need to some extent, if men with families could be induced to immigrate and settle here.

**LARGE LABOR SUPPLY MAY BE NEEDED SOON.**—If there should be within the next few years 20,000 acres of land under coffee cultivation on Hawaii alone, there would be needed in the picking season, according to the above estimate, nearly 20,000 laborers including women and children. According to returns received at the office of this Commission, the number of laborers employed on all the sugar plantations on December 31st, 1894, was between 20,000 and 21,000. Such an increase in the coffee acreage would therefore require, during part of each year, as many laborers as are now employed in the great sugar industry of the country. It is easy to see that in such a case many serious and perplexing questions would be likely to arise, unless effective means for securing the desired class of immigrants are wisely devised and promptly carried out.

The demand for laborers on the coffee plantations is now readily supplied by the Japanese whose contracts with the sugar planters have expired. The demand for this labor is as yet limited, but it is evident that with the present rate of increase in acreage there must inevitably develop a competition for laborers between the sugar and coffee planters which may prove disastrous to both, or may result in the irreparable losses before referred to as experienced in Demarara and the Straits Settlements. There is no doubt that in those countries the labor question was allowed "to take care of itself," and with the most disastrous results. A similar experience here, caused by a want of laborers, might be regarded as a national disaster in more ways than one. The subject, therefore, becomes one of supreme importance to the State and community.

Mr. Joseph Marsden, the Commissioner of Agriculture, has foreseen the importance of this question, and is making wise and active efforts to aid in the solution of it by introducing the cultivation of sisal, sansevieria, canaigre and other products new to the Islands, but time and experience only will settle the value of these efforts.

Success in their cultivation, however, is likely to lead to a

still greater demand for laborers. The coffee planters are at the present time engrossed in clearing land and in other hard pioneer work, and are putting off for the present any very serious consideration of the labor question. However, they should not, this Republic ought not, and if duly regardful of the future, cannot leave in a state of uncertainty a matter involving such serious consequences, if by any means a satisfactory solution can be reached.

**NEED OF GOVERNMENT INTERVENTION.**—It remains, therefore, for the Government, in the interests of the nation, to seriously consider suggestions and plans, and propose such legislation as will prevent the crippling or destruction of this industry.

In a country where there are many and diversified industries and a well settled and comparatively homogeneous population, it may not be so clearly the duty of the Government to actively protect them all and prevent them from being crippled or ruined through want of intelligent management. But here, where the whole community is in constant peril of financial, social and political disaster, because of its dependence upon one industry only, it would seem to be the duty of our Government to follow the example of the governments of other countries in seeking to create and build up new industries, especially such as will promote the growth of the political institutions which now exist.

**ESTIMATED VALUE OF COFFEE PLANTATIONS.**—Regarding the coffee industry as a source of Government revenue, the Commission is informed that in the island of Ceylon, the coffee plants have, when in full bearing, for some purposes, the value of one dollar a tree. It seems to the Commission that the same valuation may be justly placed on the plants here, if the planters meet with anything like the success they expect. For purposes of sale coffee land with full bearing trees upon it, would be worth \$500 per acre, allowing only 500 trees to the acre, and calling the land nothing. On this basis the value of 20,000 acres with coffee trees in bearing would be \$10,000,000, and at the present tax rate of one per cent., if taxed at that value, the annual revenue to the Government would be \$100,000. This estimate is, however, only suggestive, it being most likely that the coffee plantations

would be valued for purposes of taxation, at considerably lower figures. The annual product of the crop from the moderate area named, allowing 800 trees to the acre, which is less than the average, would be, at one pound to the tree, 16,000,000 pounds, which, at the price of fifteen cents per pound, would amount to \$2,400,000, or about one-third the value of the present sugar crop.

This gross return of \$2,400,000 would give, if equally divided, \$1,000 each to 2,400 families, or \$500 each to 4,800 families. Estimating four persons to the family, it appears that nearly 20,000 persons could derive a comfortable living from this moderate acreage, and with more comfort than the average moderate farmer in the United States is able to get. The value of other home products is not here taken into account. Small independent proprietors would produce for their own consumption, and by their own labor, vegetables, fruits, poultry, and meats, the value of which should be added to the income from the coffee crop. The value of these products, even if not sold, is of great importance in the economy of life. This estimate, if correct, shows again the importance and value of this industry in reconstructing the social and political situation in the Islands.

VALUE OF IMMIGRATION.—The statement may be here quoted which has had much currency in the United States, that one good immigrant adds at least \$1,000 to the resources of the State. If this is even approximately true, fifty white families would add \$50,000 to the value of the Republic, and their political and social value would be inestimable.

The larger part of the farmers in the United States do not cultivate over fifty acres, and the gross cash returns of wheat and corn from these farms rarely amount on an average to over \$500 annually, out of which hired help must be paid.

If twenty thousand acres of land should be successfully placed under coffee cultivation within the next two or three years, there is no reason why 30,000 or 50,000 acres more should not be put under cultivation at no distant period.

No article known in the world's trade as a staple article, saleable in all markets, has been up to the present time produced in these Islands, besides sugar and rice. The production of coffee now adds another staple article. Its cultivation

not only does not require great capital, but it is especially suited to the capacity of farmers of moderate means, who are accustomed to do their own work and employ little hired labor. As a staple article, there is no limit to the number of small farmers who may engage in producing it. At its present price it should return, under proper treatment, a much greater income than any ordinary  $\text{£}$ m crop.

**MEN OF ALL RACES ENGAGING IN IT.**—The satisfactory product of the coffee plants in past years, and the hopeful outlook due to the present improved cultivation of them, has attracted the attention of men of different races here, and already Americans, English, Germans, Portuguese, Japanese and Chinese have engaged in this industry, although to a moderate extent. Whether it will ever be extremely profitable is a matter to be still determined. That it is certain of being more or less remunerative, and of affording comfortable support for those engaging in it may be regarded as beyond reasonable doubt.

From the considerations stated above it is evident that this industry and the fruit industry allied with it will largely control the future civilization of these Islands, insomuch as it encourages the influx of a class of independent small proprietors, many thousands of whom may settle here with advantage.

**POLITICAL AND LABOR QUESTIONS CLOSELY CONNECTED.**—As already stated, the Commission finds itself unable to consider the question of labor for the coffee plantations without being at once confronted with the fact that it is most intimately connected with the social and political problems existing between this country and the great nations which lie on either side of it beyond the ocean. To refuse consideration of these relations at the present time would be to continue the unfortunate policy of silence and negligence which prevailed under the monarchy, and which has already created a crisis in our social and political affairs.

It is quite certain that the time has arrived when it is to be determined, if it has not already been determined, whether the Occidental or Oriental civilizations shall dominate here. It is not the trading companies or the capitalists, or the corporations which form the civilization of any country, but

the character of the mass of the people, especially the people who are the food producers and the voters.

CIVILIZATION HERE WILL BE OCCIDENTAL, OR ORIENTAL.—The civilization of the future in Hawaii must be in substance, if not in form, Occidental or Oriental. The native Polynesian race fails to supply more than a minority of the agricultural laborers needed by the country, and will accept and assimilate itself, outwardly at least, to whatever stronger civilization secures supremacy here. To the west of Hawaii is an Oriental civilization, which is now, with the exception of the Japanese, stagnant, repressive, wholly unprogressive, and undemocratic. To the east there is an Occidental civilization which is active, progressive, and advancing on all lines towards the best development of man.

The dominant party in Hawaii desires to assimilate its social and political life to that of the Occidental nations, for reasons which it is not necessary to here consider at length. That party desires, moreover, political union with the American Republic, and for the purpose of securing it, must with wise, just and practicable methods, establish a population here which will readily assimilate itself to the people of the United States, maintaining and promoting, so far as possible, republican methods and habits. Aside from the attitude which the pledged policy of the government under the terms of the constitution creates, it must be recognized and admitted that the making of the Reciprocity Treaty, which has resulted in vast pecuniary benefit to these islands, was promoted and secured by American statesmen with the avowed purpose of fostering in these islands a population, which, if not entirely American, would in all essential respects assimilate itself to the American type.

THE SUGAR INTEREST HAS NOT IMPROVED THE BODY POLITIC.—It must be admitted that the sugar industry has failed to encourage or increase to any considerable extent the settlement here of the people of the Occidental countries, with the exception of the Portuguese. This industry, important and valuable as it is to the financial prosperity of the islands, requires, it is generally believed, the aggregation of large capital. Its tendency here, as in some other sugar producing countries, is toward the creation of still greater estates, under



the management of transient superintendants, and worked with a migratory class of cheap labor, that is, labor at a rate of wages which the Occidental races regard as quite insufficient for comfortable living, even on the lowest plane.

The consequence is, therefore, that laborers of an inferior class, and least desirable as founders of a body politic, have been imported into these islands in comparatively very great numbers. The owners of the sugar estates cannot be expected, in the present state of public opinion throughout the world, to engage in the direct building up of desirable political institutions. Their plantations are money making and not philanthropic affairs, although they may be compelled or influenced to contribute, like all other interests, to the well being of the State.

The responsibility for this policy rests upon the whole community, which together with the sugar producers, has shared in the profits of these undertakings arising out of "cheap labor," and must therefore share in the evil consequences which now result from it. The sugar interest having failed to create a body politic here based upon the Occidental type of civilization, the Portuguese contingent excepted, the coffee and its allied industries must now be looked to as a means of protecting and advancing this civilization.

**JAPANESE LABORERS.**—It is evident that large numbers of Japanese laborers whose contracts with the sugar planters have expired are ready to engage in the coffee industry, and that, if encouraged by the opening of Government lands for sale, they will become active in it.

Moreover, as these laborers are generally preferred to all others by those now engaged in coffee planting, there will be a tendency toward further encouraging immigration of this kind, with the inevitable result that the immigrants, will in time, themselves become permanent settlers. Such a course of events would not, in the opinion of the Commission, foster Occidental civilization.

The present leaders of the Japanese nation, like the dominant party in Hawaii, are making great and successful efforts towards assimilating the people of that country to the commercial, industrial and educational conditions of the Occidental peoples. But the leaders of that people do not at

this time desire to promote the growth of a republican form of government or to establish republican institutions in Japan, and they will naturally not encourage the subjects of the Emperor of Japan to retain their allegiance to him, and at the same time while temporarily absent, in these Islands or elsewhere, learn to prefer a republican form of government as it exists in the United States and here.

The numerous Japanese laborers in these islands retain, and it is understood intend to retain, their allegiance to the Emperor of Japan, and will not, under these circumstances, actively co-operate in the establishment of a government very dissimilar from that existing in their own country. They already constitute here a community of their own. Few of them speak or write the English language. Even if married, they are not disposed to bring their wives and children from Japan, and it is the intention of the larger part to return to their own country at no distant period. A further immigration of these people would only increase this class which are now here temporarily only, for the purpose of benefit to themselves, and with no intention of abandoning their own country.

It is therefore with no reflection upon, or disparagement of the character of the Japanese, that the Commission recommends that no encouragement be given toward their further immigration, so far as the coffee industry is concerned, until the question of the political union of this Republic with that of the United States has been finally settled.

**ENCOURAGE AMERICAN IMMIGRATION.**—On the other hand, the Commission strongly recommends that vigorous efforts be made to induce an immigration to these islands of farmers now living in the United States, who are accustomed to do their work, are cultivators of small farms, and who besides, have means sufficient to tide over the time between planting the coffee and its coming into bearing, a period of several years. Americans by birth, and educated to appreciation of American institutions should here become independent proprietors. Their presence, if established here in sufficient numbers, would greatly aid in the solution of those problems with which we are confronted to-day. The need of such a population is obvious and imperative.

NO FINANCIAL ASSISTANCE TO IMMIGRATION FROM AMERICA.—It is not recommended by this Commission that the immigration referred to should be assisted financially by the Government, but that the Government should undertake to seek out those who are qualified to become desirable settlers, furnish them with full and correct information and advice, protect them from imposition, perhaps arrange more favorable terms as to transportation than could be done by private parties, and do such other things to facilitate their settlement here as may be consistent with the entire personal and pecuniary independence of the settlers, trusting that they will in turn encourage other like desirable persons to seek a home in our midst.

AMERICAN IMMIGRATION ESPECIALLY NEEDED.—Settlers from the United States are especially mentioned for obvious reasons. It is in the States largely, if not only, that a farming class can be found who have means sufficient to defray their own expenses to these islands and to maintain themselves until returns are received from the coffee product.

If the Government should determine to assist immigration, or should adopt the policy of defraying the expenses, in whole or in part, of importing laborers, including women and children from Occidental countries, the Commission would advise securing the immigration of farmers from other countries besides the United States, especially from Portugal.

PORTUGUESE LABORERS.—There are many Portuguese here who are ready whenever circumstances will permit, to become coffee planters, as is already shown on the Island of Maui and elsewhere. As a rule, however, they have not sufficient capital to hire the labor necessary to cultivate any large areas of land. Whenever they succeed in getting returns from the area already planted, they will be able to extend operations in anticipation of their crops, and will rapidly increase their holdings. The importation of Europeans as independent cultivators of coffee is not at present practicable, as they have not the means required for the purpose, and so long as the employers of labor here are required to defray the entire expense of immigration, few of the coffee planters will be able or willing to incur it. For these reasons the Commission strongly urges that immigration from the United States be especially encouraged at the present time.

WHITE MEN CAN WORK IN THE TROPICS.—Regarding the objection offered by many that “the white man cannot work in the tropics,” the Commission will only state here, without citing the overwhelming evidence that might be adduced, that thousands of white men are doing manual labor in the tropics with great success. The sugar crop of New South Wales has been produced by white labor for thirty years. It was for many years a tradition in the United States that the white man could not work in the cotton fields of the Southern States and that the cotton crop could not be produced without slave labor. These traditions no longer exist, having been exploded by facts. The United States Census of 1890 shows that while negro laborers of the Southern States receive on the average \$14.25 per month, the white laborers receive \$23.75 per month, or more than fifty per cent. more than the negro. That the white man does not, as a rule, work as a field laborer in the tropics involves other considerations which need not be considered here at any great length.

It may suffice to say that the self-respecting American farm hand, with his ideas of personal independence and habits based thereon, will not work for the wages that the sugar planter is willing and accustomed to pay for ordinary field labor, nor will he accept the social conditions incident thereto. Such men will not consent to be worked in gangs under overseers, nor to live in crowded and cheerless plantation “quarters,” with the entire absence of home comforts and associations and the utter social extinction which are part of the plantation laborer’s life in these Islands.

Outside of the Portuguese, almost every American and European employed on plantations is a clerk or bookkeeper, a foreman or overseer, or a sugar boiler, engineer or mechanic of some kind. It is not that the white man cannot do field labor in the tropics, but that he will not, simply because he thinks he can do better, and he generally can, because he uses his brains as well as his muscles.

At home, his bed may be hard, his fare plain, his hours long and his pay by no means munificent, but he is a citizen and a voter, with a social standing depending largely on his character and conduct. He may often be found working

in the field side by side with his employer, whose wife or daughters may be meanwhile cooking his supper.

When his day's work is done he, in many instances, sits down at the table with his employer and his family, with no sense of incongruity or unfitness on either side.

The Asiatic may not care for such things, and it is possible the same may be true to some extent of the Portuguese. But the American cares a great deal, and his habits and feelings in such matters must be taken account of.

The fact that the Portuguese here find no climatic obstacle to continued labor should settle this question, especially as it is not claimed by those who have considered the subject that the Anglo-Saxon is inferior to the Latin in this regard.

Although these Islands lie two or three degrees within the tropics, and are generally regarded as a land of perpetual summer, the heat is never excessive. The terrific scorching days and sweltering nights that frequently prevail during the summer season in the higher latitudes are never experienced here. The carefully kept records of the Government Meteorological Bureau show this conclusively. Even in Honolulu, which being at sea level and on the leeward side of the island, is considerably hotter than some of the country districts, ninety degrees is about the highest limit of the thermometer in the hottest part of the hottest day in the summer. It is a very significant fact that sun-stroke in these Islands is unknown.

THIS IMMIGRATION SHOULD HAVE BEEN PROMOTED IN THE PAST.—If some such scheme of immigration had been adopted soon after the making of the Reciprocity Treaty, nearly twenty years ago, there would now be fixed in these Islands a strong, intelligent class of individual owners of the soil, familiar with and devoted to the principles of free government, and who, at the present time would be of inestimable value in maintaining the dominance of American institutions. Such a class, if now existing here, would constitute a strong and reliable element in the proper direction and management of the affairs of State, furnish the material for an intelligent and patriotic citizen soldiery, without expense to the Government, and their presence would be a sufficient guarantee

against filibustering expeditions, and civic disturbances generally.

It is not within the limits of the work of this Commission to discuss the reasons or causes which prevented this important movement from being made. The failure to make it, however, now casts upon those in power a most laborious, difficult, and perplexing task, involving both our domestic and foreign relations.

**THE GOVERNMENT MUST PROMOTE THIS IMMIGRATION.**—The scheme suggested by this Commission cannot be executed by individuals. It involves national rather than individual interests. The present is perhaps the supreme moment when the future destiny of these Islands and the character of their inhabitants are being determined. If the movement is delayed, while it may not prevent political union with the United States, it may result in the prior establishment of a civilization essentially Oriental, although there may remain a republican form of government.

**AMERICAN IMMIGRATION WILL NOT SUPPLY ALL THE LABOR NEEDED.**—Even a very considerable immigration of American, or European farmers who become proprietors will not, however, supply the very large number of laborers, including women and children, who will be required in the regular cultivation of the coffee trees and the picking of the berries, in places where there are plantations covering considerable acreage, whether conducted by individuals or corporations. If there should be 20,000 acres under cultivation, there would be at certain seasons, a most urgent demand for laborers. Should the sugar planters also engage in the coffee industry, and should many of the laborers who are now in the country also engage in it, there will undoubtedly come a time when the competition for coffee pickers may cripple, if it does not destroy the industry.

**WHERE SHALL THIS LABOR COME FROM?**—The Commission can only suggest a possible difficulty without presenting a remedy for it. It could be obviated by a large increase of Asiatics, but there is at present a strong, if not overwhelming sentiment against such a remedy. It is possible that the solution of this problem may come in time to prevent any disaster. If there should be in the future a large number of

coffee planters from the Occidental nations, and they should be confronted with serious difficulties in the way of procuring laborers, they would be apt to unite with the sugar planters in seeking for a labor supply without any regard to the question of civilization.

Even if the Government sells its own land to those who will cultivate it without additional hired labor, there are still many coffee planters who are, or will be, the owners of land by private purchase, and they will require many hired laborers. Where they shall obtain them is a question not easily answered, unless the Government adopts the scheme of assisted European immigration, which would involve the expenditure of very large sums of money and the benefits of which would also have to be extended to the sugar interest, which, being our chief commercial reliance, must be maintained at all hazards.

**NO FINANCIAL AID AT PRESENT FOR IMMIGRATION TO AID THE COFFEE INDUSTRY**—At the present stage of development of coffee growing, while its precise value as a profitable crop has not been fully ascertained, the Commission cannot urge the expenditure of large sums of money in assisting immigration from any country, in order to extend it. There is no occasion for experimenting with Portuguese immigration, as its value for sugar producing has been proved, and there is no doubt that it would be equally valuable for coffee planting.

But in view of the present situation of affairs it is urged by the Commission that the Government encourage, in the manner indicated in this Report, the settlement of American farmers who have sufficient means of their own and who will not call for financial aid, or any other assistance beyond that of supplying them with information which will prevent them from falling into errors that may injure the settler and the Government as well. If the experience acquire in promoting the settlement of twenty or even fifty families should justify the expectations of those who regard the movement as one of great political value, its indefinite expansion may be undertaken with safety, and even at considerable expense.

**THE NECESSITY OF IMMEDIATE IMMIGRATION.**—The recommendation of Government intervention in, if not the control

of, the coffee industry, is made solely on the ground that it offers an opportunity and possibly the only one by which Occidental civilization may be reinforced, and perhaps preserved on these Islands.

The history of the sugar and rice industries furnish examples showing how easily important and staple industries may, in their early growth, take such form and force that it becomes almost impossible to change them. The rice industry has proved to be very profitable, but it has passed entirely into the hands of the Chinese because the white residents for one reason and another, permitted it to drift away in that direction.

It will doubtless be asserted that a successful sugar industry could not have been built up in this country with white labor. To this it may be replied that it was done in New South Wales, and the claim that it was impossible here seems to rest on assertion rather than on proof. The white pioneers in rice culture all abandoned it sooner or later, most of them after sinking considerable money. The difficulty in their case appears to have been that they knew nothing about the business, and had to depend mostly on native labor, the Chinese, who understood the business, being only here in small numbers, and not being available for the purpose.

**THE GOVERNMENT SHOULD OPEN TRADE WITH PUGET SOUND.**  
—The Commission would also recommend that far-reaching arrangements should be made for the shipment and distribution of tropical fruits on the Pacific Coast and in the Northwestern States. The coffee planters are and will be in a position to produce bananas, pineapples, and other fruits in great quantity, but there will be no profit in their production unless some plan is adopted which will secure cheap transportation and sure profit, whatever it may be. In executing any plan for this purpose, individuals would naturally hesitate to take the risk, which would probably involve losses in the beginning. The Government, in view of the great importance of fostering these fruit industries in connection with coffee planting, might for a short period of time, guarantee freight carriers against loss, provided they furnish the facilities needed to secure the proper distribution and profitable sale of these products, and provided further that satis-



factory assurances were given on the other hand that such guarantee would lead to a rapid and extensive development of the trade.

The Commission recommends, finally, in regard to the development of the coffee industry, that the Government intervene and prevent corporations or individuals from taking up large areas of land for this purpose, and that such disposition of the public lands be made that the largest possible number of individual proprietors may possess it.

PRODUCTION AND EXPORTATION OF EARLY VEGETABLES.—The labor supply will also be a subject of anxiety whenever the resources of the Islands are developed in the production and exportation of early vegetables. The climate and geographical situation of the Islands give them the advantage of furnishing the markets of the Pacific Coast, Puget Sound and the Northwestern States with vegetables during the season of three or four months within which there is no growth of plants in those localities. Vegetables during this season bring high prices. Although the consumption of them at these prices is not very great at present, there will be a considerable, and as the population increases, a large demand in the places specified, which should bring a valuable income to the cultivators of our soil.

The cultivation of these vegetables with profit requires unusual intelligence and skill, and it opens up a new and most interesting occupation for educated or energetic young men.

It should be understood, however, that the successful development of this business in its various details will require on the part of those undertaking it, both intelligence and executive talent. If these are lacking the enterprise will surely fail.

All of which is respectfully submitted,

W. N. ARMSTRONG, *Chairman.*  
JOHN EMMELUTH,  
J. M. VIVAS,  
T. B. MURRAY,  
H. W. SEVERANCE.

Honolulu, May 14, 1895.

N. B.—Since the above report was prepared and placed in the hands of the printer, the Commission has received a copy of a report made by the Committee on Labor to the Hawaiian Coffee Planters' Association. The opinions expressed in that report are generally in accordance with those stated by this Commission, and indicate a unity of sentiment and belief on the important matters which are under consideration.

—:o:—

### *A PEN PICTURE OF CEYLON.*

Our beautiful little island generally is fast becoming quite a show place for visitors and tourists. Every winter now brings us an instalment of visitors from Europe and America, and many take a health trip from Northern or Central India, Burma, the Straits, or China, or even Australia, to see the Eden of the eastern waves, and few, if any, are disappointed with the beauty of Colombo, its vegetation, and the interesting, diversified peoples in its bazaars; or with our first-class mountain railways, covering 200 miles and rising 6,200 feet above sea level; with Kandy, the last capital of the Singhalese kings, and its uniquely charming situation, old palace, Buddhist temples, and adjacent extensive botanical gardens; with Nuwara Eliya, Uva, and hill tea and cinchona districts, or with Anuradhapura and its ancient buried ruins.

The island is now so well opened up by railways and roads that public health is much improved, and, in the case of European residents, an effort is being made to get all English and American life assurance offices to remove the extra charge imposed for tropical residence. Some offices have already done so; others only continue it for five years.

Opium has never been grown or prepared in Ceylon, and until forty or fifty years ago the Singhalese never used it. There is, therefore, no difficulty in a little island like this in dealing with it, as in Burma, and the leaders of the Buddhists, Hindoos, and Mahomedans here are very keen that the sale of the drug should be placed under medical restrictions.

Following Western examples and modes of working, educated leaders among the Buddhists have of late given their attention to opening schools—and for girls as well as boys—especially in Colombo and its neighborhood. But the scan-

dalous waste and misappropriation of Buddhist temple endowments in the remote native districts continues unchecked by Sir Arthur Gordon's Temporalities Act. It is a great pity that that very able as well as strong Governor did not take steps, in accordance with the wishes of the people, toward devoting the larger proportion of the said temporalities in each district to primary vernacular, unsectarian, and industrial education. The intelligent portion of the Singhalese people would have cordially voted for and endorsed such a step, for they view with disgust the corrupt conduct and waste of many of their Buddhist priests left in possession of lands and rents.

I must not omit reference, even at the close of this long summary, to a movement initiated by Lady Havelock (after Lady Dufferin's example in India), for the establishment of a Women's Hospital for the different races, and qualified female medical attendants, in Colombo. Already about 40,000 rupees have been collected as donations toward this very desirable object.

Let me mention the very striking way in which English games, as well as English instruction and habits, are taking a hold of the Singhalese. Every town, if not village, has now its cricket votaries, if not club; tennis is freely played, and golf is just coming into vogue. One team of Ceylonese cricketers is considered to be as strong as any team picked from the Europeans in the island, and there has been a talk of inviting the Bombay Parsee Club to send to Colombo the team that visited Europe not long ago, to play a series of matches. Such competitions between Asiatic-born subjects of our Queen-Empress must be regarded with much interest.

"The schoolmaster" is verily abroad in Ceylon; a great work in educating the people through missionary as well as private and official agencies is going on, though much remains to be done. And this little island has already begun to send forth enterprising sons (Singhalese, Tamil, and Eurasian), to become teachers, clerks, dispensers, and medical assistants in India, Burma, the Straits, East and South Africa and Australia.

Two Singhalese Wesleyan ministers are at work as missionaries among their fellow Buddhists in Burma; preparations

are now being made in Jaffna, our Northern Peninsula, to train in college and hospital, under qualified male and female European and American doctors and nurses, medical assistants and qualified nurses to work among the millions of India.—*Ed. Corr. Trop. Agriculturist.*

:O:  
 OVER-PRODUCTION OF FIBRE.

We are not in the secrets of Government and cannot say, therefore, what thought was in the official mind in causing some pages of information about "Mauritius Hemp Machines" to be reproduced in the *Gazette* of 28th September, from the *Kew Bulletin* of so old a date as May, 1890. If we owe this to a desire to induce some fresh interest in the aloes and other fibrous plants which so freely grow in Ceylon, we are by no means inclined to find fault; for, indeed, we had just been writing on the subject of Fibres, when the *Gazette* came to hand. But alas, our recent mail news from London was to the effect that the European market for nearly all kinds of fibres was clogged and overstocked! The fortunes that were to be made in "Sisal" and "Ramie" are likely to melt in the same thin air that received those of the Ceylon planters some years ago, when based on cinchona!

Recently we made remarks upon the large out-turns by mechanical aids, as being one of the chief of the causes that have led to the general over-stocking of the world's market. Among the productions which seem to have suffered to a greater extent from this employment than almost any other, is this of fibre. Not very many years back, an urgent demand was made in innumerable quarters for the designing of machinery whereby fibre might be obtained from some of the known sources of supply, left almost totally untouched because of the difficulty then experienced of economically treating them. This demand was more or less successfully met, and markets became ere long crowded with fibres of many descriptions, of a novel character, in quantities that proved to be greatly in excess of the power of consumers to absorb. This glut has proved to have very unfavorable results, even for Ceylon. Only within the past few years a demand had sprung up for the fibre of our palmyra palm, and

we have only to examine the customs returns to see how speedily this demand was met from Colombo. Quite a halcyon time then seemed to have commenced for those of our northern districts that had a plentiful growth of this particular palm. Prices for the fibre ran up very speedily, and everything seemed to promise fairly for the continuance and for the permanence of this form of industry. But the result that has attended so many other forms of production soon became felt in this branch. The markets for disposal soon became overstocked, and prices fell even to below those quoted before the active demand had set in. As a consequence the hopeful anticipations that had been formed as to the outlook for palmyra gardens tumbled to the ground. The export fell off largely, and it must be a matter of extreme doubt if it can experience a satisfactory revival. We fear that this disappointing result must operate in producing discouragement with regard to our island fibre-yielding plants generally. So many tropical countries can compete with us in the supply of these, that it is difficult to see that our island can occupy any very active part in the competition. It is fortunate, perhaps, that having so many other branches of industry to attend to, no large outlay was attempted in Ceylon to meet the demand. Other countries have not had the same good fortune. The Bahamas—to quote a foremost instance among these—set to work on the first appearance of the demand, to largely cultivate and manipulate the plant yielding the well-known and valuable sisal fibre. What has been the result? It has been the same as has, for the last few years, attended so many items of production. In an incredibly short space of time the price of this celebrated fibre in the European markets seriously fell, and stocks of it so accumulated that they have now but little chance of becoming depleted to the extent that would cause prices once again to reach a remunerative level. A good many years must elapse, it is much to be feared, before we shall again be able to write hopefully of the prospects before fibre collectors. At one time it seemed likely to be the case that the mana grass, that grows so luxuriantly throughout many localities in this island, might have a successful future for its treatment. This hope met with disappointment and there would seem to be

no present prospect before us, that advantage might be gained by the endeavor to experiment with any others of our indigenous fibre-yielding grasses or trees.

Whether in the good time that is always coming, the shadow that has now fallen upon the fibre-producing industries of the world may be removed, it is impossible to say. At all events at the present time the outlook with regard to them is as clouded as it well can be. References made to the London dealers are answered to the effect that there is a plethora of supplies of fibre of all kinds, and that it would be futile to encourage further increase of production. Metal has succeeded to fibre for all the standing rigging of ships, to supply which in times past gave rise to much of the demand to which allusion has been made. Machinery has enabled the world to more than keep pace with requirements, and in no branch has that result been more forcibly exemplified than in the fibre trade. Unless some at present wholly unforeseen cause of demand should arise, it must be a very long time before we shall again be called upon to turn our attention to the numerous plants in Ceylon from which useful fibres may be obtained. We must be content to rest upon our oars until such time arrives—should it ever do so—at which demand may once more overtake supply.—*Tropical Agriculturist*.

—————:o:—————

### HOW TO EXTERMINATE THE WHITE FLY.

(H. J. WEBBER, IN FLORIDA AGRICULTURIST.)

The white fly or mealy wing (*Aleyrodes citri*), I think I can say, without exaggeration, is more feared in Florida than any other insect pest which attacks the orange. Indeed, in many places it has become so bad that the industry is very seriously threatened. Thousands of dollars damage is annually done by this disease and it is spreading so rapidly as to alarm the entire State. Its spread is very general throughout the State.

ORIGIN OF THE WHITE FLY.—From whence the white fly came is not surely known. It made its appearance first, so far as I am able to learn, at Gainesville and Panasoffkee, and has spread from these localities around the State. It may

have been introduced from some other country or have spread on to the orange from some native plant. It is only known to occur in Florida and Louisiana.

**ITS NATURE.**—The mature white fly is a minute chalky white insect, about 1-16 of an inch long, each having four wings. Both sexes are winged in the mature stage, a point of importance when we come to consider the rapidity of spread of this insect, as this enables the female to fly a considerable distance before depositing her eggs, while in the red scale and other scale insects the female is wingless, all eggs being deposited under the scales.

Each white fly lays from twenty to fifty eggs, which are deposited on the under surface of the newest and freshest growth of leaves. The eggs hatch into the larvæ, a wingless stage, provided with legs, but moving about slowly and with difficulty. The larva forms a thin almost transparent oval or elliptical scale on the lower surface of the orange leaves and a few other plants. It is only in the early stages that the larva has the power of free motion. They molt several times and finally in the mature stages they lose their power of changing their positions. They become fixed in one place and complete their transformation there. If they are loosened from this position they fall off and perish, not being able to regain the leaf again, or to feed. It is in this mature larval stage that we find all of the white flies at the present time. They pass from the larva stage into the pupa, which is very similar to the mature larva and agrees in forming an oval or elliptical scale on the lower surface of the leaf. About the middle of March the mature winged insects begin to hatch and such measures as may be taken to eradicate the pest, must be taken before this time. They pass through some three broods from egg to mature fly during a year. This is all that need be said here in regard to the life history of the insect. What I desire the reader to particularly note is that in the winter season when the freezes took place they were all in the larva stage fixed immovable on the lower surfaces of the leaves.

**SOOTY MOULD FOLLOWING THE WHITE FLY.**—The white fly secretes a sweet fluid (honey dew), in considerable quantity and this falling on the leaves and fruits furnishes nourish-

ment for the growth of the black fungus known as sooty mould, or "smut," which so disfigures and injures the fruit in this disease. This fungus grows abundantly and is so invariably present in this disease that it has become the principal feature by which people recognize the disease. The occurrence of sooty mould, however, is not a sure sign that the white fly is also present, as the same sooty mould follows also the white or wax scale, the mealy bug, and other honey dew secreting insects.

**EFFECT ON THE ORANGE TREE.**—The white fly is a sucking insect. It penetrates the tissue of the leaf and obtains its food from the nourishing juices of the plant. They multiply rapidly and thousands of eggs are laid on every new leaf that comes out, so that before this reaches maturity it is shingled over on the lower surface by the scales of hundreds of developing larvæ, drawing their nourishment from the materials which go to the support of the tree.

This, however, is not the only drain on the tree. Their scales are so abundant and numerous that the passage of gases in and out of the plant is greatly hindered, and the process of assimilation in the plant greatly retarded. Still this is not all. The sooty mould which follows the insect forms a dense black coating over the leaves, and so effectually shuts off the light that little or no assimilation can take place in the leaf, and this, it must be remembered, is a vital process in plants as well as animals.

The growth of the tree is greatly retarded and, in serious cases, is frequently entirely checked until some relief is obtained. The blooming and fruiting is usually light and in very bad cases is wholly suppressed. The leaves wither quickly in slight drouths, resembling blighted trees.

The young fruit early become covered with sooty mould and are retarded in their development, frequently never reaching full maturity. They are usually smaller than fruits developed under normal conditions and remain insipid and juiceless. They do not "color up" normally, and if the membrane of sooty mould covering them is quite thick the fruits partially retain their green color indefinitely, rendering them unsalable. The black coating of the sooty mould renders them unsightly and unsalable until they are thoroughly



washed, which necessitates a considerable expenditure of time and labor. Even when carefully washed (a process which injures the keeping quality of the fruit), many of them, because small and still green in color, are unfit for market.

The extent of the damage due to this pest can hardly be realized by those who have not been in the white fly regions. In many places hundreds of acres are literally black from the effects of this pest. Groves are frequently reduced to such an extent that growers have given up, abandoned hope, and ceased to cultivate their groves.

**METHODS OF TREATMENT.**—The rosin wash has been found to be very effective, and fumigation with hydrocyanic acid gas I have also found to be very effective. This progress is very fortunate, and we were very much pleased with even this success before the freeze. With this unprecedented freeze, however, comes the chance of years—the possibility of totally eradicating the pest—doing away once for all with all the worry and expense of fighting this most serious pest year after year. Think what it means to be continually fighting a pest of this nature, but fight it you must if it is allowed to remain. You who have sprayed realize the difficulty. Rosin wash costs one-third cent per gallon for material, and fifteen gallons are required for one tree at one spraying. One must spray at least three or four times per year if anything is to be accomplished. This thus means a cost of from 15 to 20 cents per year for materials. Add the cost of labor and the cost will not be much less than from 75 cents to \$1.00 per tree for old trees. If one fumigates, the necessary outfit of some five or six tents will cost from \$300 to \$400. The materials for a tree twenty feet high will cost some forty cents. Add to this the labor, and the treatment will cost from 75 cents to \$1.00 per tree. While fumigation costs much more than spraying for one application, it is very much more effective and in the long run is probably as cheap as spraying.

The cost may not seem very great but when one considers what this means, coming year after year, with the care and worry, we see a dismal picture for the orange growing of the future, unless some means is found for eradicating the pest.

*PRESERVING MANGOES.*

Now that mangoes are in season, the following hints on preserving the fruit, by Mr. E. M. Shelton, of the Department of Ariculture, Queensland, may be useful :

**CANNING.**—After peeling, the fruit is separated from the stones by slicing into pieces of convenient size ; these should be stewed for a few minutes only, before pouring into the cans, in syrup strong or weak in sugar to suit taste or the fruit may be cooked in the can with syrup as before. There may be a difference of opinion as to the palatableness of canned mangoes. A considerable number of those persons who have tasted the results of our work have pronounced the canned fruit excellent, while others have declared their indifference to it. A like diversity of opinion, we note, holds respecting the raw fruit, particularly with those unaccustomed to its peculiar flavor. Mangoes stewed in the form of a sauce will be found a welcome addition to any dinner table, "As good as stewed peaches," we have heard them pronounced.

**MARMALADE.**—Webster defines marmalade as "preserve or confection made of any of the firmer fruits boiled with sugar, and usually evaporated so as to take the form of a mould." Nearly in this sense the word "marmalade" is used in this essay. Peel and slice the mango, cutting close to the stone, and cook, using plenty of water. Boil until the fruit is thoroughly disintegrated, when the pulp should be run through the colander with the purpose of extracting the "wool." Sugar should now be added to suit the taste (about  $\frac{3}{4}$  lb to the pint of pulp), and the mass boiled until clear, when it should be poured into the moulds or jars in which it is to be kept. This marmalade is of a rich golden yellow color, it retains the form of the mould perfectly, and it seems in all respects to satisfy the most ex-acting taste. In the absence of the experience necessary to test the keeping qualities of mango marmalade, it would be the part of wisdom to seal the jars designed for future use while hot with wax, or better yet, with a plug of cotton wool.

**JELLY.**—For jelly, prepare the mangoes by slicing as for marmalade, boil the fruit with water, prolonging the boil-

ing only to the extent of extracting the juices. Great care should be taken in boiling, as the mango rapidly "bcils to pieces," in which case it is impossible to make satisfactory jelly. Pour off the juice strain and boil down to a jelly an operation that occupies only a few moments, as the mango is rich in gelatinous materials, the pulp remaining after the jelly has been removed may be used to advantage in making marmalade. In the amount of sugar used in making jelly, the housekeeper is safe in following old practices in this respect with other fruits. It is impossible to give exact rules in all the operations connected with working up this fruit. In general it will be well to use in boiling, water somewhat to excess, and as the mango "cooks" readily, constant watchfulness is needed to prevent burning.

To show something of what is possible in the way of results with this fruit, I may say that in our experiments thirteen good sized mangoes gave one pint of jelly and five quarts of marmalade. This certainly must be counted a very favorable, not to say remarkable result.

—:o:—

*SENATOR SHERMAN ON SILVER.*

Many years of experience in dealing with the finances of the nation on the part of Senator Sherman, of Ohio, lend great weight to any utterance upon the pending public discussion of the currency question. At the recent convention of the Republican party of Ohio, Mr. Sherman said:

We are in favor of a sound National currency always redeemable in coin. All forms of money should be of equal purchasing power. For fourteen years after the resumption of specie payments, while the Republican party was in power, we had such a currency. We had gold, silver and paper money, all bearing the stamp and sanction of the United States, of unquestioned credit and of equal value, passing current, not only with the United States, but in all parts of the commercial world.

Both gold and silver are indispensable for use in the varied wants of mankind. Gold is now and has been for ages the chief measure of value in international commerce and the larger transactions of domestic exchanges. Silver, from its

bulk and weight, is not available for large payments either at home or abroad, but it is indispensable in the minor wants of mankind. Gold from its greatly superior value, cannot be utilized for such purposes. Therefore it is that both metals have been coined into money at a fixed ratio. The enormous increase of the production of silver in the United States, Mexico and Australia has disturbed this ratio, and has lowered the market value of silver precisely as a like increase of production has lowered the price of other commodities. It is a universal law that price or value is measured by quantity. Under these conditions the rational and proper course would be a change of ratio, but this can only be effective as to these two metals by concert of action among commercial nations.

Until this can be accomplished the only logical way is for each nation to coin both metals and maintain the coinage of the cheaper metal at par by limitation of amount, and redemption when in excess of the demand for it. Such is now the policy of the United States and of every great commercial nation, including every country in Europe. Other nations adopt the silver standard alone, not from choice, but from poverty. I believe that the policy of the United States adopted in 1853 of coining fractional silver coins in limited quantities from silver bullion purchased at market price and making them a legal tender for small sums is the only way to preserve the parity of gold and silver coins at a fixed ratio. This is properly called bimetallic money. I hope and believe that the common interests of commercial nations will lead them, through an international commission, to either adopt a new ratio based on market value of the metals or to coin them and maintain them as we do at their present ratio.

The policy now urged by the producers of silver, and by men who wish to pay their debts in cheaper money than they promised to pay, is the free coinage of silver. This means the single standard of silver and the demonetization of gold. This is the monometallic system. It is the degradation of our dollar to fifty cents. If applied to our National bonds it is a repudiation of one-half of the public debt. It is the repudiation of one-half of all debts. It confers no favor on producers of any kind, whether of the farm, the workshop or the mine, for if they get nominally more dollars for their

productions, their additional dollars would have only one-half the purchasing powers of the gold dollars. The great hardship of this policy would fall upon workingmen, skilled or unskilled, whose daily wage measured by the present standard is higher than in any country in the world. Their wages will purchase more of the necessaries of life than the wages paid for similar labor anywhere outside of the United States. It is a false pretence that the cheapening of money will be beneficial to them.

The Republican party in its National platform of 1892 demanded good money of equal purchasing power, whether coined of silver or gold, or composed of United States notes and National bank notes, based upon the credit of the United States, maintained at par with coin. This is bimetallic policy. There we stand to-day. I hope and trust there we will stand forever. We will seek the co-operation of all nations and of all parties in maintaining the parity of gold and silver coins. If they will not co-operate with us in this policy the Republican party can and, I hope, will do it alone. Good money and plenty of it is as important to all our people as equality of rights and privileges.

—: o :—

### *LIBERIAN COFFEE PLANTING.*

[FROM THE TROPICAL AGRICULTURIST.]

DEAR SIR:—Now that the planting of this product is being taken up rapidly, there has been some discussion as to the distance the plants should be put out. When first introduced it was planted 12 feet apart—a ridiculous distance. In its native habitat there are veritable giants requiring even more space than a circumference of 30 feet. There even are exceptional trees here, and in very rich localities, I can point to certain trees in the island of exceptional growth, both topped and untopped trees, covering much ground and yielding crop at the rate of 20 cwt. per acre! In really good and new soils 6½ feet apart is a fair distance, but 5 feet by 5 feet is a much better distance, and in very poor soils 5 by 4 or 4½ by 4½. But even in the latter soils 5 feet apart is preferable, and the plants should be aided after two years with

manure. Where cacao is planted, it is, of course, a sheer waste to allow the intervening ground to yield nothing, and Liberian coffee can well be put out and made to yield up to the 5th or 10th year, when the cacao will then only need ground as orchard trees. Much of the little existing Liberian coffee plots want treatment sadly. Not so much as to manuring as handling and pruning. The tree is best topped at  $5\frac{1}{2}$  feet, not lower than 5 feet certainly. The lower primaries die out very slowly; the upper and last set particularly grow out and throw excellent secondary and tertiary branches forming an immense umbrella covering the ground. To attain this the use of the knife for suckers, bad wood, and spindley off-shoots is indispensable. All this has to be attended to after the first bumper crop in 3 to  $3\frac{1}{2}$  years has been taken in. Five years hence the best selling tea estates will be those with a reserve of cacao and Liberian together or separately of one-fourth the extent of the estate at least. It will be very desirable that all those who have had some experience with this coffee should occasionally furnish hints and help each other to carry on its cultivation *properly* and *thoroughly* and not in a spasmodic and experimental fashion as hitherto.

T. S. T.

:o:

### THE CAMPHOR TREE.

“The camphor tree is a species of laurel, and a native of Japan. It is easily propagated from its seeds, which much resemble those of the pea. It has been successfully grown in this country as far north as Charleston, S. C.

“As long as twenty years ago, a few specimens existed in Florida, but they were rare and scarcely known. A dozen years ago it was desired to find a shade tree that would flourish in the dry sands of the State, and it was discovered that the camphor tree filled every requirement. The horticulturists of the department then began sending out quantities of seedlings to be used as shade tree, it not being thought at that time that they would be commercially valuable.

“Within a few years, however, the rise in the price of camphor from 15 to 60 and 75 cents a pound, due largely to

its use in the manufacture of smokeless powder, has changed the situation, and it is now proposed to use the camphor tree for productive as well as ornamental purposes.

“The trees grow rapidly and yield their camphor at an early age. Every part of them—trunks, branches, twigs, and leaves—is saturated with it. The apparatus for obtaining it is simple. The fresh leaves and twigs are chopped up, mixed with water and boiled. A sort of roof of thatched straw is put over the kettle and the steam allowed to escape through it. The camphor sublimes on the straw, and is scraped off and saved.

“By skilful pruning a large quantity of leaves and branches can be removed from a tree every day without injuring either its appearance or its health.

“A small quantity of camphor, made as an experiment from Florida trees, has recently been sent to Mr. William Saunders, the horticulturist of the department. A large number of young camphor plants are now being propagated from seed obtained in Japan.

—:O:—

### *THE COFFEE SITUATION.*

During the year ending May 31, 1895, the visible supply of coffee increased 896,503 bags, in spite of an increase in the deliveries of Europe and the United States. Prices of Brazil, June 1, vary from those of the same date last year one-quarter to three-eighths of one cent per pound, and from June 1, 1892, a year of big crops, two and one-fifth cents. The deliveries of coffee for May were 397,217 bags of all kinds, a gain over the same month last year of 46,970 bags; total for eleven months of the trade year 4,020,556 bags, against 3,958,304 bags for the same time in 1893-94.

The deliveries of coffee in eight principal parts of Europe 6,270,458 bags, against 5,685,219 bags in 1894. The stock in the United States, June 1, was 534,609 bags, against 454,066 bags, June 1, 1894, an increase of 80,543 bags; stock in Europe, 1,556,882 bags, against 1,286,922 bags corresponding date last season.

Until the crops of the world average over 12,000,000 bags

annually, for export, there cannot be a recession in prices to the former era of low prices. The greatest crop ever harvested was in 1891-92, when 11,858,000 bags were produced. In this connection we reproduce below the exports from crops for eleven years, which figures reveal the fluctuations in the yield and show that, as a rule, a year of large crops is followed by smaller out-turns :

Year.	Bags.
1884-85 .....	11,440,000
1885-86 .....	9,488,000
1886-87 .....	10,313,000
1887-88 .....	7,077,000
1888-89 .....	10,598,000
1889-90 .....	8,658,000
1890-91 .....	9,297,000
1891-92 .....	11,858,000
1892-93 .....	11,233,000
1893-94 .....	9,202,000
1894-95 .....	11,129,000
Total, 11 years.....	100,343,000
Annual average.....	9,122,091

If crop disaster should cut down the export capacity of producing countries below 11,000,000 bags, there is no chance of a return to an era of low prices; if maintained at the average of four years, there must result a fairly steady market. On that basis there is only a difference of two or three hundred thousand bags between supply and demand.

Leading operators and importers regard the situation "clouded" and difficult to forecast. A clique of French operators are engaged in a big speculation, the outcome of which cannot be foretold. As a rule such operations end in disaster to the manipulators.

It is generally conceded that the enormous profits accruing to producers is placing a premium upon the setting out of new plantations and has so acted for five or six years. The result is seen in the steadily increasing yield of mild growths and less of dependence upon Brazil for supply. In a few years there ought to be crops more than adequate to the world's requirements and thus force lower prices. The Rio and Santos crops of 1895-96 are not expected to equal the heavy out-turn of 1894-95, which will approach 7,000,000 bags. The 1895-96 out-turn of all countries is estimated at 10,270,000 bags.—*Am. Grocer*.