



‘A Piece-Rate System’

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T A Y L O R

The Human Factor in Business

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A PIECE-RATE SYSTEM

BY

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A PIECE-RATE SYSTEM

INTRODUCTION

THE ordinary piece-work system involves a permanent antagonism between employers and men, and a certainty of punishment for each workman who reaches a high rate of efficiency. The demoralising effect of this system is most serious. Under it, even the best workmen are forced continually to act the part of hypocrites, to hold their own in the struggle against the encroachments of their employers.

The system introduced by the writer, however, is directly the opposite, both in theory and in its results. It makes each workman's interests the same as that of his employer, pays a premium for high efficiency, and soon convinces each man that it is for his permanent advantage to turn out each day the best quality and maximum quantity of work.

The writer has endeavoured in the following pages to describe the system of management introduced by him in the works of the Midvale Steel Company, of Philadelphia, which has been employed by them during the past ten years [1885-1895] with the most satisfactory results.

The system consists of three principal elements :

- (1) An elementary rate-fixing department ;
- (2) The differential rate system of piece-work ;
- (3) What he believes to be the best method of managing men who work by the day.

Elementary rate-fixing differs from other methods of making piece-work prices in that a careful study is made of the time required to do each of the many elementary operations into which the manufacturing of an establishment may be analysed or divided. These elementary operations are then classified, recorded, and indexed, and, when a piece-work price is wanted for work, the job is first divided into its elementary operations, the time required to do each elementary operation is found from the records, and the total time for the job is summed up from these data. While this method seems complicated at the first glance, it is, in fact, far simpler and more effective than the old method of recording the time required to do whole jobs of work, and then, after looking over the records of similar jobs, guessing at the time required for any new piece of work.

The differential rate system of piece-work consists briefly in offering two different rates for the same job ; a high price per piece, in case the work is finished in the shortest time possible and in perfect condition, and a low price, if it

takes a longer time to do the job, or if there are any imperfections in the work. (The high rate should be such that the workman can earn more per day than is usually paid in similar establishments.) This is directly the opposite of the ordinary plan of piece-work, in which the wages of the workmen are reduced when they increase their productivity.

The system by which the writer proposes managing the men who are on day-work consists in paying *men* and not *positions*. Each man's wages, as far as possible, are fixed according to the skill and energy with which he performs his work, and not according to the position which he fills. Every endeavour is made to stimulate each man's personal ambition. This involves keeping systematic and careful records of the performance of each man as to his punctuality, integrity, attendance, rapidity, skill, and accuracy, and a readjustment from time to time of the wages paid him, in accordance with this record.

The advantages of this system of management are :

First : That the manufactures are produced cheaper under it, while at the same time the workmen earn higher wages than are usually paid.

Second : Since the rate-fixing is done from accurate knowledge instead of more or less by guess-work, the motive for holding back on work, or "soldiering," and endeavouring to deceive the employers as to the time required to do work, is entirely removed, and with it the greatest cause for hard feelings and war between the management and the men.

Third : Since the basis from which piece-work as well as day rates are fixed is that of exact observation, instead of being founded upon accident or deception, as is too frequently the case under ordinary systems, the men are treated with greater uniformity and justice, and respond by doing more and better work.

Fourth : It is for the common interest of both the management and the men to co-operate in every way, so as to turn out each day the maximum quantity and best quality of work.

Fifth : The system is rapid, while other systems are slow, in attaining the maximum productivity of each machine and man ; and, when this maximum is once reached, it is automatically maintained by the differential rate.

Sixth : It automatically selects and attracts the best men for each class of work, and it develops many first-class men who would otherwise remain slow or inaccurate, while at the

same time it discourages and sifts out men who are incurably lazy or inferior.

Finally : One of the chief advantages derived from the above effects of the system is that it promotes a most friendly feeling between the men and their employers, and so renders labour unions and strikes unnecessary.

There has never been a strike under the differential rate system of piece-work, although it has been in operation for the past ten years in the steel business, which has been during this period more subject to strikes and labour troubles than almost any other industry. In describing the above system of management, the writer has been obliged to refer to other piece-work methods, and to indicate briefly what he believes to be their shortcomings.

As but few will care to read the whole paper, the following Index of its Contents is given :

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1. Capital demands fully twice the return for money placed in manufacturing enterprises that it does for real estate or transportation ventures. And this probably represents the difference in the risk between these classes of investments.

2. Among the risks of a manufacturing business, by far the greatest is that of bad management; and of the three managing departments, the commercial, the financiering, and the productive, the latter, in most cases, receives the least attention from those that have invested their money in the business, and contains the greatest elements of risk. This risk arises not so much from the evident mismanagement, which plainly discloses itself through occasional strikes and similar troubles, as from the daily more insidious and fatal failure on the part of the superintendents to secure

anything even approaching the maximum work from their men and machines.

3. It is not unusual for the manager of a manufacturing business to go most minutely into every detail of the buying and selling and financing, and arrange every element of these branches in the most systematic manner, and according to principles that have been carefully planned to insure the business against almost any contingency which may arise, while the manufacturing is turned over to a superintendent or foreman, with little or no restrictions as to the principles and methods which he is to pursue, either in the management of his men or the care of the company's plant.

4. Such managers belong distinctly to the old school of manufacturers ; and among them are to be found, in spite of their lack of system, many of the best and most successful men in the country. They believe in men, not in methods, in the management of their shops ; and what they would call system in the office and sales departments, would be called red tape by them in the factory. Through their keen insight and knowledge of character they are able to select and train good superintendents, who in turn secure good workmen ; and frequently the business prospers under this

system (or, rather, lack of system) for a term of years.

5. The modern manufacturer, however, seeks not only to secure the best superintendents and workmen, but to surround each department of his manufacture with the most carefully woven network of system and method, which should render the business, for a considerable period, at least, independent of the loss of any one man, and frequently of any combination of men.

6. It is the lack of this system and method which, in the judgment of the writer, constitutes the greatest risk in manufacturing ; placing, as it frequently does, the success of the business at the hazard of the health or whims of a few employees.

7. Even after fully realising the importance of adopting the best possible system and methods of management for securing a proper return from employees and as an insurance against strikes and the carelessness and laziness of men, there are difficulties in the problem of selecting methods of management which shall be adequate to the purpose, and yet be free from red tape, and inexpensive.

8. The literature on the subject is meagre, especially that which comes from men of practical experience and observation. And

the problem is usually solved, after but little investigation, by the adoption of the system with which the managers are most familiar, or by taking a system which has worked well in similar lines of manufacture.

9. Now, among the methods of management in common use there is certainly a great choice ; and before describing the “ differential rate ” system it is desirable to briefly consider the more important of the other methods.

10. The simplest of all systems is the “ day-work ” plan, in which the employees are divided into certain classes, and a standard rate of wages is paid to each class of men ; the labourers all receiving one rate of pay, the machinists all another rate, and the engineers all another, etc. The men are paid according to the position which they fill, and not according to their individual character, energy, skill, and reliability.

11. The effect of this system is distinctly demoralising and levelling ; even the ambitious men soon conclude that since there is no profit to them in working hard, the best thing for them to do is to work just as little as they can and still keep their position. And under these conditions the invariable tendency is to drag them all down even below the level of the medium.

12. The proper and legitimate answer to this herding of men together into classes, regardless of personal character and performance, is the formation of the labour union, and the strike, either to increase the rate of pay and improve conditions of employment, or to resist the lowering of wages and other encroachments on the part of employers.

13. The necessity for the Labour Union, however, disappears when *men* are paid, and not *positions*; that is, when the employers take pains to study the character and performance of each of their employees and pay them accordingly, when accurate records are kept of each man's attendance, punctuality, the amount and quality of work done by him, and his attitude towards his employers and fellow-workmen.

As soon as the men recognise that they have free scope for the exercise of their proper ambition, that as they work harder and better their wages are from time to time increased, and that they are given a better class of work to do—when they recognise this, the best of them have no use for the Labour Union.

14. Every manufacturer must from necessity employ a certain amount of day-labour which cannot come under the piece-work system; and yet how few employers are willing to go to the