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WEATHER AND CROPS.

Moderately high day temperatures prevailed throughout the month, but with the advancing season the nights were appreciably cooler than during the preceding month. While the rainfall was considerably less than that of September, unsettled weather continued in many localities with heavy showers at intervals in most windward districts. Extremely dry weather prevailed all month in leeward Maui and portions of leeward Oahu.

Young cane made very fair progress during the month, but an excessively moist condition of the soil in most windward districts of Hawaii and Maui promoted a rapid growth of weeds and rendered weeding and cultivation very difficult. In many sections, shortage of labor operated as a further check on field operations. Cane growth in the Kau district of Hawaii was retarded during the major portion of the month by dry and windy weather, but serious damage in that section was averted by light rains during the third week and heavier showers at the close of the month. 1906 crop cane matured rapidly and tasselling became general, especially in Maui and Kauai. Complete official returns show that the Hawaiian sugar crop for the year ended September 30, 1905, amounted to 426,248 short tons.

CANE CUTTING AND LOADING MACHINE.

H. G. Ginaca claims to have perfected an invention for simultaneously cutting and loading sugar cane. A complete working machine is now being built under his personal supervision. Tests were made at Honolulu plantation with the cutting portion of the apparatus. We understand that the results were very satisfactory. The inventor expects to return here in about three months with the complete machine ready for trial.

ON THE SUPERINTENDENCE OF SUGAR FACTORIES.

In the August number of the Planters' Monthly appears an extract of the report of Mr. Hamakers on the Hawaiian Sugar Industry, published in the "Archief voor de Java Suikerindustrie." The conclusions arrived at by the author will be acknowledged by all those acquainted with the local conditions. His praise is as justified as is his censure. Our excellent mills are as fully appreciated by the critic as we shall have to welcome and accept his criticism of that vulnerable part of ours, the chemical control. It has now become our turn to improve what has, in its rudimentary state of development, been found wanting.

The operation of our factories on a scientific and rational base is still in its infancy. Like those of other countries, the sugar industry of Hawaii will have to pass through all its baby-diseases, until at last it will be conducted on generally accepted lines. Looking back ten years, we find the chemist a curiosity and an experiment. It was not until 1897 or 1898, when the large Oahu mills were started, that we became accustomed to his appearance. To-day, seven years since, not less than twenty factories work under chemical control. As a matter of course, we do not include here the so-called "amateur-chemists," whom we consider of evil rather than good. Merely employing a chemist, however, will not do. To obtain from his work the highest results possible is the object in view. But here we encounter marvelous conditions indeed. Upon entering his new sphere of action, the chemist of ten years ago not rarely found engineer and sugar boiler in rivalry between themselves about their authority. To say that they received him with open arms, would be too much. For here was No. 3 coming, an intruder who might possibly venture to entertain the idea of attempting to participate in their dearly prized prominence. If at all, he was tolerated with prejudiced jealousy, but more frequently he was antagonized.

It goes without saying that the manager, with a chiefly agricultural training, and on account of the high importance of this part of the sugar industry, cannot possibly devote sufficient time to the manufacture proper. The logical step to take would have been, and still is, to create the position of a superintendent, who should be responsible to the manager for the manufacture in all its stages. This policy, however, a few cases excepted, has for some reason or other been hitherto avoided.

At first, the chemist was confined to the laboratory, where

he analyzed and reported on samples sent to him. His report contained some few data about extraction, composition of juices, and polarization of sugar. Things like recovery of sugars, or alterations in the method of working, were none of his business. That would have interfered with the sugar boiler! And did he find fault with the extraction, he was up against the engineer!

As it is rather difficult for the manager of mainly agricultural training to utilize even the partial information given by those reports, and as he lacks the time to see necessary alterations carried through, the report fails to be of any benefit and the chemist remains a mere ornament. It is this state of affairs which is responsible for the rather generally held opinion that the chemist is superfluous in cane sugar factories. As one did not understand to make the proper use of his work, he was in many cases thrown overboard.

His restriction to the laboratory, however, may be well-nigh considered as belonging to the past and we have reached the stage of the triumvirate. He is allowed nowadays to say a word in questions of manufacture, i. e., his opinion receives perhaps the same consideration as does the engineer's or sugar boiler's. The latter two, however, generally exhibit a masterly skill in checking his influence, which it will be wise for him not to extend to their traditional realm, although the best of the concern would require it. One has learned to tolerate the chemist, but the jealousy still remains; his work, compared with the former period, has become more beneficial.

One might perhaps approve of the present condition, were it not for the fact that the manager cannot go into all details of manufacture or consult the generally dissenting triumvirate, on points of minor importance. This being the case, the necessity of creating an authoritative power is obvious, and the question only remains: Who shall fill that position?

In other countries ninety per cent. of all sugar factories are superintended by a chemist, ten per cent. by an engineer. The importance attributed in Hawaii to the sugar boiler is entirely unknown elsewhere, and his position becomes the more insignificant, the higher the sugar industry of a country is developed. In beet-sugar countries, the sugar boiler must have learned some trade, preferably that of a coppersmith, and in Java the place is even filled, and filled well, by Chinese. This is explained by the ability of the superintendent to master all details of manufacture. By aid of the pan controlling apparatus he is in a position to impart to a half-way intelligent laborer that great secret of sugar boiling, as has been proved in Java and other countries. Nor will it be possible to evade this course of evolution in Hawaii. Also for these islands the time will come, when engineer and chemist, like in other

countries, will be the only candidates for superintendents. And in fact we already have in that position one engineer and two chemists.

The superintendent should have a thorough knowledge, theoretical as well as practical, of sugar—technics. He should have had scientific training in order to intelligently interpret everything connected with the process of manufacture, and in order to correctly value all innovations. Engineers of a scientific training are scarce in our industry, as they find better inducements in other fields. It therefore remains to give our attention to the chemist.

We are far from maintaining that the young chemist, fresh from college, with purely theoretical knowledge, is able to supervise the factory. On the contrary, we do consider him imperfect, as long as he has not added practical knowledge to his theoretical training. But theoretical knowledge is the indispensable foundation to his profession. His duties require him to visit the factory regularly and see the process of working. As he is furthermore the scientific adviser of the manager, and called upon to give account of everything going on in the factory, he should find no difficulty in acquiring the necessary practical experience. If the young chemist is given the opportunity of becoming familiar with the running of the factory, and if he does find the backing of the manager, he will in a few years, as no other, be the man whom to entrust with the responsibility for the manufacture.

The start is made. Let us continue in this direction, for the welfare and for the steady advancement of the Hawaiian Sugar Industry!

Ph. N.

THE HAWAIIAN SUGAR PLANTERS' EXPERIMENT STATION.

The Experiment Station of the Hawaiian Sugar Planters' Association was established in Honolulu in 1895.

For some time previous to this at annual meetings, Committees of the Planters' Labor and Supply Company, the predecessor of the Hawaiian Sugar Planters' Association, had called attention to the desirability of having an experiment station where soils and fertilizers could be analysed, reliable advice furnished to planters as to the proper amount and kinds of fertilizers to be used, and where different varieties of sugar cane could be grown and tested and analyses of fertilizers made. The advisability of establishing such a station, and finally the necessity for it, became so apparent, that the project was taken under consideration by the Trustees of the

Company; advice was sought from Doctor Stubbs of the Louisiana Sugar Experiment Station with a view to procuring the services of an experienced agricultural chemist, who might travel among the different plantations of the Islands giving advice to the Managers about fertilizers and other matters and who should have a laboratory in Honolulu, with an assistant, for analytical work.

The correspondence with Doctor Stubbs resulted in securing the services of Doctor Walter Maxwell, and the equipping of a laboratory on Nuuanu Street in Honolulu. The laboratory was opened and ready for operation in May, 1895. Doctor Maxwell's first assistant was Mr. J. T. Crawley, who continued as such for a number of years, and is now well known as the head of the Hawaiian Fertilizer Company's works.

The President of the Planters' Labor and Supply Company in his address to the annual meeting of the Company, in November, 1895, stated "that the sphere of the Station may be enlarged in various directions, and it will be left to your judgment to decide where the limits should be drawn, and where the extensions of the operations in this line may be made to the best advantage."

As soon as Doctor Maxwell arrived in Hawaii he devoted his first efforts to systematic investigation of the plantations, carefully studying the methods with which they were conducted, the varying soils and climatic conditions, giving attention to the needs of the higher and lower lands and to matters of fertilization and irrigation. It soon became evident to him and to the Trustees of the Company that if the Station was to be of the greatest assistance to the planters its scope would have to be enlarged, an area of land obtained, systematic field experiments conducted as well as the soil, fertilizer and cane analyses continued.

Therefore, during the year 1895, a suitable tract of land near Honolulu was acquired and experiments started. There was, perhaps, among some of the planters prejudice against the scientific methods contemplated, but fortunately this prejudice existed among a small minority, and it was not long before even these arrived at a full recognition of the assured fact that only with the assistance of science could the cultivation of sugar cane, and the manufacture of sugar progress, as it should if they were to keep pace with the rest of the sugar producing world, and occupy a position abreast of the times.

The number of chemists employed in the different mills was growing and individual plantations were paying more attention to scientific methods.

In December, 1895, the force at the Station was increased by Mr. C. F. Eckart, the present Director of the Agricultural and Chemical Divisions.

Doctor Maxwell in his report of the work of the laboratories in 1896 stated that the land for field operations had been put in shape for the experiments he intended to inaugurate. At first these experiments were confined to the leading varieties of cane, and fertilizing trials, made to note the action of the different fertilizing materials. Green soiling was tested and general station work carried on.

Doctor Maxwell was Director of the Station until 1900, during which time, and up to 1903, the Station comprised only the agricultural and chemical divisions, the number of Chemists employed being increased very materially; new laboratories were erected on the grounds acquired by the Company and all experimental investigations concentrated there.

The most important work first inaugurated was to investigate and report on soils. These reports for 1895 and 1896 are still the standards upon which later investigations have been based, involving as they do, a study of the soil of nearly every plantation on the Islands; for "while "the soils of adjoining plantations may closely correspond "in chemical composition, their relative fitness to grow crops, "which may be termed the state of maturity of the soil, will "vary with their relative ages, one being derived from an "eruption which occurred at a time outside our computation "and the other from a 'flow' whose age is preserved by the "traditions and even by the memories of living men. Further "we have the different climatic changes under which the soils "are forming or were formed. Not only do the Islands vary "in their respective receipts of rain, the conditions on the "same Island differ in as great a degree. On the upland or "mauka lands the soils are forming under comparatively low-"er temperature and greater falls of rain. The lower or makai "lands have a higher heat, but the rain is notably less."

The knowledge thus acquired enabled the station to give sound advice to the planters as to the kinds and quantities of fertilizers to be applied and generally to render assistance in solving problems in plantation administration.

These investigations and analyses culminated in the issue of a most complete and interesting report,—interesting not only to the people of these Islands, but to all countries of volcanic formation,—entitled "Lavas and Soils of the Hawaiian Islands." This report embodies a study of the lavas and soils of the Islands and shows the results of the investigations made, the examinations and analyses of the soils in the field and laboratory as originally laid down by the Station. It is interesting to note that requests for this bulletin are constantly received by the Station.

Another bulletin issued by Doctor Maxwell while Director of

the Station is entitled "Irrigation in Hawaii" which was published by the United States Department of Agriculture as Bulletin Number 90.

In 1900, when this bulletin was written, of the total product of the Islands 116,382 tons of sugar were produced by natural rainfall and 166,425 by irrigation. The disparity for the last crop (1904) is even greater, there having been 260,525 tons grown by irrigated plantations and 177,529 by rainfall plantations. Irrigation therefore is now and has always been a very important matter in connection with the production of sugar in these Islands.

The experiments conducted by the Station to determine the amount of water to be applied to the growing cane and the frequency of the applications in order to obtain the best results, are set out at length in this bulletin, and the conclusions reached were exceedingly important to the irrigated plantations, especially so to those depending to a great extent upon enormous pumping plants which are expensive to install and operate. It was shown in this Bulletin that there was excessive waste of irrigation water and overirrigation on many plantations, which was distinctly injurious to the crop and to the soil.

When Doctor Maxwell resigned in 1900 to go to Queensland, Mr. R. E. Blouin of the Louisiana Sugar Experiment Station was engaged in his place. Mr. Blouin remained at the Station but a short time, his health necessitating a return to the Mainland.

Mr. Blouin was succeeded by Mr. C. F. Eckart, who had been first assistant at the Station for some time, and is the present Director of the Agricultural and Chemical Divisions. The work under Mr. Eckart's supervision has been of the same high order as that which has characterized the Station since its inception. During the last three years the work of the laboratories has increased so much, especially in regard to fertilizers that the employment of a larger force of chemists has been necessary.

During late years a divergence of opinion was manifest among plantation managers regarding the general value of the results obtained from the field work at the Station, undoubtedly arising from the fact that the conditions existing at the Station in reference to climate and soil are radically different from those existing at many other places in the Islands, and the conclusions reached in experiments could not be safely followed by plantations on the other Islands.

Thorough investigation of this matter was made by the Experiment Station Committee which resulted in a report from that Committee in 1903 recommending that the field work be continued at the Station and that a skilled agriculturist be employed to visit the plantations regularly, in conjunction

with the Station and under the direction and control of the Director.

Following the adoption of these recommendations Mr. E. G. Clarke, who had extended experience in Experiment Station work under Dr. Stubbs and Messrs. Maxwell, Blouin and Eckart, was engaged as Agriculturist.

It was at this time deemed desirable to establish Sub-Stations in the various districts of the Islands where Experiment Station work could be carried on with the co-operation of the managers of the plantations. The experiment being thus conducted under exactly similar condition as those prevailing on surrounding plantations are conclusive, and of material benefit to the district wherein the sub-station is located, and through their experiments the Director of the Division is enabled to give accurate advice to planters in the vicinity.

In considering the value of this division of the Station to the sugar planters, especially to be mentioned, are the results obtained along the lines of rational fertilization and irrigation. In the years 1902-1903-1904, it was clearly demonstrated by experiments that wasteful methods were unwittingly pursued on many of the irrigated plantations: that excessive quantities of water were used without obtaining proportionate results in yield. It was proven that 3 in. of water per week gave only a slightly increased yield over 1 in. of water per week, and that the increased sugar gained would be far from paying for the cost of the increased irrigation where the water was pumped to an elevation of from 200 ft. to 300 ft. By the application of such results on irrigated plantations a very considerable saving was effected in the expenses of operation.

Results of the same nature were obtained in fertilizer experiments. The value of fertilizers used per annum on Hawaiian sugar plantations, together with cost of bagging, mixing and transportation, is somewhat over two million dollars.

This large amount of capital annually expended for fertilizing, and the fact that other sugar producing countries use very much less fertilizing material, causes one to wonder whether the large cost of fertilization in this Territory is justified by the amount of increased returns. The average cost of fertilization used per ton of sugar produced would approximate $4.65, and per acre $22.20.

It was shown in 1903 that in many cases, in striving for large yields excessive quantities of fertilizers are applied and that it not only fails to accomplish the object sought, but is positively harmful.

It is interesting to note that the average yield per acre of the crop of 1903 was 641 lbs. greater than in 1902, and there

is no doubt but that such increase was due, to a very large extent, to the results obtained by the Experiment Station in its fertilizer experiments.

The work of this Division of the Station, however, which in the future will show the most visible results, is the successful growing of cane from seed. For many years experiments in this line had been unsuccessful and it was the general opinion that sugar cane seed would not germinate in this country. In 1903-4 thorough preparation was made for experiments; a propagating house was constructed and special soil prepared. The seeds were carefully planted and every precaution taken to make a thorough test of this important matter. When some of these seeds germinated and the little shoots came through looking very much like small spears of Bermuda grass, great was the rejoicing at the Station. A large number of the seeds planted germinated and although many died in the cold Spring of 1904, enough remained to make a fine showing. At the present time these seedlings have attained a fine growth and give promise of great results.

It remains to be seen what will be the ultimate value of these canes, but it is confidently expected that before many years "Hawaii 74" and "Hawaii 117" will hold as high a place among the famous varieties as their cousins "Demerara 74" and "Demerara 117."

DIVISION OF ENTOMOLOGY.

Previous to 1904, the entomological work of the Islands had been carried on jointly by the Government through its Board of Agriculture and the Hawaiian Sugar Planters' Association, but because of the seriousness of attacks from insect pests and various diseases, the Trustees of the Association determined to organize a Division of Entomology in connection with the Station.

The crops of 1902 and 1903 had been very seriously damaged by leaf-hopper and it was apparent that, unless immediate ateion were taken to rid the plantations of this pest, it would endanger the profit of future crops.

An additional area of land adjoining the Station was purchased and spacious and excellent quarters were erected for the accommodation of the entomologists. Everything necessary in the way of equipment to enable scientific work to be conducted was obtained, including a most complete entomological library.

The staff of this Division, includes a visiting entomologist who inspects the conditions of each plantation from an entomological standpoint and reports thereon, thus enabling this Division to keep advised as to progress made, to know

immediately of any new pest and to be able to act promptly in regard thereto.

It is interesting to note, that the leaf-hopper which has caused so much damage the past three years, was noticed by Prof. Koebele in 19— and he then warned the planters against it.

The most important work of this Division since its organizathe pest, which they knew had been introduced from Queensland. They were successful in sending here despite difficulties, due to distance in transportation, and infrequency of steamers, a number of parasites which they believed would, if well established, effectually check the ravages of the hopper. These parasites wer carefully bred and later on liberated in different localities; and the expectations of Messrs. Koebele and Perkins have already been, to a great extent, realized, while many of the enemies of the leaf-hopper which were sent out here, did not develop, enough have become established to lead the planters to hope that the hopper will soon be under as complete control and as harmless as it is in the country from whence it was imported into these Islands.

Mr. Perkins is now engaged on a bulletin entitled "Leaf-Hoppers and Their Natural Enemies" of which four parts have already been issued being, we believe, the most complete work on this subject that has ever been issued. It is the first bulletin of the Division of Entomology and also has the distinction of being the first illustrated one issued by the Station.

DIVISION OF PATHOLOGY AND PHYSIOLOGY.

This Division was established in the Spring of this year.

It had been well known for many years that our cane was affected with some very serious root and fungus diseases, and especially so was this the case with Lahaina cane in one or two of the districts of the Islands where an almost total failure of this variety was reported. The attacks of the leaf-hopper which served to weaken the growth of the cane and therefore make it more susceptible gave these various fungus diseases an opportunity to become well established. It was the opinion of Mr. Eckart that the losses caused to plantations by fungus diseases have been fully as great as those by the leaf-hopper.

This condition of affairs brought about a recommendation from the Experiment Station committee to establish this Division. Prompt steps were taken to obtain a competent staff and the Association was fortunate to secure the services of Dr. Cobb, Mr. Lewton-Brain, Mr. Gross and Mr. Chambers under whom the Division of Pathology and Physiology has been organized.

A suitable laboratory and office building was erected for this Division and thoroughly equipped with all the apparatus required: an area of land away from the Station proper was obtained where experiments with cane diseases could be conducted.

THE SUGAR INDUSTRY IN MEXICO.

We reproduce in this issue two articles from the Mexican Herald, the one of which gives a complete and apparently fair description of the labor conditions in Mexico. Although there is but little similarity between those conditions and ours, the question is a vital one there as well as with us.

The Mexican Herald correspondent, it is quite evident, speaks with a thorough knowledge of the subject, with which he deals. Any one interested in plantation labor generally will find the article both interesting and profitable reading. It is only quite recently, that the Mexican sugar industry has taken a prominent place in the sugar world.

We have heard of fabulous profits made on Mexican sugar plantations; the tropical part of that republic has come to be looked upon as an eldorado for the sugar planter; we only heard of the high value of the sugar, the immense yields and cheap labor. That everything that glitters is not gold the writer clearly shows in his expose. From this and from the history of the Dos Rios plantation, which is also told in this issue, we learn, that the Mexican sugar planter has many difficulties to contend with, and that there as elsewhere good management and economy are essential to success.

There has recently been a tendency to cultivate sugar on a larger scale. One plantation has been laid out to supply a factory with 3000 tons of cane per day. That the contract for building the entire factory was awarded to the Honolulu Iron Works Co. is an eloquent tribute to the achievements of that company under Mr. C. Hedemann's management, and also to the leading position which the Hawaiian sugar industry has made for itself in the sugar world.

On this factory the Mexican Herald has the following to say:

THE TABASCO LAND AND DEVELOPMENT CO.

The big sugar proposition of which notice was given in The Herald a few days ago is taking more definite shape. Alonzo Mariscal y Pina, the representative of the Tabasco Land & Development Company, has made application to the department of fomento for a concession in behalf of that company for the establishment of a sugar refinery in the canton of

Minatitlan on the boundary line between the states of Oaxaca and Veracruz, close to the town of Santa Lucrecia.

The petition states that a large part of the refined sugar used in Mexico is imported into the country from the United States and other foreign countries, and, from this, the conclusion is drawn that Mexico ought to be a good field for a first-class refinery.

The Tabasco Land & Development Company claims to have the patent right to a new and cheap refining process, which has never been used anywhere as yet except in Hawaii, where it has been lately employed with the best results both as to perfection of refining and cheapness. It is also claimed for the new process that it is more perfect than any methods heretofore used for the refining of sugar.

The company expects to refine sugar also for the planters in the vicinity of the mill for miles around.

The company confidently expects that it will be able to run the foreign refined sugar out of the market, just as the native cheaper grades have already done with the cheaper grades that used formerly to be imported into the country.

In addition to this sugar refinery the company also propose to erect sugar mills which will be larger than anything of the kind heretofore established in Mexico. In this they will invest $1,500,000, gold. The sugar mill will have a capacity of 1000 tons a day to start with and it is proposed to increase this to three thousand tons a day.

For the purpose of carrying on this immense business the company will establish upon their plantation known as the "Oaxaquena," carriage and wagon roads, railways, telegraph and telephone lines as modern as anything to be found anywhere in the world.

Some months ago the company brought from Honolulu one of the first sugar experts in the world especially to plan out the new enterprise, select the site of the mills and refinery and to give estimates of cost, the kind of machinery to be used and hundreds of minor details, so that the company now has the future definitely planned out and is working along a certain fixed policy.

HISTORY OF THE DOS RIOS PLANTATION.

The oldest American plantation in tropical Mexico, and the one to which others have always been pointed as the shining example of a successful one, has, within the year, joined the ranks of the lost dreams. The Dos Rios and annexed plantations, operated by the Mexican Gulf Commercial Company, before that by the Dos Rios Plantation Association, and before that, still, by the Mexican Gulf Agricultural Company, are now

awaiting the answer from the deliberations of receiver and bondholders that will decide their fate.

Over three thousand acres of land planted in coffee, the majority of which is in fair shape, the finest coffee beneficio in Mexico, handsome managers' residences, houses and administration buildings, on some 22,000 acres of land, of which perhaps 5,000 are cleared, are the product of an expenditure which is represented by a capitalization of $5,000,000 gold and a bonded debt of $800,000 gold, a burden of $180 gold on every acre of land of every class, and at least $1,160 on every acre plot of cleared land. As a matter of fact, there are, in good condition, nearer 2,500 acres of cleared and planted land that 5,000, making the capitalization and bondage per acre of cultivated land over $2,000 gold. But since the early months of this year, when the company defaulted in the payment of the first interest on the $800,000 bond issue, the receivers and bondholders have been waiting to decide what to do, and asking themselves and others what is wisest.

A brief history of the Dos Rios venture will be of interest. The Dos Rios plantation was one of the very first of all plantations to be started by an American stock company in the tropics of Mexico. It is located on very good land about twenty-five miles down the Coatzacoalcos river from Santa Lucrecia, on the Tehuantepec railroad, at its junction with the Veracruz & Pacific railroad. It lies for several miles along the banks of the Chalchijapan river, up from its junction with the Coatzacoalcos. Its acreage, according to the statements of the company, is 22,000. In 1895 the Mexican Gulf Agricultural Company was organized in Kansas City, Mo., to found and maintain here a tropical plantation, for the raising of coffee and rubber, and minor crops. The first work on the plantation was done in June, 1896. The company was organized on the "lot plan," each share of stock representing an allotment of land, which the company agreed to plant and bring into bearing in any tropical product—the holders choosing coffee as a rule. The contract provided that the trees should be in bearing in five years and the company agreed to take the product of the plantings up to that date in lieu of the payments for the last two years. The plantation was opened by H. W. Bennett, one of the promoters of the scheme, and, it is said, a good manager. He was in charge until 1898, when W. C. Lewis, another of the promoters, took charge, remaining until 1902.

The five years of the first period rolled around. The company had gone in full of confidence, as nearly every company had done, but counted without the labor problem, the slow growth of their coffee trees, and the thousand other drawbacks that every plantation has to meet. So the end of the five years

came around with the company way behind in its planting, and half of those it had planted a good deal more than a year from bearing.

There was nothing else to do, as the money was all gone, so a meeting of the lot-holders was called. The situation was explained. The advantages of coffee growing were set forth, the promise of golden dividends was again held out, and the final plea came:

"Gentlemen, you have here a valuable property, but it is still in its infancy. We want you to put in more money, in order to get much more out of the place in the long run. If you have a block of stock that cost you $5,000, it is worth $25,000, but we can not get it out now. We want you to put in $5,000 more and get out $50,000."

They did it, each stockholder who so desired putting in his stock and the same amount of cash as his stock had originally cost him, and drawing out in return a block equal to the amount invested, as a member of the Dos Rios Plantation Association, the Mexican Gulf Agricultural Company being the owners, *en titulo*, of the land, and the developers of the same.

So it went on for three years, but it did not pay, even if the $5,000,000 gold of stock was nearly all paid up and had been put into the working of the plantation. Then, at another meeting, the company was reorganized as the Mexican Gulf Commercial Company, although the property still remained in the name of the Mexican Gulf Agricultural Company. This company went a little further, and bonded the plantation for $800,000 gold. This loan was floated among stockholders of the company and others. A block of $575,000 worth of the stock was underwritten by the Mercantile Trust Company of Kansas City. This issue of bonds was dated in the early months of 1904, and the first payment of interest fell due this year. The company defaulted payment, for the very simple reason that after nearly ten years, and with an investment of $5,800,000 gold, the Dos Rios plantations were not on a paying basis.

An investigation was ordered, and the company placed in the hands of a receiver by the bondholders. H. C. Flower, the head of the Mercantile Trust Company, the heaviest bondholder, was appointed receiver, and made a trip to Mexico and an extended investigation of the property, returning to Kansas City to make his report. Shortly afterwards, H. C. Precht, the manager of the plantation since Mr. Lewis' resignation in 1902, followed him. Mr. Precht returned to Mexico in July. Here the matter now rests.

When the Dos Rios venture was launched, Mexican coffee of good quality, commanded a good price, and promised to go as high as 25 cents, gold, a pound wholesale. The coffee industry looked promising. But the high prices were also tempting to

the producers of Rio coffees in South America, who had suspended operations when the prices were low. They began to pick up again, with the result that the price began another of its periodic swings, which, as those who have studied the coffee situation know, come every fifteen or twenty years. But when Dos Rios was started, coffee looked like a very fine proposition, and it was at the time the plantation came into bearing that the price was on the down grade, and slipping fast. Now the price is fair, about sixteen cents gold per pound in New York for the Mexican product (which is classed with the "mild" coffees, as opposed to the "Rios"). But those who are watching the market say that the price must go much lower, and force the Rio, or South American plantations to close up before it can climb high again. It is a cold blooded proposition, and the price of coffee is an exact criterion of the supply, as well as the demand, a thing which no man can regulate. The forecasting of the trend that prices will take is, however, not absolutely sure and infallible. But it is worthy of note, and can not be ignored in any instance. This fact is also undisputable: the Dos Rios plantations have not been able to make themselves pay when coffee was at a moderate price. Hence the question, answerable in only one way, as to whether they will be able to pay, or even keep alive, if prices go down. Such of the coffee plantations on the Isthmus as have been willing to admit it, say very frankly that they are not paying, and that they can not, under the present conditions of labor and market.

The natural question is: Why is Dos Rios a losing proposition? Primarily, it is overcapitalized and overbonded for the amount of land developed and there are no means of developing more without raising more money. Judging by its capacity for caring for its plantings, it is overplanted. One has but to ride through the plantation, on any road, to realize this. On one side, one sees carefully tended trees, in their rows, pruned and cared for; on the other, the tangle of second growth forest, with the leaves of the untended and practically worthless coffee trees glinting through. These plantings were made when the company had a contract with the holders of lots to plant and develop for each his tiny section of land. In spite of the fact that the original capitalization was based on the total of these lots, planted and bearing, and the subsequent increased capitalization on an increased acreage, it has been impossible, for various reasons, to care for even the acreage of the original planting.

The labor problem has been more than any other the one great vital reason for the failure of Dos Rios. The company was started, one must believe, in absolute good faith. Labor at that time was cheap, comparatively, commanding little more, on an average, than fifty cents a day and food of rice

and beans. In those days, labor came to the door of the plantation houses and asked for work, anxious to get it. But Dos Rios, whether its founders could realize it or not, needed a vast army of laborers to keep up to its contracts. This labor was no forthcoming, nor could it be gotten by any ordinary means or any offer of impossible increases of wages or advances of money. It simply was not there to get. But the price of the labor was forced up, nevertheless, in an effort to induce labor to come from other plantations. In view of the fact that the other plantations in this section are, almost without an exception, American, the price went up on all of them, and the labor staid where it was. Without going into the question of whether or not it was a mistake to force this price of labor up, it may be stated here that the Americans who came down to Mexico to start the first plantations knew, as a rule, so little of conditions in the country to which they were going that they did not know any better than to force American methods on the natives, with the result that the natives took the raises all right, but did not bother to move camp.

It is hardly an open question whether Dos Rios did not make the mistake of its existence in that it failed at the very first to go to the expense of colonizing its labor from the mountainous country of Oaxaca, in which case it would have had the labor it needed, and probably at a reasonable price.

The price of labor went up to a peso a day, and even then enough could not be gotten. Then was born the curse of the Isthmus, the contractor for labor for the routine work of the plantation. The hiring of labor for clearing land on a plantation can be considered legitimate, but the use on the plantation of labor which is hired by the day from a contractor, at a profit to himself, is an absolute loss of money. Dos Rios started the system of paying contractors $1.50 a day for every man's work, the man to be answerable to the contractor, the contractor to the plantation. The use of contract labor in cleaning and caring for the plantation, at so much a hectare, or acre, can be understood, but it is a desperate condition that calls for men to be hired from a contractor by the day. It means nothing but an absolute corner on the labor market. But Dos Rios made another mistake. Not only did it place itself in the hands of the contractors by giving them control of the labor market, but it went so far as to advance to the contractors the money for its enslavement, that which they would have to advance to the men. The plantation, one would think, could very easily, with one of its hired superintendents, have taken this same money, and gotten men, and surely at less money that it cost to hire them afterwards from the contractor. But the system called, apparently, for such a move, and it was made, and Dos Rios had labor on the plantation,

at considerably less trouble than if the labor was directly answerable to the plantation office. But it had, too, a large and assorted company of contractors, each owing the plantation from one to ten thousand pesos, and so the plantation and the contractor were as securely bound to each other as laborer and contractor. This system has been the cause of unending trouble, although, at present, Dos Rios has a very good set of men as its contractors, the drawbacks being largely the binding of the hands of the administration, and of the contractor also, so that the best results can not be obtained.

Regarding the price which is paid for the labor, $1.50 a day. This is far too much for most purposes, and when it is projected into the picking season, it is impossible. At this rate, with the labor of men, at task work, it costs one cent a pound for all the berries taken from the trees. This is five cents a pound for all the coffee beans, before they reach the beneficio, not counting the cost of transportation from the field to the mill. This is in itself a most considerable item, when it is considered that Dos Rios is attempting to compete with other coffee plantations in Mexico which pay from eight to twelve cents for each twenty-five pounds of berries picked, or from $1\frac{3}{5}$ cents to $2\frac{1}{2}$ cents a pound for the beans. The natural question then is, why does not Dos Rios get cheaper labor, women and children, as the other plantations do, to pick the coffee? The answer of the plantation managers is that it is impossible to get the women and children, that they can not colonize the people to that extent. And, indeed, the vastly increased amount of labor needed in the picking season often tempts the planter to pay even higher wages to get outside men from the villages. But is it not necessary to answer here the almost unanswerable question of *why* Dos Rios does thus and so. And it is sufficient to point out the fact, in this instance, that the plantation pays from twice to nearly four times as much for picking as the plantations which are making their places pay. It is fair to note, however, that conditions at Dos Rios are common throughout the neighborhood.

The cost of handling the coffee at Dos Rios, in the beneficio and on the steamer, are not obtainable. It is a well-known fact, however, that the splendid beneficio owned and operated by the plantation is not running to its full capacity for any great length of time during the season, which in itself is a loss, as a large proportion of the capital invested in it is not paying any interest, and is consequently a constant loss. The Dos Rios river steamer, in all probability, pays for itself in the freight and passengers it handles, so that the transportation problem is solved, to a degree.

But the big fact of the matter is that the plantation is not picked of its coffee to one-half, or even one-third of its capacity.

Last year Dos Rios shipped about a quarter of a million pounds of coffee. It could have shipped three times as much. Its labor conditions were such, for reasons best known to the managers, that is was impossible to go over the plantation in the picking more than once, when in reality, it should have been visited about three times. If the coffee shipped commanded an average price of 16 cents gold a pound, straight through the crop, its income this year was a gross of $40,000 interest, on an investment of $5,800,000, or about seven-tenths of one per cent. If a crop three times as large had been taken off, the interest would have been increased to two per cent, after ten years of development.

It is not the object of this article to attempt in any way to account for the money which has been put into the Dos Rios proposition by stock and bondholders. That is a matter which has been taken care of in the many reports of the company. A vast amount of money has been spent. There has been no attempt to conceal the fact that serious mistakes have been made by successive managements, such as plantings of coffee and rubber in unfavorable spots. On the other hand, a visitor at Dos Rios is given an opportunity to see at least a small part of the country covered by these mistakes. He is also allowed to visit the magnificent townsite of Dos Rios, with its splendid beneficio, the handsome house of the manager, the offices and warehouses, the residences of married employees and the staff house for the single men. All of these show where it was possible for a great deal of money to have been spent.

From what can be seen all about at Dos Rios, and from its history, it appears that the plantation can very honestly be characterized as "overadministrated." There has always been entirely too much of a desire to do things, to make a showing, at whatever cost, whether of advanced prices to laborers, or in planting coffee that could not be taken care of—an apparently abnormal desire on the part of the office which was selling stock to do more than the plantation could possibly stand.

The managers, who were placed in charge of the estate as good business men, have never had the staff of expert coffee men that would be considered to be an indispensable part of a well regulated coffee plantation. Nor have they had experts in charge of their labor, nor has, indeed, the most economical management of the labor problem been sought. The men who have been sent down, most of them from American cities, have learned what they have known of the business on the plantation, and too often at the expense of the plantation. Not only were the foreigners not experienced men, but the natives of the neighborhood, who were put in charge of the work, it is

claimed, were not versed in coffee growing, and hence made their mistakes. Experts there were, of course, but experts without authority beyond their advisory capacity, and without enough of a multitudinous personality to allow them to be everywhere at once. Dos Rios' mistakes would easily have paid for a staff of experts.

But the idea seems to have been, not to raise as much coffee as could be raised under the conditions, but to make the plantation the biggest, the one having the most stockholders, and the most fashionable among Mexican investors. Always demanding to have a handsome showing, at whatever expense, whether it be the finest coffee beneficio in Mexico, when there was no need for such a magnificent one, or unnecessarily fine roads, buildings and equipment, or whether it be to have a fine showing of laborers, even if they were hired from contractors for more money than they could possibly earn, judged by standard on every paying coffee plantation in the world. Such has been Dos Rios' fate, milked to her full capacity to maintain a standing to which she had been forced by too great a desire on the part of her promoters to make her a glittering example of a prosperity which could only come, legitimately, from long years of economical management.

But even with this explanation, the question still remains, as to what was done with the money. If all stock was fully paid, the sum of $5,000,000, gold, in stock payments gone in ten years, $500,000, gold, each year, $42,000 a month, $1,400, gold, a day for the decade. And the $800,000 from bonds, gone in one year, supposedly, if it was all collected, and the payment of interest on the bonds was refused because there was no money in the treasury of the company, and not for other reasons which the public is not given to understand. These are questions that must be answered by the company's authorities to the holders of the company's securities.

For the future. Can Dos Rios ever pay on its capitalization, and will that be possible even if a reorganization is permitted, and more money is poured into its ever open mouth? One must not lose sight of the fact that there are some 200,000 rubber trees approaching maturity, which in themselves will constitute a valuable asset. But does Dos Rios, a coffee plantation, dare tie its faith to a few thousand rubber trees a second time? That is very nearly what she did when the bonds which induced the present bondholders to invest, if one can judge from the literature sent out at that time. But coffee is the mainstay of the plantation, if it has one. Rubber, at a "conservative estimate of one pound of rubber per tree at the end of eight years," or even with a more normal figure, and a few more years, to suit the climate, can not pay any such

interest on the investment as the holders of $5,800,000, gold, worth of Dos Rios stocks and bonds have a most legitimate right to expect.

And for the future of coffee. Above has been briefly noted the present condition of the coffee market. If there is a single condition that may be mentioned as the critical one, it is that of labor. Even with a lower capitalization, more in keeping with the actual value of the land, the plantation would find it difficult to pay for itself without an improvement in the labor situation. Coffee is best adapted to a country, where labor can be gotten for very little and the profits can be calculated with corresponding closeness. But putting that question aside, and granting that Dos Rios can be made to pay if it puts its own coffees on the wholesale and retail market, and so gains all the profit possible in the coffee business, what can it profit the plantation if each year, through a lack of labor at any price, it picks less than a third of its crop, and the trees each year are set back by reason of wasting away because their energy is expended in ripening the berries and not in preparing for the new crop with fresh branches and protecting green leaves? The question is first one of getting any labor at all, and secondarily, of getting it at a low rate. One will save the crop, the other will increase the earnings.

And so, the question lengthens out, and one is prone to ask, even if the plantation were sold out for what it is worth, or even less than what it is worth, it would pay even then for the new owners, unless they could organize a new company and get more money to run it for another term of years. The same qustion applies to a reorganization, the single other alternative—it is far too valuable a property to be abandoned.

The bondholders are now sitting on the question of the fate of Dos Rios. They are, in all probability, preparing to act on Mr. Flower's suggestions in the matter. He is a man of undoubted ability and sound business sense. He can say one of two things to the bondholders, either:

"Gentlemen, you have lost money. The place is not worth what it is bonded for, and with present conditions, never will be."

Or he can say:

"The property is a good proposition, and with more money and a little more time, it will be a paying investment, and your bonds will pay. We can get something out by putting something in."

The thousands of stockholders and bondholders, who dreamed of finding themselves independent long ere this, are anxiously wondering which he will say.

LABOR IN THE TROPICS.

The one great overshadowing problem of the tropical planter in Mexico is that of labor. Almost everything else becomes subservient to that, and on that depends his chance of making his business pay big or little, or even pay at all. The question divides itself into two stages, first, that of getting the labor at any price, and second, that of getting it at a price that is reasonable enough to make it pay. There are many sorts of tropical agriculture, but in all of them, particularly if the planter finds it to his advantage to figure close, as he should, naturally, at all times, on the labor question, these two problems are continually facing him. And the problem, in all its phases, is one of increasing difficulty, so that, in some cases, plantations have abandoned work for this single cause alone. Those who have so abandoned work are very largely of one class, namely, the coffee plantations which were established without due consideration of those same problems of the supply of and demand for labor.

It is a favorite attitude of people, not only in the United States, but here in Mexico even, to talk and write wisely and voluminously on the wonders of the cheap labor of the republic, telling (largely for the investors in tropical plantation companies) of the great companies of men that can be gotten to work on their respective plantations, for wages like fifteen cents a day. They write beautiful prose poems to the peon, and his cheap labor, and contemplate erecting to his honor imposing statues, to show their appreciation of his services to the world. They dream dreams of future millions, founded on this same cheap labor, or if they are on the outside, let Pegassus fly high in their tirades against systems which beat down into the dust the people of a great country, and have sad words of sympathy for the poor peon woman who works all day long and far into the night for her paltry fifteen cents, to keep her body and soul together, to lie down, worn out, on the hard ground or harder boards, and pass a restless night. They do not know, or do not say, that her fifteen cents is usually gold valuation, with which she purchases perfume and silk (on credit) to adorn her persons, while the plantation feeds her well, and she spends her days as well as her nights in talking as only a peon woman can talk, and takes from Monday morning until Saturday night to wash the clothes of a single man, or at most a man and his wife, work which an old colored Aunty in the United States would do for a third of the money and board herself.

They do not know that, nor do they know that through long ages of experimenting, the Mexican haciendados have learned

so well that a peon laborer cannot, as a rule, earn more than fifty cents a day, at the very outside, including the cost of his food (which is usually given him and his family free). The cost of raising crops in the tropics, with the continual fight which must be waged against the all-devouring grass, and the jungle that is waiting just over the line, to sweep across the field and take it back to itself, and with only hand labor to fight it, is greater than it is in other lands—if the labor cannot be secured at an infinitely low rate. Hence, by a very normal logic, labor cannot earn any very large amount, as hand labor cannot earn in any land, not even in the temple of freedom to Mexico's northward. As to the cultivation of rubber, which is drawn out over a period of years, the labor problem must, of necessity, be a small one, at first. One planter remarked, in talking with the writer, and speaking as much for the sugar business as for rubber cultivation: "I came here expecting to pay $1.50 a day ultimately, if necessary, for I saw that conditions could not last under the conditions existing at first, on account of the increase of the number of planters who were willing to pay almost anything for their labor. And, too, if a matter of a few cents a day in the wages of labor is going to cut such a figure in tropical agriculture, then the industry is not worth while. We had better go back to the States, where the market is nearer and the returns surer. It is a long shot here, and if the margin were narrow, it would not be worth while."

In the past five years, or more properly, beginning nearly nine years ago, the number of plantations opened and operated by American stock companies in the hot country of Mexico has been on a terrific increase. When these companies were at the height of their glory and number, some three or four years ago, every available bit of labor was at a premium, and commanded nearly its own price. These plantations, for reasons good or bad, felt that they must have labor, and at any price. They paid extravagant wages, with the result, in many cases, that they did not succeed in getting all the labor they wanted, but did succeed in forcing the price of labor up to two or three times its normal value, namely, in the Isthmus, from $1.25 to $1.50 a day, including the cost of food. Two years ago, these companies began to slowly close up shop and the abandoned plantations along, and back from the Tehuantepec railroad, tell the story themselves. Now the conditions have loosened up, so that a plantation can get labor, if it wants it, at these prices, and by advancing money to the men, as all absolutely free labor prefers to work on the railroads where it gets work when it pleases, and at much the same prices.

Today, however, it can be stated generally, and with truth, that a very large proportion of the labor, of the Isthmus, more

particularly, is in the hands of contractors, who let out their men at $1.50 a day, or will take contracts for clearing land, planting it, or even cleaning it, at comfortable profits for themselves. This is in itself an evil, from the point of view of the honest plantation manager, who realizes that, as a rule, he could do this work himself much cheaper—if he had the men (which he has not). The contractor holds his men by means of advanced money, and so has them always at his disposal, and can offer the plantation manager the advantage of having his work done satisfactorily, by contract, and just when he wants it—a big item. But the system that has allowed the labor to get into the hands of the contractors, so that it is a fact that a plantation, in order to be sure that it will get its work done within a certain figure, and at a certain time, must go to a contractor, cannot be too greatly condemned. The situation is very largely the result of the work of fraudulent companies, which have been anxious only to have men on the place, to be able to report to the stockholders that they have them, and to get the work done, not caring what it cost, but only to be spared the nuisance and inconvenience of having to handle the labor themselves.

Behind the contractor system comes the method in vogue all over the tropics, come down from the genuine old feudal system introduced by the Spaniards: that of advancing money to the laborer to induce him to come to the plantation. This system has its advantages, in the holding of labor, if the conditions are right at both ends, but it has also its very decided disadvantages, of immense accounts, which can never be worked off, of irresponsible peons to deal with, and the laws which do not allow imprisonment for debt, and so give no tangible hold of the contractor or plantation manager on his men, and others which can be dwelt on more fully later on.

The enganchado system, of bringing down from the cities the scum of the slums and the streets, for a six months' term on the plantation, is but an enlargement of this same advance system. Its abuses are many, but its extenuating circumstances are also not to be lost sight of, for the planter is dealing here with men who are even less responsible than the native labor, in that once lost, they cannot be recovered, for they lose themselves at once in the maze of the city, and, as like as not, join another enganchado gang, in the hope of being able to run off again, and work the system all over again.

The labor problem is one of wide scope, covering a broad range of subjects, from the many problems presented by the native laborer in his many forms to those presented by the imported Chinaman and Jap, the hope of many as the solution of the vexing problems of the tropical labor question. Its phases will be dwelt on in more detail in subsequent articles.

The first requisite to a thorough undestanding of the labor problem in tropical Mexico is an acquaintance with the peonage system as it exists to-day in these sections. This peonage system is not recognized by the government of Mexico, nor is it given any protection whatever under its laws. But it exists —forced on the planters, whether they are willing or not, by the iron-clad adherence of the native to the customs of his ancestors.

As all who know Mexico knew very well, the Spanish conquerors came here with a prestige and a strength which, combined with a stubborn clinging to the ancient customs of Europe and Spain, finally swept almost every trace of earlier Aztec civilization and customs before it. Those old Spanish customs, forced on the people so long ago, have many of them survived to this day, far stronger than they have survived even in old Spain herself. One of these customs which the conquerors forced on Mexico was the peonage system. This system was, and is, analogous to the serf system abolished recently by Russia, where it had survived from the Middle Ages. It came direct to Mexico from Spain, where it was then flourishing, as it was flourishing all over Europe.

The system was briefly this: A man for a certain sum of money advanced him by the lord of the land who wished him to till the soil on his estate, mortgaged himself and the labor of his hands to this lord, for as long as it took him to repay the money advanced to him. An advance once made, the old barons were careful to see that the laborer never got out of debt, and so he worked on the estate, practically a slave, to the end of his days, when his sons took up his debt, and, with a few more advances, which they spent in one glorious day of freedom at the native feast, were themselves mortgaged to the feudal baron. This was the peonage system as it existed in Mexico under the old Spanish regime. To-day, it exists, but with a few modifications. The peon must give a contract, and his money is advanced to him more freely, so that he may attend many feasts, where before he could attend but one, or very few, and his debt cannot be transferred to his descendants. With these exceptions the peonage system exists to-day as it existed then.

But it has this reservation: It has neither government sanction nor government protection by any law on the statute books. It is peonage with no possible support but the power of coercion and the ignorance of the peon. As to law that can be construed to its support, there is none. Under the law, the peon is free to "jump" his debt and go his way as a bird of the air. It is, in fact, as a planter remarked, "like giving a rabbit a handful of clover and then expecting him to work out the debt." The peon is absolutely irresponsible.

He cannot be imprisoned for a debt, if he chooses to refuse to pay it, nor can he be put in jail for breaking a contract. Both processes are civil, and as the peon has no property but the white manta clothes on his back, his hat and his sandals, civil proceedings against him are too simple to bring any practical results. He can be arrested for fraud, and if it can be proven that he made the contract with the deliberate intention of breaking it, can be committed to prison for punishment. That, however, is an expensive process, under the law, and the man is gone, in any case, unless the employer is allowed to take the peon back to the finca instead of committing him to prison. The peon is not the most intelligent man in the world, but he is quick to learn that there is no legal recourse for the planter if he chooses to break his contract. He has the moral responsibility of a chicken and an opportunity to get out of paying his just debts he regards only in the light of a most pleasing windfall.

Since time immemorial the peon has gone to work only for those who have thought it to their advantage to advance him money, which he may spend and then work out at his pleasure, as seems most convenient for himself. There are many "free men," constituting the "volunteer labor," but as has been said, this labor prefers, usually, to work on the railroad, where the work is not given by tasks, and can be made much lighter if the workman so desires and the "cabo" is not watching. A number of the American plantations claim to be using this sort of labor, a statement which is open to question, for the supply of such labor that is willing to work on plantations is very small, and comes now largely from the far-off mountain districts of Oaxaca. It is at best a floating labor, which cannot be depended on to any degree.

The great majority of the labor employed on tropical haciendas is brought from the small towns, with or without the families of the men being induced to come by the advance of certain sums of money, ranging all the way from $20 to $25 to several hundreds. These advances have grown out of the old Spanish system, but its abuses—the advance of such great sums—have only come with the advent of the American plantations. As mentioned in the previous article of this series, the managers of these plantations were in many cases anxious only to get the men on the place, and cared little how much it cost or how much work they got out of them for the money put into their salaries and advances.

So, when the Americans came to the hot country, knowing nothing of customs or ancient traditions, or any of the various interesting traits of the peon, they thought and talked mightily of the industrial revolutions they would bring to pass in

Mexico. They soon learned, however, that such things were matters of a slow evolution. So they asked around and found that one of the best places to get labor wast at the big Jaltipan feast, late in January, when the Indians came there in flocks, and where for many years planters had gone to get their labor. So they went to Jaltipan, and no one can deny that they were a bit revolutionary there.

If one went to Jaltipan, which is a goodsized town on the Tehuantepec Railroad a few miles up from the city of Coatzacoalcos, about five years ago, at the time of the feast, one would have found these Americans applying American business methods to the carrying out of the ancient Mexican custom. Each plantation was represented, and all along the main street of the town where fiesta booths were erected, they rented rooms, and hung out their notices. These rooms were fitted up principally with long tables, covered with green cloth, where were piled up (carrying out the similarity to gambling houses), great piles of silver pesos which the mozo could see through the wide open door. Along the street were the agents of the plantations, and when a likely looking mozo came along he was invited in, with the courtesy that would be shown a prince. The conversation was something like this:

"We want you to go to work on the A————————plantation."

"How much will you give me?"

The price was named, and the instinctive bargain-maker shook his head.

"Not enough."

A higher price was named, and possibly at last, if the feast was nearing an end, and the quota of laborers wanted was not full, they asked him how much he wanted. Then he answered.

"Well, I just signed up with B————————and got $150."

And the answer came back: "Here, take this $150 and pay them off, and here is another $200 to spend."

The figures were not always so big, but in those days few men were taken back to the finca without a debt of $200 or more. And after that they expected him to work in the fields and be a humble servant all the rest of his days, or until they sold the rest of his account to some one else.

In the earlier days the question of wages did not enter into the calculations so much, for the peon cared little. His debt was a hopeless one, at best, and the amount of money he got counted for little. The usual wages paid at that time were $12 or $15 a month, with deductions for the days the man did not work. Later, the Yankees began talking more about the

wages they would give, and the 75 cents a dollar a day wages were held out temptingly, although they did not reduce the amount of money for the davance. Then came the promises of extra fine food, which were usually kept, and were a good advertisement for the plantation, although a trifle more expensive than one would always deem advisable. And so matters went from bad to worse. Now, one can go to the plantations where the men are drawing a dollar a day, with food costing 50 cents, including meat and coffee, luxuries the men were expected to buy from the store with the money they earned in the old days.

The advance system has, besides, been carried to great success. The writer has had access to the mozo books of many plantations, and has seen accounts running up into hundreds of dollars, often approaching close to $1,000 for a single man. All of this money has not been advanced at once, but has been given for feasts which the mozo wanted to attend, and was allowed to attend, for the sake of keeping him contented, and, at times, for sicknesses, the cost of which, besides the doctor, who is usually employed at a regular salary by the plantation, is charged to the mozo. A large item in many of the accounts is the cost of bringing back to the finca the runaways, which occur many times during the year, even on the best regulated plantations. This is always a big expense, including the cost of sending a man back to the native town of the runaway, to which he almost invariably returns, the incidental expenses of the trip, and the railroad fare, all of which is charged up to the mozo. When a mozo with such an account dies or runs away, the item is one of considerable note.

But the peon cares little for these small things. A debt of a hundred dollars is almost as hopeless to him as one of a thousand. He does not see how he can ever get out of debt, so he cares little about trying to do so. The story is told of a mozo, who was refused an advance of $50 by a Mexican planter to whom he had gone asking for a place, on the grounds that the planter had lost heavily in a wreck at sea. The loss was some $700, and when the mozo had learned the details, he made this proposition to the haciendado: "Give me the $50 and charge the $700 to me."

The system of asking for the money in advance is not entirely to be charged as a lack of thrift on the part of the peon. It is his only method of getting any enjoyment out of the fruits of his toil. He has no capacity for saving money, and spends every cent he is given as soon as he has it in his hands. And, indeed, if he were able to save money from his wages, he has no place to put it. He cannot trust his best friend in money mat-

ters, and would not expect any one (except an American) to trust. He has no place to put the money—he often loses the slip of paper showing that he is a free man, and owes no man money or labor—an invaluable document, in the midst of those about him on every hand, who are willing to take even his liberty. The banks will not take his money—and, indeed, there are no banks there which do a small business. The only way he can save money is to get it before he earns it and spend it quickly. So, from his point of view, he is, to some extent, justified in demanding the money ahead. And, moreover, he has learned to expect it, through many generations. But he spends it like a prince when he has it, and is happy for the few hours, to go back, when it is gone, to the hard, unbroken labor of the field.

There is no law to hold the peon to his contract to work until he has paid off his debt, but he is so held by the force of custom, which in the old days was backed up by might of arms. And more than once, some people of the towns when the laborers come are willing to help out the planters by keeping an eye on the men when they return home, and sending them back to their work. The planters also sell the accounts of their mozos to one another, sometimes for less money than was originally paid the mozo in the first place, if he is found to be too anxious to leave, or feels that he would be more contented elsewhere. For this peonage system is not slavery, and a man can get what is called his "liquidation" if he so desires it, at almost any time. This "liquidation" consists of a statement of his account, with which he goes to another planter, for whom he is willing to work, and induces him to pay the original holder, after which the mozo is bound to work out the account under his new master.

With this statement of the peonage system, this article may be closed. Subsequent articles will deal with the treatment and handling of the mozo on the plantation; the difficulties he presents, and the proposed solutions of the labor problem, offered from many sources.

The mozo, the careless, improvident, unambitious laborer, is the king of agriculture in Mexico. In his grimy hands he holds the fate of every finca of Mexico, and does with each as he wills. This is not a unique condition. Literally taken, it is the condition in every land. But here, in the hot country, the labor is so imperious, so self-satisfied, so improvident and unambitious, that the fact that the laborer holds such power is felt every day that passes, and felt with the keenness of a most unwelcome truth.

In the tropics, labor is the scarcest of all commodities. There are many towns, but their population is small and life is so easy that, in the climate that holds no stimulus to ambition,

only a small part of the small population considers it worth while to work for hire. The rest live on their feeble wits, or till a tiny patch of soil in an easy, hot country fashion, and take therefrom enough to keep them and their families happy, and a little more to take to market once a week, for an excuse for the trip, and to gain a little money wherewith to make the trip enjoyable. But of course a part of the available human strength of each town goes into the labor market to find work on the railroad or on the fincas that are always wanting the help of the little workman. But the scarcity of that kind of labor is what makes the labor problem of the tropics.

There has always been a labor problem in the hot country. It was never before so baffling as now, but always the planters have had to meet its phases of the advanced money, the careless work, the drinking of aguardiente and, in some sections, the necessity of going out and hunting up their labor in distant towns. And with the years of experience that is back of the old Mexican plantations, they have come to the conclusion that he who deals wisest with the peon, for the good of all concerned, is he who pays him the least and works him the hardest.

Brutal? Perhaps, but their logic of it points out, from an intimate knowledge of the peon, that if he is paid more money, not only does he fail to work harder, but, on the other hand, with his increased wages, finds ways to spend it for the hot country's curse, more virulent than any whiskey, aguardiente and other extravagances, making him unfit for work. The planter, then, who pays him no more than he actually needs, gets the best service from him, in that he does not have the means to do more than work. As for working him the hardest, he who keeps his peons continually "at it" finds them less ready to pull up and leave than he who allows them to spend many days and all the hours of every afternoon in comfortable and mutiny-breeding loafing and gambling about the quarters.

This was the old system, the system in which was engendered a true feudal estate, in the best sense of the term, with its paternal and most commendable system of considering the peon as a part of the place, and connected with it by ties affectionate as well as pecuniarily. In those days the peon on the plantation was far better off than he of the town. He was in debt to his master, to be sure, but that debt in itself was an advantage. It guaranteed him the attention and interest that a fine horse would command, for not only was there the advantage of a good strong man for the estate, but he represented capital, and as such, was exempt from many of the abuses which might otherwise have come to him. He was cared for when he was sick, he was made contented, as far as possible, and made to feel that his interest lay in adapting himself to his surroundings, which he did.

These were the conditions as the Americans found them when they came to make the tropics of Mexico the model of every land under the wide sun. When they first came, some of them made the mistake of advancing the wages beyond the normal scale. This was a fault up to which the actual conditions grew after they had been in possession a short while, and more Americans came in, and the demand for workmen sprung up and increased. For the advance of wages, it must be stated, is not by any means entirely without good and sufficient cause. It has gone up by the unchangeable law of supply and demand, and as such, can merely be commented upon as a thing outside the power of man to regulate. In many instances, however, the bid for labor, of higher wages, has been far beyond its real worth in any field of work and has, of course, not added to the supply of the labor.

But there is this point about the higher wages. The poen has no idea of saving, as has been pointed out before, and the higher his wages are, the sooner he begins to feel within him the call of freedom—his princely freedom, as he makes it—the sooner must he stop work and make the long journey to his home fiesta and spend gloriously all his earnings, and all the advance he can get on the strength of his big wages. This, naturally, is not an advantage.

The peon is a ticklish problem. Few Americans know how to deal with him. They are too democratic, and so make him lose respect for them, or they go to the other extreme, and, with the memory of the big debt, or knowing how the poen has been begged to come to work for him, treat him with far too much respect to get very much good work from him. The planters—American and Mexican—who are trying to make their plantations pay without living on the hopes of the great future of rubber, have said again and again to the writer that the peons who go to work on the big American fincas come back spoiled for any real work with them, spoiled on account of the fact that they have had far more aguardiente than was good for them, spoiled because they had found life far too easy with the Americans to have any considerable desire to work hard again. This may be unfair to the majority of Americans, but it is without doubt true of a comfortable minority of them.

Another objection to the make-up of the peon is that he will insist on running away. His responsibility has never been very clearly defined to him, and he feels that the only reason he should not run away is that he may get caught. Here his appreciation of a contract ends, and here begins and ends moral responsibility. He does not know what that is. The true difficulty with the peon is his remarkable psychology. Planters have sworn mightily at him, and called him "a wretch without the slightest sense of honor or gratitude, as ready to

get up from a sick bed where you have nursed him for months, stick a knife into you and jump his contract as to smoke a cigarette." All of which, many planters would think a moment before they would deny. But the peon is not a bloodthirsty person. One would smile often before one would be convinced that he could summon enough energy to do such a delightfully dramatic thing. But behind that remark lurks spectres of men who have met a fate that seemed to be close to that very prophecy. But the ordinary peon is a man of leisure, primarily, whom an unkind fate has forced to soil his hands with toil. He does not go out to his work happy in the thought of helping a bit the development of the scheme of things, nor does he come home "tired but happy." He may sing in the field, though no American ever heard him. His chief joy in life is to line up at the store in the morning and the evening for his drink of aguardiente, and there his pleasure ends, apparently. He is to be pitied for it, perhaps, but one should not waste too many tears.

The peon is well treated on most plantations. To be sure, there is a most comfortable profit in the plantation store something over 100 per cent.), but that is mere interest on the peon's debt, the plantation manager will say, and in return, the peon has all the many beautiful things which so tempt his extravagance and tickle his fancy. He enjoys nothing more, especially as he can at times gratify both by some unexpected and inappropriate purchase. And the peon is pretty well contented. On most plantations he has his little house and his family if he wants them, and food is issued to him for both his wife and himself. Those plantation managers who have found that contented men work best follow the old Spanish proverb, "Barriga llena, corazon contento," (a full stomach makes a contented heart). The rations on many plantations are generous, even to a fault, but the managers feel that it pays sufficiently well to be worth while. A representative weekly ration that is given by the San Marcos plantation, at Palenque, Chiapas, will be of interest. Each Monday morning, the weekly rations are dealt out for a family as follows: Beans, 1½ kilos; rice, 1 kilo; coffee, 600 grams; salt, ½ kilo; lime, ½ kilo; lard, 1 bottle; kerosene, ½ bottle; brown sugar, 1 kilo; meat, 3 kilos.

Single men receive half the above ration. And this, with comfortable houses, music, and all that makes home pleasant for the lower classes of Mexico, go toward the contentment of the labor on the plantations. In fact, it is a soured plantation man who will not say that the peon is infinitely better off on most of the plantations than he would be in his native village. And on some of the plantations, too, notably the splendidly managed del Corte hacienda, some thirty kilometers east from

Palomares, Oaxaca, there are churches, with priests making periodic visits, and arrangements are made and carried out for fine celebrations of the feast days, another bid for the contentment that is so hard to find in a peon when he is away from his native hearth. The peon has no word for "home," but he is as hard to tear from his native "tierra" as a lichen from a rock.

But in spite of all this, the peon is not what can be called a good laborer. That is, he does not rank up with the laborers of more temperate climes, or even with the best in tropical countries. He is, frankly, not worth what he is paid, for reasons, to a degree, not his own, as he can not increase his efficiency by the use of machinery, for instance, as tropical agriculture does not admit of its use to any great extent. On his own account, too, he has many drawbacks. In the first place, he always wants to get back to his home country, and is never contented until he has returned. Some fincas have gone far toward disproving this contention, in that they have many families who have settled with some degree of permanence on the plantation, and are contented to stay there most of the time. They must always, however, go back to a fiesta at home once in a while, at least once a year. But the contented "colonized" peon is the rarity. Most of them are continually looking forward to the opportunity to go back, and few, it may be stated generally, expect to work out their contracts to the full time. They are always looking for a chance to run away, and not have to come back. The fatality of their always, without exception, almost, returning to their homes, is what makes it unpleasant to get away. They are almost invariably brought back, with a big new debt on their shoulders.

And what is the secret of the regeneration of the peon? What can make him earn his money, and earn larger wages and so be of more value to the planter? The peon has undeniably deteriorated since the advent of the Americans, and the partial shattering of old traditions. But is not the coming of these same Americans the secret of the awakening and stepping into a new life for the peon, a new life where he will be of more value to himself and to the community, as well as to his employer?

Some will swear that he can never be regenerated, that he is now, and ever will be, the incarnation of the leisure of the tropics, and whether lazy or not, will have to live long before he passes away from that feeling of ease and comfort which has become his wont.

And yet others say that he is on the up-grade even now, that not only is he increasing in intelligence to a degree, but his efficiency and ability are increasing, too. Five years ago, the mozo on any plantation would not think of buying canned

goods or beer. Now, with things of that sort—luxuries, if you will—all about him, he wants them, and to get them, he must work. He can no longer be content with loafing under the bread-fruit tree by the stream all day, and working a little every little while to get money to buy himself cigarettes. He has wants of a higher grade, and to satisfy them, he must have money, and to have money, he must work. The average is increasing, and as the intelligence and the standard of living of the peon increases he does better and more intelligent work, and demands higher wages. And so the system is working around, in the minds of these men, and is the old story of increased wages bringing increased wants, with a consequent increased desire to get money, increased ability and value and increased wages again, and so on around the circle once more. From this, many of the most intelligent planters of the Isthmus argue that there is in the course of development in the Mexican tropics a laboring man of ability, intelligence and ambition, tending toward the evolution of a worker who will compare favorably with men of his own class in the United States.

The term "enganchados" is used on the American plantations of the Isthmus of Tehuantepec in referring to the contract laborers from the cities. Literally, the word means "the contracted ones," but it is used almost entirely to refer to the city men. It is also shortened to "enganchos," for convenience. This sort of labor is the worst that comes into the hot country Its gangs are made up of the scum of the cities, men who have lived off their wits until they came to the inevitable end of their string, broken down, pulque-soaked, their blood polluted with nameless diseases, until they are fit for nothing, and a wily contractor forces them on a planter who can get no other labor, and he puts up with them as best he can until the end of their contract.

There has of late been considerable discussion of what is called "the enganchado problem." On May 14, the Herald printed a letter from Herman Whitaker, a writer of note, who has spent some time in the section of the Isthmus in which enganchado labor is used to the greatest extent. On May 23 it printed a communication from the Vista Hermosa plantation, replying to Mr. Whitaker's letter. Both were well written articles, and each set off in startling contrast to the other the views which each had of the problem. Mr. Whitaker saw only the humanitarian side of it, and declaimed in no feeble terms against the abuses of the system. On the other hand, "Vista Hermosa," as the writer signed himself, shot straight home to the truth of the situation as he saw it, at close range, and after five years living near it he said that this labor was not used on their plantation. Both were right, and both views can be commended. Mr. Whitaker made some mistakes, due to a lack of knowledge of everything that pertains to the system, but he

wrote from the point of view of a man who had seen with his own eyes. "Vista Hermosa," on the other hand, failed to give Mr. Whitaker due credit for his efforts or for his point of view. Since the appearance of these two articles, discussion has been rife on the subject. This contribution is designed to give, as far as possible, the normal view of the matter.

The use of enganchado labor is confined very largely to the plantations in the Trinidad and Colorado river valleys in the states of Oaxaca and Veracruz. It covers other sections also, and many of the plantations in that section are free from it, but this is the principal center. Here labor conditions are at their worst. The native labor is scarce and hard to get, and the only chance the planter has to get labor is to bring it down from the mountains of Oaxaca or import it from the cities. In view of the fact that the city labor is much easier to get, and a comparatively small portion of the inhabitants of the mountain towns care to come down, the former method is that most often resorted to. It is simply a question of getting enough labor to go around. The supply of native labor will not supply all needs, so the planter goes to the city contractor.

This solution of the labor problem is as old as the history of agriculture in Veracruz. The enganchados, or worse, convict laborers, are used in the Valle Nacional, and other tobacco growing sections, and have been for many years. The only vital point of difference between the enganchado from the city and his cousin from the hot country village is geogrophical. But this means a great difference, when it is projected into the make-up of a laborer. From the plantation manager's point of view the difference in geographical location means that he must put up barbed wire galeras in which to house his enganchados, lest they run away, a different attitude from that maintained toward the native laborer. For the laborer, it means the difference between a man used to the country and to farming, and one who never saw a machete except in a store window, and has not the slightest idea of agriculture of any sort, not to mention the various disadvantages of mental and physical make-up.

The enganchado comes from the city. Usually he comes because he is down in the world and finds here a chance to make his living, and get away from town for a while. A contractor of labor comes to the city, makes his headquarters in the places where these wrecks drift, even as a sailor's lodging-house keeper watches for the derelict that he will ship aboard the next vessel that needs a crew. Here he meets his men. He picks up the waifs of every class. He has broken down cargadors, street loafers, thieves who think it is time to leave the town for a while, clerks who have lost their places, and are broken down; tradesmen, and even professional men. It is a sad crowd that goes down to the plantations as city enganchа-

dos. Those who are educated are always careful to conceal it, and even their nearest bunk-mate knows nothing of it, though men who spoke English perfectly, tradesmen who have found good places to work at their trades on the plantations, and even bookkeepers have been found among the derelicts of an enganchado gang. Finally, when the number is about complete, the contractor goes to the jail, and by paying the fines of a few drunks or petty thieves, or stealing a few who do not want to go, fills up his quota and bundles the gang on the train.

This is the crowd that is dismounted at the little station nearest the plantation, down in the hot country, and marched out to their work, and into their galera. This is what the plantation manager has to deal with, to plant his crops and reap his product, and do all the many things that must be done every day on a plantation. And 50 per cent., almost, of every gang of these workmen have come with the idea of leaving as soon as an opportunity offers. The trip has been pleasant, and now they are anxious to get out of paying for it, and for the money that was advanced them. Most of them know what they were coming to. The barbed wire galera was put there because they needed it, as every man knows in his heart. There is no great objection to the treatment, at first, but that very night, if it is possible, some of the men will slip away. They have no honor with regard to a contract, and are only waiting for a chance to jump it, and the debt they have. Each man and woman has been advanced a small sum of money, which is charged to account and which he or she knows must be worked out. Nothing else is charged. The railroad fare and expenses are paid by the contractor, who has received a comfortable sum averaging $50 for delivering each laborer to the plantation. In his gang there was one woman for every five or ten men. They were tortilla makers and public women of a low class. There need be no tears wasted on their lot. They knew what they came for, and consented to it.

As an illustration of the attitude of the enganchados, as a class, toward their employers, and the absence of any feeling of gratitude, may be noted the instance of a certain enganchado who came to the plantation with a sore breaking out on his leg. The sore was one of those which come from but one cause, venereal disease, which, unseen when he was examined by the physician in Mexico, had, two days after the man's arrival in the hot country, and urged to a head by the unaccustomed warm weather, broken open. It was of the sort that are most common among the enganchado laborers, but particularly loathsome and bad. The man was taken to the house designated as a hospital, and for five weeks was nursed and given good care, attended by the company physician. The night

after he was declared well, and fit for work, he broke out of the galera and took himself away.

But in this these men from the cities are not very different from those from the country about the plantations. Practically all that restrains the natives is the fact that if they go home, where they invariably go, they are easily apprehended by the officials and agents of the company and brought back, while the enganchado, once gone, can seldom be returned, as he easily loses himself. Moreover, no law can be brought against him to force him to return, even if he were found, and coercion is too dangerous in the cities.

And yet, to a degree, one can easily understand the attitude of these men. Many of them were drugged, coerced into going, and naturally feel that they have a right to take French leave. But this does not apply to all, by any means. Many are men who went into the game having known it before, and expecting to try it again. One plantation man told the writer of an enganchado, a good workman, this time, who had been to his place several times, always returning to the city, however, in preference to working steadily on the place. But he had come back several times and worked his time out. The planter met an enganchado gang on the train one day, and found this fellow among them. He spoke to him, and soon the enganchado was pouring out a sad story of how he had thought he was going to the plantation of the planter he was addressing, and now, much was his sorrow when he found that it was to another. He wanted the planter to buy the account. That was not feasible, and the poor fellow went on into the unknown world.

In the treatment of the enganchados on the plantation, one can find much to criticise. They are housed in great barbed wire galeras, or huts, with meagre sanitary appliances, and nothing more than boards to sleep on. But there is much to recommend these housings above those of many of the free men. If they are well constructed, there are all the conveniences one could ask for, even separate rooms for families, if such exist, or for the women, if they should happen to desire to use them. The model enganchado house is indeed a model, and one can see such houses on many plantations. The enganchados are guarded most carefully, for there is the ever present danger of their running away on the slightest opportunity. After the cabos are cruel in their treatment, a fact which is to be condemned, although it must be borne in mind that the men they are dealing with are men who need just such treatment, and can understand no other. Taking advantage of the situation, however, cannot be too much condemned.

The enganchado system is largely judged by its abuses, and not by its advantages. And these abuses exist. No planter

who knows the real history of the system, or the inside facts of the neighboring plantations, will deny for a moment that the worst stories of the enganchado system are true. Referring again to the article written by Herman Whitaker for the *Herald*, it may be said on most competent authority, even other than Mr. Whitaker, who is thoroughly reliable, that the abuses he mentioned and suggested even more strongly not only do exist, but have existed for years. But, on the other hand, Mr. Whitaker saw the things of which he wrote practically all at one plantation, and one camp of that plantation. There are other places of which stories are told, although many of them have changed their tactics, and are now treating their labor in a more humane way. As a rule, though, the enganchado labor is in the hands of the contractors on the plantations, and to them is due, finally, the blame of the treatment accorded the enganchados. The greater portion of the blame from the outside, however, falls on the Americans, who are the heads of the plantations, and of course it does, to a degree, rest there. It is not in keeping here to mention the abuses which are alleged to have been practiced against the enganchados, the treatment of men so shamelessly that they die, the raping of women, the deprivation of the laborers of any means of bathing, and the insanitary conditions of their houses, leading on to noxious diseases. The truth of the matter is that it is a very small percentage of the employers of enganchado labor who are unnecessarily cruel and thoughtless toward their men. Most of them are anxious to take care of them, and have them well as soon after they get sick as possible, in order to get the best work from them.

Plantation men do not take enganchado labor because they like it, nor do they prefer it to any other, even the lowest. But there is a certain advantage in it, as one planter said to the writer, with a queer thrill in his voice: "When you've got 'em, they're yours, and have to do what you want them to do. If they don't, you can kill 'em!" And yet the man did not kill them. It was only the consciousness of his power, the realization that he was lord over the bodies of these men and women. It is a strange feeling, not compatible with American, or Mexico City ideals, perhaps, but part of the wonderful system which has grown for centuries down in that hot country. And it is just there that the danger lies. The power of life and death has ever been a menace to the proper development of a race, and here it is, in almost its native strength. There is the danger, and there is where the wrong sort of man makes his mistake.

The enganchado labor is a thing that has come, and that men must look at squarely and honestly. If it is the crying evil of Mexico, let it be stopped. If it is far from being that, let it

become the thing that men can make it best, and be allowed to live, for the salvation of a wonderfully fertile country. Some plantations will die if this system is abolished, and among them will be some of the best in the Isthmus country. As for its regulation, that is a thing which is already attended to, to a degree. The jefes politicos are the officials whose business it is to look after the regulation of this traffic. They do it to the best of their ability, and the cases of flagrant abuse are comparatively few where there is a close surveillance. There is no doubt that this watch could be made much closer, to the advantage of the enganchado, but it has not yet reached the point of perfection. After all, the matter of the treatment of any class of labor depends on the men on both sides, the laborer who cannot find it in himself to seek the redress that is waiting for him, and, on the other hand, the employer who can browbeat any class of labor to the point where it dare not call its soul its own. The only difference is that there are various classes of laborers and employers. It is the personal element straight through, and the enganchado is not the man to go to a jefe politico. Nor is the employer of enganchado labor the sort of man to seek the law to help him deal properly with the wretches who serve him.

The enganchado laborer is one phase of the labor problem that came in the nature of a solution. It is not a success. No man who can possibly get along without his class of men will use them. He will take up anything but them, if he has the choice. The enganchado marks a black spot in labor conditions, and there is not a manager of any plantation which has to use these men who would not hail with delight, nay relief, if it were only adequate. But it is a phase of the problem which cannot be overlooked. The other phases are largely from the utilitarian point of view. This is also from that side, but it is also to be taken from the humanitarian view-point, and this, in all its phases, makes it one of the most important sides of the white labor problem. It calls for a relief even stronger than the other problems, and it must be met and a solution given. It is not in itself a solution, although, as has been said, it was first offered as such.

The labor problem in Mexico is still a long ways from solution. In northern Mexico, and in the richer sections on the plateaus, it is adjusting itself, and is reaching out toward a solution, although it is still in a state that may to a degree be called chaotic. In the tropics, however, the solution is only beginning to find its feet, and the groping for the answer still goes on. Here, as has been pointed out, the conditions have been greatly disturbed within the past few years. The coming of rich American companies, who have taken it upon themselves to develop vast tracts of land, has forced the labor pro-

blem not only to the front, but also not a little out of balance. This balance it was able to maintain under the old conditions because those conditions were regulated by a possibility of growth no greater than the conditions of labor, climate and land permitted. The coming of the big companies, planning to tear from the soil and from those conditions prosperity such as it had never dreamed it was capable of, has given the problem new phases. It has been the object of this series of articles to treat on these phases. The discussion has reached the point of the solution of the problem, and the answer is that it has never been solved.

Labor conditions in the hot country have improved within the past years. This improvement has been due to two primary causes. The first is not a pleasant one to consider, but it remains a fact. The improvement is due in the first place to the failure of a large number of the plantations which have been established in the sections which have been suffering. These plantations had conserved a considerable quantity of labor, whose release at the time of their closing added much to the "visible supply" of the commodity, and so tended toward improving the conditions for the other plantations. This fact is stated by every plantation man who knows conditions, and there are not a few who are to-day awaiting the failure of one or two of the big companies which are now tottering on their last legs to release to them more labor with which to handle their own crops. An instance of the improvement of the conditions which is due to the failure of the big plantations is the case of Miller & Ansel, a firm of enterprising Englishmen who have become rich in the legitimate work of the development of the Ubero plantations. Since the failure of the last of these companies, their army of laborers has been free to work on other plantations, and several have been able to supply themselves through Messrs. Miller & Ansel, but by contract work, however.

The second cause of the improvement of the conditions is the importation of foreign labor. It is immaterial, at this point, that a large proportion of this labor is inferior, for whether it has in itself been valuable, it has had the effect of improving, from the planter's viewpoint, the attitude of the native peon. He now begins to see that he has not everything in his own hands, and realizing that, is beginning to act toward his employers with a little less of the undesirable qualities which marked him up to the time of the coming of the first installment of imported labor. A third cause of improvement may be mentioned, although a goodly percentage of plantation men will take exception to it, in the gradual improvement of the laboring man of Mexico, as he gets a vision of the fruits of honest toil and economic management.

Before entering into the discussion of the various plans which have been offered for the solution of the labor problem by means of imported labor, it must be mentioned that there is not a single employer of labor in the hot country who would not immeasurably prefer using native labor to taking chances with the imported varieties. The reasons for this are numerous and obvious. Men who are acclimated, and know the use of the great native tool, the machete, who are at home and are better satisfied, as a rule, with their work, are assuredly better workmen than foreigners who are ignorant of these things, unacclimated, and almost invariably worthless. There is, too, the advantage of direct contact with the labor. Every planter learns Spanish, but not one that any one has heard of has learned Chinese. In addition, every planter, almost without exception, who has tried the two, prefers the native to the Oriental on the general basis of better workmanship. In a discussion of the imported labor problem, the most natural beginning is with those imported from the Western Hemisphere, the negroes. This class of labor, imported from the United States, has been a failure. The unsavory experience of La Junta plantation, near Sanborn station, on the Veracruz & Pacific railroad, is too fresh in the minds of the public to need repeating in detail here. The company was, it is true, deceived in the labor it received. They were presumably plantation "niggers," but it did not take long for it to develop that they were the lowest class of city loafers, wharf rats and gamblers. It will be remembered that the first news from them came as complaints from the laborers themselves regarding their treatment. These complaints finally reached the point where Consul Canada, of Veracruz, was sent to the plantation to make an examination. His report was a complete vindication of the plantation and all its employees. The plantation finally got rid of the men, after giving up the fight to keep them at work, and is now getting along with volunteer labor and enganchados, which, however, are not employed directly, only as its contractors use them. But the fact remains that the American negro is not adapted to tropical plantation work. He may once, many generations back, have come from a tropical country, but he is now too much of an American to be able to endure the work which a tropical laborer must endure.

The Jamaican negroes have been a better venture, and some plantations are even now importing them for work. The Mutual Rubber Production Company, of Boston, imported a large squad some two years ago, and although they found some difficulty in dealing with them, D. P. Graves, the manager of the plantation, says that they have gotten them into right relationships, and by means of direct contract with the men for clearing and cleaning, are getting valuable work out of them.

As a whole, however, this solution of the difficulty is not by any means adequate. It may serve for a few plantations, but the conditions under which it has proven successful are not those under which most tropical labor works.

The difficulty of importing labor from Europe is a difficulty to which the use of negro labor is also subject. Europe has in the United States a market for its labor which is in every way superior to the Mexican market. It has a more salubrious climate than that in which the laborer in the tropics works (and it must be remembered that this is only dealing with the labor problem as it is manifested in that section) and in addition it has the great advantage of paying almost twice as much money for a man's labor, with living, if anything, cheaper. W. P. Wood, formerly manager of the Mutual Life of New York in this city, now managing the Amate plantation on the Coatzacoalcos river, in Veracruz, tells a characteristic story of President Diaz apropos of this subject. When the labor problem was most perplexing Mr. Wood was in Mexico, and sought an audience with the president, with a view to interesting him in its solution. General Diaz's first question was:

"Have you a suggestion as to how the government can help you?"

The answer was a negative, with the suggestion that it seemed that some inducement might be offered to turn the tide of European immigration away from New York and toward Mexico. The answer was pointed and characteristic, going straight to the weak point of the proposition:

"Labor in the United States earns from $1.50 to $2 a day gold. That is Europe's great lodestone in that country. Here, a laborer of equal class gets from a peso to a peso and a half silver. Labor is going to the best market for its product. The only way I see that the government can solve that problem is for you to pay the difference between a peso and two dollars gold."

Oriental labor is the hope of every plantation man in Mexico. The experiments with it have been, it is true, as a rule discouraging, but still they hope that some day the importation of this class of workmen will solve the problem. The Japanese who have been imported have of late proven themselves to be valuable. They are now in use to a degree on the La Crosse plantation at Tehuantepec National railway, and also at the Badger plantation in the state of Veracruz, in the Trinidad and Colorado river country. At La Crosse, where American machinery is used in the sugar fields, the Japs have proven themselves valuable and intelligent workmen, conscientious and able farmers. There has been little difficulty in managing them, according to Manager Hammond, of the plantation, and altogether, he prizes them very highly.

The other side of the Japanese story comes from the experience of a number of plantations in the Trinidad and Colorado river country, notably La Soledad and Buena Vista, which brought over a gang of Japs and from the time they were landed until they were finally given up, had a merry time, vieing with their neighbor La Junta's variegated experience with the American negroes. The Japs are another people who find, as a rule, the tropical plantation work not compatible with their natures. There is also the fact that they find it no difficulty to get into the United States, where the labor commands better prices and where they find more of their kind, and life has more charms than tropical plantation life offers.

The final hope is the Chinaman. This industrious workman has been excluded from the United States, so that the temptation of that luring star of every foreign laborer is removed from the question, and the Chinaman stands on his own footing of adaptability and usefulness in Mexico. Chinese labor has been sufficient to induce those who have used it to import more men and to put themselves more into the position of exclusive users of this class of labor. Yucatan planters have found the Chinamen satisfactory as field hands. The railroads have brought them in to replace native labor on railroad construction. Chinese labor has its drawbacks, and they are by no means small, but it is beyond question the most satisfactory of all imported labor coming to Mexico.

The Chinaman is an experiment, but many plantation men who were at the time using native labor exclusively, have expressed to the writer their belief that Chinese labor will eventually solve the labor problem in Mexico. They do not use it because they can get along with native labor, and do not care to take the risk which of course surrounds the importation of Chinamen. As Chinese labor now comes to Mexico, it is brought by immigration companies, and is subject to great abuses. In the first place, as all know, there are Chinamen of all classes, as there are men of other nationalities of all classes. Mexico, the tropical part of it at least, has little use for Chinamen except agriculturists. The immigration companies do not bring an entire shipment of this class of men. In fact, the cheapest Chinamen, and so the ones which they usually get, are city men, who know nothing of the agriculture of their own country, to say nothing of Mexican systems. These men are not used to field work, and the first requisite of a tropical laborer is one who is used to outdoor work, and can stand a reasonable amount of weather. Another great drawback to the taking of labor through the immigration companies is the fact that as long as the Chinaman is kept on the place, the plantation pays a rent to the immigration company. Ostensibly they pay the Chinaman about $1.35 a day, with the under-

standing that he feeds himself. A goodly portion of that pay goes on to the company. Hence, as a permanent thing, it would be much better to import the labor first hand and pay the worker direct what he asks and no more. Again, the contracted Chinaman is, as a rule, accompanied by gamblers employed by the contractor, whereby a percentage of the wages he gets are taken away from him again. A Chinaman can not be kept from gambling, but professional gamblers are an unnecessary curse.

The difficulties and objections to Chinese labor as contracted for from immigration companies or Chinese contractors can be largely gotten away from by direct importation by the plantation companies, of the men they need. They can be guaranteed a certain amount of pay, and contracts can be taken.

This experiment was tried when Chinese labor was first considered in the isthmus. About two years ago, a number of plantations united and sent to China an agent who was thoroughly acquainted with the country, and knew the districts from which came the best laborers of the Philippines and Hawaii. He made an encouraging report, and the companies had about decided to import a number of Chinamen as an experiment when the bubonic plague scare of that year broke forth. There was no open port at Salina Cruz or any Mexican port to a Chinese port, with the single exception of Hong Kong. This port was a British possession, and by British law, no contract labor could be exported from it. This effectually put a stop to the proposition, and the agent was recalled until conditions there improved.

Before the affair could be carried further, conditions in the isthmus improved, owing to the failure of some of the big companies, who thus released many laborers. It was at that time, too, that the first of the immigration companies was organized. But the advantage of the direct importation scheme has never been questioned, and all that is needed to make the experiment successful, according to its backers, is to make one more effort with the united planters back of it.

It is variously estimated that it would take in the neighborhood of 3,000 colonized Chinamen to properly and permanently solve the labor problem in the tropics. This means a residue of 3,000, and would necessitate the importation, in all probability, of many times that number before so large a permanent population could be secured. This is the dream of nearly every planter who is finding the labor problem the real article, and this is the only adequate suggestion that has ever been made for its solution.

And yet the importation and colonization of 3,000 Chinese is not the real solution. Mexico is asking for a permanent population, a people who will not only solve the labor problem, but

will solve it so thoroughly that they will become Mexicans. It needs thousands of desirable immigrants to come and be assimilated into the national life, to reawaken it where it is sleeping, and to raise the standard of the population of Mexico higher than it has ever been raised.. The Chinaman will never do that. All over the world the Chinaman is a Chinaman. He never becomes anything else, and his children, no matter who their mother is, are Chinamen. And yet the Chinaman as a laborer is the great chance for the present for the salvation of the Mexican tropics. Whether the future will prove that he is also the permanent solution can only remain to be proven. The labor problem remains unsolved. Will the Chinaman, with his many drawbacks, be an adequate solution?

THE MOLASCUIT INDUSTRY IN DEMERARA.

The utilization of waste and by-products is one of the most remarkable features of modern industrial development. It constitutes at once a striking tribute to the research of the scientist and the energy and enterprise of the manufacturer, and affords at the same time an object lesson in practical economy the value of which it would be difficult to overestimate. It cannot be brought as a charge against cane sugar manufacturers that they have been neglectful of the possibilities of waste products in the past, but the discovery of the properties of molascuit as a cattle-food has enabled them to carry the process of utilization to an almost complete degree in their business. At the present juncture, when this product is making such rapid headway with cattle owners all over the world, a few facts in connection with its manufacture locally will not be devoid of interest. The details given below, it may be pointed out, possess a special value in that they are not based on vague generalizations or hearsay, but upon actual observation and experience in this colony.

There can be no doubt that the manufacture of molascuit is making very satisfactory progress in British Guiana. It is profitable, in the first place, for there is a very ready sale at home; in fact, cattle-breeders and others are clamoring for an increased supply. The average price paid in England during the past six months was £4 per ton. In order to produce one the past six months was £4 per ton. In order to produce one ton of molascuit about 130 gallons eof molasss of a density of 44 to 46 degrees Beaume are required, in addition to the megass meal, which is obtained by sifting the megass as it passes from the rollers which have crushed the canes, to the furnace. The average cost of manufacture, including packages, local freight,

lighterage and other incidental charges, is four and a half dollars per ton. To this must be added cost of home freight, royalties, commission, etc., which averages about $7 per ton. This leaves net proceeds to the manufacture of $7.70 per ton. Equal to very nearly six cents per gallon for the molasses used. The megass meal used in the process of manufacture is not taken into consideration, as it has little or no practical value as fuel. The present price of molascuit, therefore, may be reckoned as equal to about one shilling per proof gallon in London of rum. There is not, as a matter of fact, any immediate advantage to sugar estate proprietors in making molascuit in preference to rum, but the former acts as a relief to the rum market when prices in the latter are depressed through overstocking, and thus enables the rum industry to be carried on at a reasonable profit. To put the matter in another way, one of the great advantages of the manufacture of molascuit, so far as the estates are concerned, is that the output of rum can be regulated by it. Formerly, if the rum market got swamped, nothing could be done with molasses, but now it can be utilized with benefit to the manufacturer and to cattle-owners alike. It may be taken for granted, moreover, that as the price of rum increases so will the quotations for molascuit advance.

There are at the present time forty-five estates in this colony making sugar, but only a few of the larger estates are equipped with a plant for the manufacture of molascuit. It is a peculiar feature of this product that it can be made entirely by hand labor without the aid of machinery, but, whereas the average cost of hand manufacture is 10 shillings per ton, with a special plant of machinery the cost can be reduced to 60 cents per ton. Molascuit as made here consists of about 75 per cent by weight of molasses and about 25 per cent by weight of megass meal. The mixed product contains from 50 to 55 per cent of sugar and about 13 per cent of moisture. One of the chief difficulties experienced in connection with its manufacture here has been the drying of the megass meal. The meal contains more than half its own weight of water, and the bulk of the water must be eliminated, both for the purpose of enabling the meal to absorb the molasses and in order that the molascuit may keep satisfactorily after its manufacture and not ferment. All these matters are being made the object of careful study on the estates, and the present process of manufacture, which is to a large extent automatic, results in the production of a cattle-food which possesses great nourishment and which will keep in a temperate climate for an indefinite length of time.

Molascuit is being produced now in cane sugar manufacturing countries all over the world—in Cuba, in Java, and in

the Argentine. There is, of course, a great local demand in the last-named country. In British Guiana there is a slight but slowly increasing demand, and no doubt in time owners of stock here will realize the benefits to be derived from the use of such an excellent foodstuff ready to their hands.—Demerara *Argosy*.

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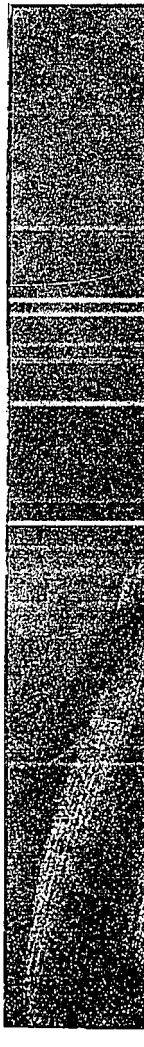

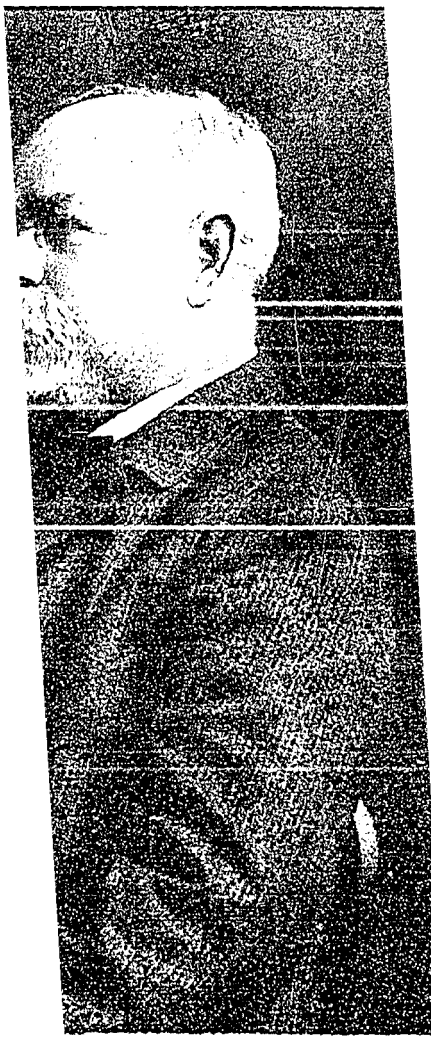

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