

SOME THOUGHTS ON OPERATING PRACTICE IN S.A. SUGAR FACTORIES

By C. F. McLEAN.

Introduction.

Whilst some of the ideas enunciated herewith may be at total variance with accepted practice, it may not be untimely to consider certain factors and conditions which may ultimately affect the industry generally.

I therefore offer no apology for presenting these remarks, trusting that they may engender constructive criticism, and still further ideas.

Continuous Process.

Considering that the quantity of cane milled annually has more than trebled itself within the last twenty years, without a corresponding increase in mill sizes, the majority of mills are now milling at much more than rated outputs, and are milling over a season which may be of eight months duration, if they are to achieve their quotas. It is safe to say that at least two of these eight months fall within the hottest season of the year. In a milling season of eight months duration there are at least thirty-two week-end shutdowns, say a total lost time of twenty-four hours weekly. Why not abolish this week-end shutdown, and endeavour to run a practically non-stop season? One could allow, say, eight hours weekly for such duties as tube cleaning, quads, pans, etc., and minor repairs, gaining at least sixteen hours more crushing time per week.

Some reasons which may be adduced in support of this idea are listed below :—

- (a) Shortening of season by approximately one month.
- (b) Milling at higher average sucrose, from which it would follow that less tons of cane would be milled to give the same sugar return, leading to less wear on the milling plant as well.
- (c) Lower fuel costs where wood is used as an auxiliary fuel for starting, and in many cases, lower diesel fuel oil bills.
- (d) Higher thermal efficiencies, as boilers would not have to be re-steamed every shutdown, and would not lose heat cooling off, this in turn giving longer furnace brickwork life and lower repair costs.
- (e) Allows a longer overhaul period, and therefore, normally, a smaller staff to do the necessary shutdown repairs, or, less necessity for working overtime.
- (f) Elimination of one month's working during the hottest part of the year, when everyone is beginning to feel the strain, tempers are more easily frayed, and working conditions are beginning to be a definite hardship.
- (g) From the point of view of wages determinations, it might be possible then to be re-classified in certain sections as "continuous process," and so obviate certain overtime at week-ends.

Elaborating, in general, there does not appear to be very much against the idea, apart, of course, from established conservative practice, which has more or less grown up with the industry. The actual practice of running continuous shifts presents no great difficulties, as this is already done in power stations, mines, etc., and in any case, most mill staffs are tied up to the mill during the season, so there would not be a great deal of additional hardship imposed.

Granted that certain duplications of plant might be necessary, it might easily prove that this would be, in the final balance, financially sound practice. Wear on milling plants is high, due in part to the overloaded mills, and duplications could in part offset this, thereby reducing the renewals and repairs at certain stations, say quads and pans, etc.

As against the idea, the following points occur :—

- (a) Cane would have to be cut continuously, Sundays as well, unless sufficient provision could be made for carry over and storage of cane.

(b) Duplication of certain items of plant.

(c) Possibly higher wages bill, but this is problematical.

On the whole, the good points appear to outweigh the bad, and there is this fact, that a shorter season would probably encourage the installation of many more labour-saving devices such as mechanical ash dumping, and handling of filter cakes, etc., as well as mechanical cane loaders, cutting, etc. More modern methods are, in most of these cases, long overdue, and are likely to remain overdue as long as there are comparatively large sources of cheap labour, but, if South Africa is to compete in the world's markets on an economic basis, every possible source of saving, including labour, will have to be investigated and exploited. The sources of cheap labour are rapidly drying up, and an awakening consciousness among the lower paid labourers of their market value, accelerated by wages determinations, will certainly assist this drying up. The time is rapidly approaching when a premium must be set on *Efficiency*.

Personnel and Training.

Let us now consider another and equally important aspect of the sugar industry, the human element.

Basically, in industry, the human material employed to treat the raw product can also be regarded as so much raw material by the industrialists—being just as essential a part of the finished product as the cane in the fields. Therefore it behoves the industrialist to select and train his human raw material with the same meticulous care that he would normally employ in considering any other items of his plant. This will normally be productive of the utmost in results, and it is results that count in business. True efficiency can only be obtained by the utmost use of well trained personnel, and this applies particularly to technicians. Audubon Sugar School, in America, is an expression of the American idea in this respect, and we could well consider technical training on similar lines. There does not appear to be any fundamental objection to a Chair of Sugar at an established University, and the advantages of adequate research are too well established to be in doubt.

Effort, being the direct result of stimulus, whatever the means of stimulus, is usually productive of results, and the bonus system is one of the methods of increasing stimulus.

A bonus, to be fair and equitable, must be based on an accurate knowledge of all relevant facts.

It must be put over in a manner best calculated to achieve *lasting* and *progressive* results, and must not be allowed to deteriorate into an accepted right, or into a matter of course.

It should be an *incentive* system, towards overall increased efficiency and output, and in the case of native labourers, as an example, could be applied to groups, e.g. cane carrier gang.

There must be an efficient costing and works data scheme, for the bonus system to work efficiently, and correctly operated, a bonus system should lead to overall increased efficiency and output.

And, as a final thought here, judicious praise, sincerely given, has quite an energising effect, from the lowest labourer to the highest executive. Andrew Carnegie realized this and exploited it to make a fortune.

Co-operation.

In concluding these remarks, may it be said that whilst the system of fixed quotas operates, trade secrets could well be made common property, as individual competition between mills virtually does not exist, and anything tending towards the common good of the industry should be available to all.

If many of the ideas advanced here appear Utopian, they may at least serve to awaken other thoughts on the subject which may in time be productive of schemes of general benefit to the sugar industry of South Africa, and it is my hope that these remarks will be accepted in that spirit.

The PRESIDENT said that his own experience of an industry working a continuous process was that it was very exhausting and it was questionable whether any nett efficiency was gained. He thought, however, that the time was gone when an industry would be allowed to take that course simply with the object of endeavouring to gain greater efficiency or higher production. It was contrary to the modern trend of industrial legislation. Certain processes such as the working of a power station were, of course, continuous, but that was not for economic reasons to obtain current cheaper, but because it was essential to have power continuously and such a system was the only one to meet the requirements.

Mr. SIMPSON agreed with the President on this point. He felt that advantages gained by having a continuous process would be more than lost as a result of strain on the personnel.

He also considered that eight hours a week was quite inadequate for cleaning tubes, quads and pans and doing minor repairs. He entirely agreed with the author, however, as to the necessity for training personnel for specialised industries. As far as the sugar industry was concerned this aspect might have been rather neglected in the past, but its importance was now more and more being realised and it was a subject worthy of the attention of this Association.

The PRESIDENT assured Mr. Simpson that the Technologists' Association had the training of employees very much at heart, and that a good deal of work had actually been done. The response from the industry had not been what was hoped for, but he believed that our recommendations were likely to receive sympathetic consideration in the near future.