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**NATIONAL ASSOCIATION
of
COST ACCOUNTANTS**



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in the
Hawaiian Sugar Industry**

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Some Cost Problems in the Hawaiian Sugar Industry

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BUSH TERMINAL BUILDING
130 WEST 42ND STREET, NEW YORK CITY

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**NATIONAL ASSOCIATION OF
COST ACCOUNTANTS**

NOVEMBER, 1921

National Association of Cost Accountants

SOME COST PROBLEMS IN THE HAWAIIAN SUGAR INDUSTRY

It is not the intention of this article to present a complete cost system, nor to give a detailed description of the various cost accounts which are used in the Hawaiian sugar industry, but rather to outline some of the many and varied problems of the industry which exercise a direct influence upon the cost accounting procedure. It will be found, for example, that the human factor has a much more important influence on costs and cost procedure than is generally the case in other industries, because the laborer and his family are practically wards of the employer, and their care is one of his chief problems and one of the important items in his costs.

SUGAR PLANTERS' ASSOCIATION

Hawaiian sugar cane is raised and manufactured into sugar by some fifty plantations, producing from a couple of thousand to even fifty thousand tons annually. The total yearly production amounts to almost six hundred thousand tons. Each plantation forms a separate and independent entity as far as its financial policies are concerned, but in their agricultural, manufacturing and administration activities they are governed to a very large extent by the Hawaiian Sugar Planters' Association. This association represents the combined efforts of the individual plantations to solve the many problems which are common to all of them and which are too complex and costly to be solved by any one of them alone. The fight against insect pests, which at various times have threatened to wipe out the entire industry, and the importation of labor constitute the main activities of this association. Ranking next to these activities in importance are agricultural experiments and scientific and practical researches in factory work, which have resulted in attaining a standing for the Hawaiian sugar factories of which they may well be proud. The association attends also to the marketing of the crop for its members, and it exercises a great influence by fixing basic rates of wages and bonuses for all of its members. It also endeavors to stabilize a somewhat shifting labor population by allowing higher rates to places which are less favored by local conditions. It deals with the plantations through their agencies, which in many cases represent quite a number of plantations. It is mainly due to the efforts of these agencies that plantation accounting has

been standardized to a considerable degree, as a certain amount of standardization is necessary in order that they may be able to compare the work and results of the various estates under their control. The present tendency is to standardize as much as possible the accounting of all plantations which are in the association. Of course, there are local conditions peculiar to different places which necessitate special accounts, but as a whole operations are so much alike everywhere that a standardization for the whole industry is entirely possible and certainly very desirable.

LABOR

While in most industries direct and indirect expenses or overhead expenses constitute the main groups of costs, in the Hawaiian sugar industry special emphasis must be laid on the distinction between labor and material. Of course the monthly trial balance sheet is arranged in the customary manner and disregards this distinction, but all accounts are first set up in a form that shows the cost of labor apart from all other costs. Exact labor records are imperative not only because labor constitutes the largest item in the cost of production, but because the nature of the labor problem itself demands such information.

Since the amount of native labor has always been insignificant, the plantations have been obliged to import Chinese, Japanese, Koreans and Filipinos. The first two of these groups of labor were brought in under the contract system, until the annexation of the islands by the United States put an immediate stop to the importation of Chinese and greatly restricted the Japanese, until finally the latter also ceased to come to the islands. Since annexation by Japan, the Koreans have come under the same ban. Japanese and Koreans who can prove bona fide residence may re-enter the islands if their absence has been less than one year. The present source of the labor supply is the Philippine Islands, but already strong efforts are being made to close this source too. The planters, however, did not limit themselves to oriental labor. They recognized early that a class of labor was required that would be eligible for citizenship and that would acquire a permanent interest in the welfare of the islands. In consequence large numbers of Portuguese and Spanish farmers were imported, many of them accompanied by large families. But the lure of temporary high wages on the Coast always causes many of these to leave for the mainland, and although quite a large number have become permanently settled, the second generation does not take kindly to work in the cane fields, and so far European and American labor in the cane fields has proven a failure. The planters were under certain stipulated obligations to these laborers, who were represented by their respective consuls in Honolulu. In order to comply with these obligations exact records were imperative, and it is probably partly due to this condition that a comparatively elaborate accounting system came into general use at an early date.

PROPERTY ACCOUNTS

The Hawaiian sugar industry is an agricultural as well as a manufacturing industry. The various estates grow in their own fields the cane which they later manufacture into sugar in their own mills, and since control of the land is of great importance, the land accounts figure prominently among the property accounts. Fee simple lands offer no difficulty from an accounting point of view, but leased lands frequently present quite a problem. It is not within the scope of this article to dwell on the serious problem created by the so-called Organic Act, under which Government lands under lease may be withdrawn at any time upon the demand of a certain number of prospective homesteaders. The native holdings are frequently owned by a great many persons in common. Leases in which six or eight persons hold undivided twenty-fourths or fifty-sixths in a few acres of land, passing their shares from one to another or to outsiders and drawing rent in advance at different dates, may be extremes, but prove the necessity of careful records. The leasehold interest is generally capitalized and reduced annually by the value of the expired term.

Next in importance to the property accounts and frequently first in magnitude are the factory with its equipment and shops, transportation systems, railroads, flumes, aerial tramways, warehouses and cable systems for shipping the sugar to the steamers, which owing to the rocky coast line have to lie several hundred yards off shore.

The agricultural equipment consists of live stock, mechanical ploughs and tractors, ploughs of all sizes, wagons and harness, tools and implements, pumping plants for irrigation, tunnels, ditches and reservoirs.

The general equipment comprises buildings, fences, roads and frequently electric light and ice plants. While usually considered as a part of the general equipment, the welfare or social equipment might be mentioned separately, as it frequently represents a very considerable investment in the form of hospitals, dairies, amusement halls, gymnasiums, kindergartens and night schools.

For all additions to these properties, except very small ones, requisitions are made out, showing detailed estimates of the cost of the labor and material required. While under construction these additions are kept under index numbers in an authorization account and upon completion they are transferred to the main account to which they apply, for example, mill machinery or buildings.

A detailed record for every part of the equipment is maintained, showing its inventory value, estimated length of life, residuary value, total depreciation to be written off and annual depreciation. All new equipment is immediately added to this record,

the combined total of which at all times shows the book value of the properties. This is the value shown on the balance sheet, the decrease owing to depreciation appearing among the liabilities as a reserve for depreciation.

The balance sheet is supplemented by a table showing book values at the beginning of the year, additions or deductions and transfers, book values at the end of the year, accrued depreciation and net value of all the main groups of properties.

OPERATING EXPENSES

Operating expenses are divided into direct expenses and indirect expenses. The first group comprises all agricultural and manufacturing accounts, the second all maintenance and administrative accounts.

The chief group names for the operating accounts are preparing and planting-plant; cultivating-plant and ratoons; harvesting; manufacturing; repairs—general; and sundries. The subdivisions of the preparing and planting-plant group are clearing, mechanical plowing, plowing, harrowing and furrowing, trenching and ditching, cutting and hauling seed, seed cane, and planting. The subdivisions of the cultivating-plant and ratoons group are clearing ratoons, replanting ratoons, irrigating, weeding and hoeing, cultivating-animal, stripping, fertilizer, and applying fertilizer. The subdivisions of the harvesting group are cutting, loading, and transporting cane. The subdivisions of the manufacturing group are mill expense, mill repairs, containers, and delivering sugar. The subdivisions of the repairs—general group are flumes and trestles, buildings, roads and bridges, fences, carts, wagons and harness, railroad rolling stock, mechanical plows, tools and implements, and tunnels, watersheds, ditches and reservoirs. The subdivisions of the sundry accounts group are office expense, fuel for employees, medical and sanitation, forestry, landing supplies, telephone and electric lights, incidental expense, legal expense, surveying, fire insurance, automobile expense, rents (leased lands), taxes, compensation act, and bonus.

The sugar cane requires from about eighteen to thirty months or even longer to mature, the growing period depending upon climatic conditions, which vary greatly even on the same plantation, as the fields extend from sea-level to an elevation of about two thousand feet. At least two crops, therefore, are always on the ground, one being mature and ready for harvesting, and one growing, while frequently a third crop is being prepared.

The direct operating expense accounts are arranged in their logical order, beginning with preparing and planting and ending with the delivery of the cane to the mill.

Agricultural work is performed by day-labor or contract-labor, or both. The general tendency is to let out as much work as

possible on contract. Some of these contracts consist of what is known as task work, for example, weeding a certain area at a certain price per acre, filling seed bags at so much per bag, or harvesting at a fixed rate per ton of cane. Another type of contract is the so-called "hoku-pau," in which a certain amount of work is considered a day's work, and the laborer is allowed full time when the task is completed, although it may have taken him but half a day. This type of contract appeals particularly to the young and strong men on jobs where several men working in a team can do more work than when working alone, as in laying track, or in loading cars. This type of contract is popular not only on account of the opportunity to earn double wages or a short day, but also because it appeals to the sporting spirit, which is quite a strong trait of the Japanese character. The different crews often pit themselves against one another and bets are not infrequent.

THE CULTIVATING CONTRACT

The most important form of contract is the so-called cultivating contract, under which a number of men contract with the plantation to plant and take care of a certain area until the maturity of the cane, for a fixed amount per ton of cane produced, receiving in the meantime about two-thirds of the prevailing day wages for every day worked. This advance is charged against their account as well as any help that may have been given them by plantation labor. An account, "estimated contract labor," is credited with the difference between the advance paid and the estimated value of labor performed and the necessary adjustment is made at the time of final settlement. If this system were not followed, heavy settlements in any single month would correspondingly increase the amount of direct operating expenses for that month, and since these form the basis for the segregation of the indirect expenses, as will be shown later, such segregation would be affected accordingly.

The operation of this account is illustrated by the following entries. Assume that a number of contract laborers worked 100 days at hoeing a certain field, for which they received \$100 on account. From the present outlook it is estimated that their final earnings per day will average \$1.50. This entry would be made:

Hoeing	\$150.00	
To labor		\$100.00
100 days Contract Gang A, Field 34, during October, 1919, at advance rate of \$1.00 per day, as per Contract Agreement:		
To Estimated Labor.....		50.00
Difference in above amount and amount esti- mated due on completion of contract.		

Upon completion of the work this estimate may turn out to be correct and the Estimated Labor account is then closed out:

Estimated Labor	\$50.00	
To Labor		\$50.00
Closing out Estimated Labor Gang A, Field 34.		

However, there is more apt to be either an over or under-estimate, which would necessitate the following entries in the case of an under-estimate.

Hoeing	\$30.00	
To Estimated Labor.....		\$30.00
Amount due Gang A, Field 34, under-estimated		
Estimated Labor	\$30.00	
To Labor		\$30.00
Closing out Estimated Labor Gang A, Field 34.		

On some plantations most of the cane is raised under the cultivating contract system, which possesses some obvious advantages. It induces the laborer to stay on the place at least until his cane has been harvested, and as the cane requires but very little care after it has reached a certain stage, he frequently enters upon a new contract before the first one has been completed. It is of course to the advantage of the contractor to work as hard as possible in order to raise a maximum crop, and also to do the work as quickly as possible in order to gain time for other work.

TIME KEEPING

When it is considered that there are from a few hundred to several thousand men at work on the various plantations, working by the day or under the different contract forms, it becomes apparent how important it is to have a reliable and accurate time-keeping system. The nature of the work, which causes the gangs to change from one field to another and from one operation to another, the ruggedness of the country and the long distances to be covered render the timekeeping a most arduous task. The timekeeper, however, has a much better opportunity to become thoroughly acquainted with the different operations and with the plantation itself than any of the gang overseers, and is frequently considered first when a position as section overseer or head overseer becomes vacant.

The timekeeper's reports form the basis for the payroll, segregation of expenses and the various labor statistics. Therefore they should be arranged in such a way as to facilitate the compilation of these records. Different methods of keeping time are employed, but they must all show the time worked by each laborer, the rate of wages, the account involved and the place of work. The time is first collected on the payroll, which generally shows the different nationalities of labor grouped by themselves. On most plantations time cards are regularly punched and exchanged at the end of the month for new ones. The old cards are checked against

the payroll, which is then extended in order to show the total credit. Deductions from this amount may be made only with the express permission of the laborer. Payment is made in envelopes, which allows the cashier to balance his cash before any money is actually passed out.

The payroll has columns for the number, name and occupation of the worker; a column for each day of the month; columns for day work total, contract work total, hours overtime, day work rate and contract rate; an earnings column with these subdivision columns—contract work, day work, overtime, total bonus advance and total earnings; a deductions column with these subdivisions—advances, store, lights, and columns for any other deductions, and total deductions; columns for the number and name of each worker, cash on pay day, and remarks.

PAY ROLL ANALYSIS

On some plantations the time is entered in the payroll in a sign code, and segregated directly from the payroll. Although this system has the advantage of securing a quick balance with the payroll, there are so many subdivisions in the segregation that in most cases it becomes impracticable. There are about twenty agricultural accounts, their number varying with local requirements, and as all or most of them apply to each field, of which there may be any number, the magnitude of this work is easily seen. The field book in which all this information is collected shows not only the cost of manual labor and material, but also the number of men and animals engaged. It shows the fields arranged by crops. At the end of the month the combined totals of each account as taken from the various fields are balanced against the ledger. Owing to climatic conditions, fields or parts of fields are sometimes passed from one crop to another, which necessitates of course corresponding transfers in the field books.

The field book contains the following information on its heading: date, section, acres, field, crop. The main columns of this record are: clearing, mechanical plowing, team plowing, harrowing, furrowing, trenching, cutting seed, hauling seed, planting, re-planting, irrigating, manual weeding, team cultivating, cutting back, stripping, applying fertilizer, fertilizer, totals this year, and total.

Each column, with the exception of fertilizer, totals this year and total, has the same subdivision columns, namely, days, labor and material. The days column is subdivided into two columns, men and animals. The subdivisions of the fertilizer column are number of bags and amount; and the subdivisions of the columns showing totals this year and total, are labor and material.

Another record is kept in conjunction with the field book, known as the Field Record Summary. Its heading shows the rota-

tion and number of the fields; and the plantation and cultivation contract with regard to acreage. The first column contains a list of operating accounts. These together with the names given to certain totals are clearing, plowing, harrowing and furrowing, trenching and ditching, cutting seed, transporting seed, seed cane, and planting, total preparing and planting, replanting ratoons, irrigating, weeding and cutting back and stripping, total cultivating, applying fertilizer, fertilizer, and total fertilizing, total cost to maturity, harvesting, total cost at mill, tons cane per acre, tons sugar per acre, and tons cane per ton sugar. The rest of the columns are captioned alternately cost per acre and cost per ton cane.

Overhead expenses directly applicable to labor, such as superintendence, are as a rule pro-rated on the basis of labor days.¹ Reports from team and stable overseers regarding stock, form the basis for charges for animal labor. On irrigated plantations reports from the pumps or weirs² regulate charges for water against the various fields.

An accurate knowledge of the cost of each field is absolutely necessary, particularly when the area under cultivation may have to be restricted owing to shortage of labor. A certain field may produce more cane at less cost than another, but owing to its location may prove so expensive in harvesting that it would be better to abandon it than some less fertile field in a more favorable location. Another point to bear in mind is that the advisability of large investments in transportation systems can only be decided on the basis of accurate cost figures.

MANUFACTURE AND SHIPMENT OF SUGAR

As a rule there are only a few ledger accounts covering the manufacture and shipment of the product, such for example as mill expense, mill repairs, laboratory expense, containers, and delivering sugar. However, very accurate records are kept of the work on the different factory stations³ and of all materials used.

¹A labor day generally means the amount of time that direct and indirect labor spends on a product during a single day, which is used as a basis for the segregation of superintendence. This basis is generally used in the absence of any more accurate method. The following illustration shows the working of the method:

Total Labor Days for Month.....		1,000 days
Superintendence to be segregated.....		\$200.00
	Days	Amount
Ploughing	50	\$ 10.00
Planting	100	20.00
Hoing	600	120.00
Fertilizing	100	20.00
Harvesting	150	30.00
	<u>1,000</u>	<u>\$200.00</u>

²A weir is a graduated dam which measures the flow of water over it.

³The factory stations are handling cane, crushing cane, fireroom, boiling-house, mill repairs, laboratory, clarification, filtration, concentration, drying and sundries.

Apart from the handling of the cane at the cane carrier¹ and the filling, sewing and storing of bags, there is scarcely any contract work in the mill.

Whenever possible, the weight of the cane is ascertained by actual weighing. This is always done when the cane is transported by rail, the full cars being passed over one scale and the empties over another. When the cane is flumed to the mill,² however, the weight is ascertained by chemical analysis. These weights form the basis for payments to the harvesting contractors, cultivating contractors, and the planters. They also constitute the basis for the field records and for all mill records. The contractors have the right to have a representative present at the weighing. Weekly and monthly statistics covering the mill work are sent to the agents and to the Sugar Planters' Association referred to above. They form the basis for comparative statistics which cover the factories of all the members within the Association. Most agencies maintain supervising engineers and chemists who check the work at regular intervals.

Some of the cane is purchased from outsiders who have raised it by their own labor and at their own expense and risk, the plantation merely manufacturing it into sugar and attending to the marketing. The basis on which such cane is bought varies greatly on the different plantations. Under some contracts the price received from the sugar manufactured out of the contractors' cane is made the basis, while under others the average price for the year with certain reservations or allowances is used.

Whenever possible the sugar is hauled by rail to the nearest port. Otherwise it is hauled to the local landing and taken by small inter-island boats to the main ports, whence it is shipped to the coast either via San Francisco or through the Canal, part of the crop being refined in western refineries and part in the East. As stated before, the marketing is handled by the Planters' Association.

The marketing accounts which are usually kept are: inter-island and ocean freight, marine insurance, loss in weight, contract deductions and agency expense, the last account covering commission and sundry charges such as weighing, polarizing, superintending of weighing and warehousing.

A sugar record book is kept to show shipments made as well as local sales and charges and returns in every detail, which is simply a record book and not a book of original entry.

BY-PRODUCTS

The disposition of by-products is greatly influenced by local conditions. Press-cake³ is either burned in the furnaces or hauled

¹A cane carrier is a belt composed of wooden or metal slats which conveys the cane from the cars to the crushing machinery in the mill.

²Fluming to (not through) the mill, is the sluicing of the cane from the fields to the mill or cars.

³Press-cake is the solid residue of the cane juice after passing through the filter presses.

to the fields as fertilizer, or used as fuel for domestic purposes. Wherever shipping facilities permit, the waste molasses is sold. Otherwise it is used as fuel and to some extent as stock feed. The mill and the crop should be credited with the estimated value of these by-products.

Successful experiments have recently been made in one plantation on the manufacture of motor fuel from molasses. On another plantation the dried cane pulp is manufactured into a heavy brown paper which is laid over the newly planted or ratooning cane rows,¹ choking out the weeds but allowing the strong cane shoots to pierce through, thereby effecting a very considerable saving of labor. These attempts at a systematic utilization of the by-products are still in their infancy, but they are mentioned here to indicate the many possible developments which may take place and to emphasize the necessity for careful cost accounting as the basis for determining the practical possibilities for profitable development.

In concluding this section of the article on manufacturing accounts, it might be stated that only raw sugar is manufactured in the Hawaiian mills, only one plantation refining part of its crop.

INDIRECT EXPENSES, MAINTENANCE AND ADMINISTRATION

Most plantations form communities by themselves numbering from several hundred to several thousand persons and they require the administrative organization of a small town. Buildings, waterworks, sewer systems, roads and fences must be kept in repair; hospitals, churches, schools, and amusement halls must be provided; stores, slaughterhouses, dairies and ice plants must furnish necessary supplies. All these activities must be minutely accounted for. It becomes apparent that owing to these conditions indirect expenses in the Hawaiian Sugar Industry claim a much larger proportion of the working capital and demand a more elaborate accounting system than most other industries. However, comparatively few ledger accounts are kept to cover these expenses, but a great number of detailed reports, ranging from the rat catcher's report on the number of traps set and rats caught to that of the warehouse keeper covering \$100,000 or more of fertilizer, feed, lumber, etc., on hand, must be worked up, filed, and given their proper place in the main accounts.

The segregation of the indirect expenses is handled differently on different plantations. In some cases they are all charged to the crop of the year, although they also apply of course to the growing crops which will be harvested during the two following years. This method is based on the theory that the yearly pro-

¹Ratoons.—Unlike the planting of cane sugar in most countries, the Hawaiian cane is not planted anew after each crop, but the old roots are allowed to grow again. This second growth is called "first ratoons." Sometimes as many as five or even more crops are taken from the original roots, depending on local conditions.

portion varies so little that nothing is gained by a segregation to future crops. Besides, should the plantation go out of business, a possibility which just now threatens several large estates on account of the land laws mentioned before, the last crop would not be burdened with amounts charged to future crops which could not be realized. On other plantations, however, indirect expenses are segregated to the various crops in the proportion which the direct costs applicable to each crop bear to the total direct costs of all the crops which will be obtained from a planting. From an accounting point of view the latter system is without doubt more correct, but the first mentioned is more frequently employed as it is probably considered more expedient. Standardization in this respect would greatly increase the value of the comparative statistics of the various plantations.

FIXED CHARGES

The fixed charges consist of rents, taxes, depreciation and bonus.

Rents covering lands under cultivation are charged to the crop for which the cane on those lands is designated. All other rents are treated like the rest of the indirect expenses. Property taxes are generally disposed of in the same manner as indirect expenses, while income taxes are charged to the current crop. Since they cannot be ascertained until after the end of the year, they are estimated and a corresponding amount is carried as a reserve among the liabilities. This applies to territorial as well as Federal income taxes and excess profits taxes. Depreciation is charged to the current crop in the manner mentioned on page six.

Another fixed charge account which is peculiar to the Hawaiian sugar industry perhaps not so much because of its magnitude as on account of the principle on which it is based and by which it is governed, is "bonus."

While many industrial concerns grant their laborers a share in their profits through a bonus system, such bonus almost invariably depends on the prosperity of the concern which pays it. In the Hawaiian sugar industry, however, the bonus is based on the prosperity of the industry as a whole regardless of whether or not the individual plantation shows a profit or loss.

The reason for this unusual procedure is found in the peculiar labor problem which has already been referred to, coupled with the coöperative nature of the whole industry as represented by the Planters' Association. On account of the fluctuation of sugar prices the planters have been reluctant to raise the basic rate of wages when prices were favorable, because they realized that it would be very difficult to reduce wages to meet lower prices. Furthermore, the regular wages are supplemented by various prerequisites such as free house, garden-plot, fuel, water, hospital and

medical attention, the commuted value of which amounts to a considerable sum each year. They therefore adopted a plan which is fair to the employer as well as the employee, and which has the advantage of being above suspicion, since it is automatically regulated and adjusted by factors beyond the control of either of them.

Under this plan the bonus system is based on the price of sugar in New York. When sugar sells for \$80 per ton in New York, the laborer receives a bonus of 10 per cent. of his earnings and an additional one-half of 1 per cent. on each dollar over \$80. It is obvious that all plantations had to adopt the same system, as otherwise there would have been a fluctuation of labor, which would have seriously disturbed the whole industry.

There is one reservation connected with the system. It applies only to laborers who have worked 20/26 of the possible number of work days. When it is considered that the laborer receives his house, water, fuel, medical and hospital attention free of charge, and that he has a garden-plot which supplies him with part of his food and allows him to keep poultry and pigs; that the store furnishes the necessaries of life practically at cost; and that the climate all the year round requires but little outlay for clothing, it becomes evident that with fair sugar prices, a few days' labor each month would be all that was required to keep a man quite comfortable, and that the bonus without this reservation would be practically an invitation to loaf. By making a certain number of days, twenty in the case of men and fifteen for women, a requirement for the bonus, the plantation is assured of at least a fair minimum of work. Of the bonus seventy-five per cent. is paid monthly, and the balance at the end of the bonus year. It is of course obvious that the administration of the bonus system requires very accurate and reliable records.

The disposition of the bonus is a mooted problem. Since it is based on work performed, it could be easily charged to such work. This practice, however, would cause costs to fluctuate so violently as to make comparative statistics for different periods illusory, and would tend to unduly inflate the property accounts. On the other hand it must be considered that the plantation bonus has caused a corresponding increase in wages all over the Territory, and unless it is considered a part of cost, a wide discrepancy is created between the costs of plantation labor and outside labor. For example: suppose a plantation erects a building on which the material amounts to \$2,000 and the labor to \$500. It charges the \$2,500 to its property account and the bonus of say 200 per cent. on the labor, or \$1,000 to the profit and loss account. If the same plantation were to let a contractor for a duplicate of above house, the contractor would figure \$2,000 for material and, since he has to pay practically the same wages as the plantation in order to keep his labor, \$1,500 for labor, a total of \$3,500 for the job. The house would be listed at this figure among the assets on the

balance sheet. The Federal tax authorities would not allow the deduction of a bonus equivalent from the contract job, but they do allow this deduction in the case of plantation labor. This latter consideration in particular as well as the desire to avoid inflation of values and to preserve the basis for comparative statistics, have caused the planters to disregard the bonus as a direct cost factor, and to include it in the fixed charges, although it is obviously an increase in wages and as such applicable to direct costs.

EXHIBITS

A number of exhibits are prepared monthly. The most important is the crop and mill report, containing the activities and results in fields and factory for the month and to date. This report also shows areas harvested, tons cane, tons cane per acre, tons sugar, tons sugar per acre, and tons cane per ton sugar for plant and ratoon cane. It enables the management to check up and correct its estimates. It also records the progress made on future crops and gives a synopsis of the factory work, the sugar made and in transit and the sugar on hand. On some plantations this report is supported and its usefulness increased by graphs or colored maps with legends which give detailed information.

The next exhibit is the statement of expenses which shows the costs of all operating expenses, labor and material separately for the month and to date, their segregation to crops and the cost of such crops. Special exhibits cover the factory work on the different stations and cost of materials used, also property accounts and work done on authorizations.

A detailed cost account of each field for the month and to date is either prepared monthly or whenever called for, the records being in such form as to permit its compilation at short notice.

The various monthly records covering administrative and maintenance expenses and the technical reports covering the mill have already been mentioned.

At the end of the year the results of the crop are reviewed in a detailed cost of crop statement showing the cost of each operation per acre, per ton cane and per ton sugar. A second exhibit shows the cost of all accounts segregated to the different crops. Exhibits covering sugar revenues, marketing charges, depreciation, additions to property accounts, and the customary profit and loss account and balance sheet complete the annual cost statistics.

The obligatory returns for State and Federal taxes are of course prepared, besides special condensed reports for the Planters' Association and the United States Tariff Commission.

This article describes in rough outline the problems and methods of cost accounting in the Hawaiian Sugar Industry. The

activities are many, varied and interesting, including agriculture, manufacture and city administration with its many branches. While all of the plantations are practically on an equal footing in so far as actual cost accounting is concerned, some are still backward in their social work and consequently in their accounting methods for such work. It is only a question of a very short time, however, when labor conditions will force them to fall in line with the majority. The experience of the present readers will then be cheerfully placed at their disposal.

In conclusion it might be stated that the one outstanding feature in the Hawaiian sugar industry is the spirit of coöperation. The motto of the industry is team work, with the emphasis on the human factor, and while this principle has been followed in many cases without regard to costs, cost accounting has proved and is proving that it is the best paying investment in the long run.

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