

The gain to the shop is easily figured between the first record and the last, assuming the first to represent the average efficiency of the whole shop of 819 men.

	(1)	(2)
Average efficiency.....	55.6*	96.5*
Number of men.....	819	819
Average pay per hour.....	\$ 0.25	\$ 0.30
Average surcharge per hour including interest and depreciation.....	\$ 0.25	\$ 0.25
Cost per hour per man.....	\$ 0.50	\$ 0.55
Cost of product, labor and shop expense, per day..	\$409.50	\$450.45
Increase in cost.....		\$ 40.95
Increase in output.....		73.5*
Assumed profit.....	\$ 40.95	\$231.08
Selling value of product..	\$450.45	\$781.53

*Per cent.

INCREASE IN WAGES.

As one of many means employed and by no means the most important to secure greater efficiency and elimination of waste, the men averaged 20 per cent. more wages. Each man and foreman is, however, paid on an efficiency basis. Each is guaranteed a regular day rate, but if his efficiency rises above 67 per cent the pay is increased on a sliding scale according to a standard table which covers all efficiencies from 67 per cent. upward at intervals of 1-10 of 1 per cent., as shown below:

Efficiency.	Increase in Wages.
67 per cent.	0.00 per cent.
70 " "	0.22 " "
75 " "	1.31 " "
80 " "	3.27 " "
90 " "	9.91 " "
100 " "	20.00 " "
110 " "	30.00 " "

Above 100 per cent. efficiency the worker is paid at his standard rate for all the time he saves.

The 819 men have by no means reached the highest efficiency, as is shown by the table of classification below:

Per cent.	Workmen	Average Efficiency, per cent.
30-40	61	30.3
40-50	33	45.0
50-60	50	55.8
60-70	72	64.6
70-80	81	74.2
—	97	
80-90	76	84.3
90-100	74	95.0
100-110	90	105.9
110-120	94	114.6
120-130	64	123.9
130-140	56	132.4
140-150	26	145.3
150-160	19	154.1
160-170	6	163.3
170 and upward	17	196.4
	—522	
	819	

The high men are considered the most valuable asset in the shop, and the highest averages are attained as a rule by the blacksmiths, where the willingness to stand all day against very hot iron and pound with might and main, deserves high reward. More loss from inefficiency occurs in blacksmith shops than in any other department. The superintendent of a shop reported a few months

ago that in the blacksmith shop the net result of the method had been a reduction in the total pay roll of \$500 per month, but the output increased fully 100 per cent. It is evident that if the 297 men whose efficiencies are below 80 per cent. were carefully toned up, dropping the few who could not be improved, the average of the whole shop would rise. The decline in efficiency in November compared to October was largely due to the accession of new and untried men not accustomed to the system, and, as the records of some of them show their results were of

system fares as well as the employer. Assuming that a worker receiving \$90 a month spends for living expenses \$87. His net profit is \$3 a month, a margin that leaves him discontented and hostile, but his employer, knowing that the efficiency of the worker is probably not more than 40 per cent., is equally hostile and longs for an opportunity to cut the worker's wages to \$75 a month. Under the efficiency plan, if the worker takes as little as 20 per cent gain on his wages, he receives \$108 a month, his net gain above living expenses becomes \$18 a month, or

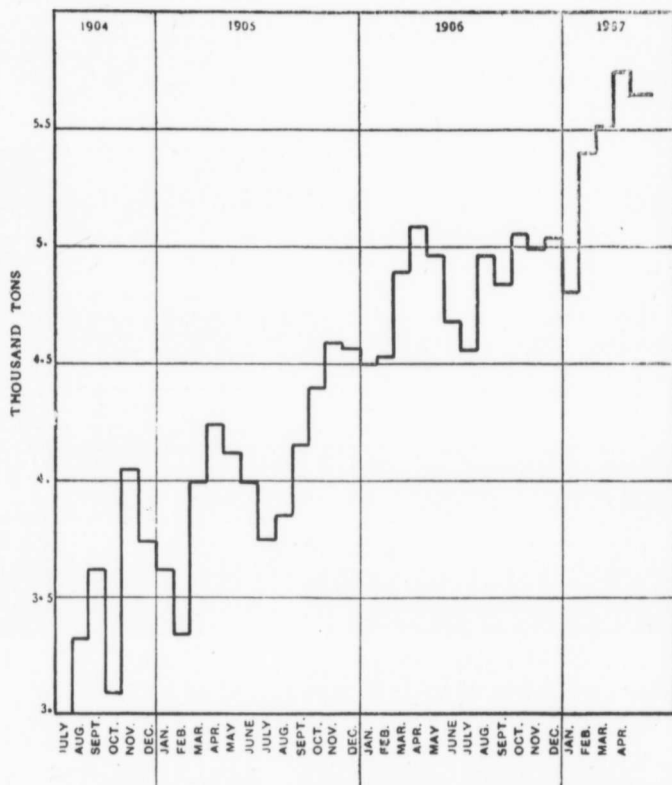


Fig. 2—Output Per Day From All Plants Showing Increase From June, 1904, to April, 1907.

low efficiency. Their record is given] herewith:

Standard hours.	Actual hours.	Efficiency, per cent.
4.3	99	4.3
5.3	89	5.0
2.4	39	6.0
48.7	180	26.3

Were it not for the efficiency check, these men might continue at work indefinitely in spite of the fact that however good they might be at something else they are misfits where they are.

INCREASE IN PROFITS.

It was shown that the profits to the employer from shop labor and expense were very much increased. The worker under the

six times as much as before the efficiency plan was adopted. The efficiency report of a large industrial plant is graphically shown in Fig. 1 and the increase in output in Fig. 2.

INEFFICIENCY OF LABOR.

A railroad president recently complained of the inefficiency of labor, giving it as one of the causes of the heavy increase in operating expense of railroads. He said that it was impossible to secure efficiency because the only available discipline was to discharge the man, and the man cared nothing for this punishment because he could cross the street and secure another job equally good. The railroad president was fundamentally mistaken as to the impossibility of securing efficiency, or as to their being no means of