

In the accomplishment of this result, no substitute can be found for a sincere feeling of interest on the part of the employer for the welfare of those who are performing the necessary tasks without which his sugar plantation enterprise would be a failure. The worker will respond to this kindly sentiment, always provided that it be not too paternalistic. It is the genuine feeling of friendship on both sides which counts the most, and this seems to have been achieved at Hacienda El Potrero.

The history of the sugar industry is full of romance and adventure of great projects and of human interest. In the disorganization incident to the great war, however, industrial conditions have grown more and more unsatisfactory. Workers have become restless, employers have been so engrossed in profit getting that they have overlooked the essential factor into gaining success of their enterprise. Would it not be well for labourer and employer alike to follow the example at Hacienda El Potrero and start over again on the old road of mutual respect and friendship?

S. S. P. (from the Journal 'SUGAR' Volume 26, No. 7)

Progress of the Raw Sugar Industry.

By W. VAN DUKER.

Thirtythree years ago the world's sugar production was 600,000 tons. Cuba's production was 675,000 tons: Java's-370,000 Philippines' 160,000; and Hawaii's 130,000. For the crop 1923-24 (the nearest estimate at this time) the world's production is 20,000,000 tons. Cuba's sugar production is 4,200,000 tons; Java's 1,830,000; Philippines' 525,000; and Hawaii's 678,000. In addition to this, I submit the following statistics, while I would venture to remind those who doubt if we make progress at all, that a developing industry has much in common with that of a human life; a child's weight and height double themselves every six months, a year, two or three years in the first years of its life. while, an adult stops growing or grows so slowly as to be hardly aware that he is doing so. Would you deduce from this that a boy of 6 years of age is superior to a man of forty?

Production of sugar by islands in periods of 10 years each:

	Hawaii	Maui	Oahu	Kauai	Total
1894-1904 ...	1,120,524	478,188	563,083	576,623	2,738,418 tons
1904-1914 ...	1,643,021	1,195,807	1,289,294	874,077	4,945,199 "
1914-1924 ...	2,059,257	1,362,645	1,417,560	1,093,251	5,932,715 "

In analysing what has caused this rapid development we find that cooperation of capital and science are the very foundation. As early as 1883, the sugar planters combined in their effort to secure suitable labour supply, which combination later developed into the Hawaiian Sugar Planters' Association with its many and ever increasing number of fields of activity

In 1895, the Experiment station was organised and from that time on dates the more tangible development of the technical side of the industry. Studying the past records, we find a worthy list of inventions to the credit of progressively spirited local sugar men who have in no small measure been instrumental in making the industry what it is today.

We have 14 locally developed labour-saving devices which have proven their worth.

The chemical division of the association is, of course, primarily interested in the question of recovering the largest quantity of sugar out of the cane at the lowest possible cost. Taking as the basis the average per cent sucrose recovery for the period of the years 1909 to and including 1913, we find this at 85.46 per cent. The average total recovery of sucrose during the period of the next 10 years is 87.558 per cent. During the period (1914 to 1923) 6,545,297 tons sucrose were delivered in the cane to the factories. If the percentage sucrose recovery had remained at the average figure for 5 years-1909 to 1913, 5,791,151 tons sugar (at 96.6 Pol.) would have been the out put. Due to the application of technical knowledge and the improvement of equipment 5,932,715 tons sugar at 96.6 Pol. were marketed or 141,564 tons more. At a moderate a valuation of 75 dollars per ton this has meant an additional 10,617,300 dollars for the 10 years.

Two factors have been at work to make such an accomplishment possible; first of all, the period of increased efficiency and standardization, which period I should like to call the Gartley period, since he was the man who succeeded in arousing the necessary interest and enthusiasm; and secondly, the exchange of mill data and the annual synopsis thereof. To those who depend in their judgment upon

information contained in these data this synopsis or study of factory accomplishment is of the greatest value. As an illustration of what has been accomplished in a group of factories not so much by any radical change of equipment, but by a systematic and sustained effort of the plantation management in cooperation with those immediately in charge of operation, I quote the following:—

Factory losses expressed in per cent sucrose recovered on sucrose in Cane.

	Waiaken Mill Co.	Lauhoehoe Sugar Co.	Kaiwiki Sugar Co. Limited	Hamakua Mill Co.	Hanokaa Sugar Co	Niulii Mill & Plantation	Halawa plan- tation (Ld)	Union Mill Company.
1920	82.8	88.3	85.9	79.0	84.5	74.0	76.5	77.3
1921	83.6	86.3	85.7	78.6	81.6	80.0	71.7	74.4
1922	85.3	87.4	86.0	80.3	85.3	81.8	78.0	80.0
1923	86.6	87.7	86.5	86.2	86.6	81.8	78.8	82.6
1924	86.8	88.2	87.2	86.7	87.4	82.6	83.7	83.2

However great and remarkable as the technical development of our industry has been in the past 20 years I believe that from now on our greatest gain must come from a further improvement in the quality of the cane as we receive it at the mills, since our records show clearly that no factory improvement is able to recover the losses due to the deterioration of the raw material itself. In a broad sense, the development of sugar industry is practically unlimited. The consumption of sugar in the United States in 1922 was 112 lbs. per capita. In 1900, it was 70 lbs. In Europe, the per capita consumption is less but upto the outbreak of the war. it was increasing rapidly and the increase is certain to be resumed as pre-war conditions are re-established. The world's supply of sugar for the year 1924 is estimated at 20 million tons. The consumption will about equal the supply, but if the per capita consumption of the world's total population were equal to that of United States 80 million tons will be required to supply the demand.

According to evolutionists, it took millions of years to form a tadpole and other millions of years before the tadpole dropped its tail and crawled out to live on land. Growth is slow. This is one scientific principle that has never been disputed, though it is little recognised in the modern world.

Great problems are immediately ahead of us, well worth the study and thought of every one connected with the technical development of the industry. Eliminating the refinery operations and making refined sugar direct from the cane is one of them; recovering the sucrose now lost in our final molasses and amounting to from 6 to 8 per cent of the total supplied to us by nature is another. (Extract from the Planter and Sugar Manufacturer 17-10-25.)

The Arts of Husbandry.

Mr. Clement Heigham's review on Malden's book on "Actual Farming." 1925

Mr. Malden's view of the relation of the farmer to the rest of the community is one that is not uncommon among farmers, but is seldom adequately expressed. He says that "the farmer has every one as a critic", and that he has to carry on an extremely complex business and an unending war with the climate, in face of the freely expressed opinions of the mass of his uninstructed fellow-countrymen. Open criticism, even when it is ill-informed, matters very little when it is not accompanied by power of one sort or another. In this case of the farmer, the critics represent that urban majority which must influence the political views of any government to a very great degree. Farming and politics are widely removed from each other in most respects, but political neglect or misunderstanding can make the farmer's task very much more difficult than it need be.

The attitude of farmers towards change and so-called agricultural progress is very generally misunderstood, and Mr. Malden finds space to express a view which will gain support among those who have some knowledge of farming conditions, and of the ill-concieved and expensive reforms which are sometimes urged upon agriculturists. The history of agricultural development in Great Britain during the past fifty or sixty years shows that great progress has been made in the application of the sciences to the business of farming, and that the farmer of today is in a far better position to solve his problems of crop and animal husbandry than was his great-grand-father. Unfortunately, a closer study of the course of progress reveals the fact that this advance has been made at very great cost and that a larger number of individuals have been ruined in the process. So many well-meaning but unwise people, and so many interested rogues, have set out to advise farmers in the development of their business; so much incomplete discovery and unbalanced recommendation has been lavished upon agriculture, that the sturdy conservatism of the farmers might very well have become hardened to an incredulous contempt for all new ideas. That this has not happened is well known by the