the clerical expense which is fixed and that portion of it which is variable, then we should be able to judge both the $700 and the $1,000 expenditure on the basis of the condition under which they were made.

Let us say, for example, that it had been determined that our fixed cost for clerical help was $500 a month and our variable cost one-tenth of one per cent of the volume of business done. Now if in the month in which we had a payroll of $700 we had done $200,000 business, our budget would have been $500 fixed cost, and one-tenth of one per cent of $200,000, or $200, variable cost, or $700 in all. This would mean the actual cost of $700 was justified. On the other hand, let us assume that in the month in which the payroll was $1,000 we did a business of $400,000; the budget would then be $500 fixed cost and one-tenth of one per cent of $400,000, or $400, variable cost, making $900 in all. We would at once know that the head of the department in the rush of increased business had lost his head and put on more help than he needed. Following this idea, it is possible to make a flexible budget for every item, or I should prefer to say, every responsibility; and from these a budget can be made for each month on the basis of the actually existing conditions.

As illustrating the application of these methods to industry, let us imagine a business wherein the product had to be manufactured after it was sold and the selling was concentrated in four brief seasons. I do not think I need say anything as to the difficulties which a business of this character presents.

By means of a budget such as I have described, it is possible, even in a business of this kind, to forecast the expenditures and profits and losses, on the basis of expectations in the matter of monthly sales; and by adjusting these forecasts to the actual sales at the close of each month, to set up a reliable standard for comparison with actual expense.

In such a business there would be months in which the losses would be heavy and others in which the profits would be correspondingly large. Without a measure by means of which one may determine what these losses and profits should be in each month according to the business actually done, the head of such a business is necessarily subject to constant hopes and fears which it is impossible to stay.

Where the actual expenditures are divided according to the individuals responsible for them, and they are accompanied with budget figures in the same subdivisions based upon the same volume of business and conditions under which the actual expenditures were incurred, there is little difficulty for the executive to know wherein his troubles, if at all, lie and who is responsible for them. And when he knows who is responsible, and for what, a sound judgment is possible.

EVEN where the effort has been made to develop the scientific side of management, however, the popular imagination has been caught by that part of it which deals with shop planning and incentive payment, and more than its share of the average manager's serious attention is absorbed by the actual *making* of goods. The fact that such planning and payment to be truly effective must be based on unspectacular standardization of equipment and materials has not been sufficiently stressed, and the fact that no part of the business can function to best advantage until all parts function to good advantage is just beginning to be appreciated. (Farquhar, Factory Storekeeping, p. v.)

WHAT the workmen want from their employers beyond anything else is (continuity of employment at) high wages, and what employers want from their workmen most of all is a low labor cost of manufacture. These two conditions are not diametrically opposed to one another as would appear at first glance. On the contrary, they can be made to go together in all classes of work, without exception, and in the writer's judgment the existence or absence of these two elements forms the best index to either good or bad management. (Taylor, Shop Management, p. 22, as he would have stated it today.)

PREMIUM AND BONUS PLANS[1]

By H. K. Hathaway[2]

THERE have been numerous articles on this subject which present a variety of plans of wage payments and their technical features. Frankly, I don't believe that I can tell you exactly how some of them work, and I shall not attempt to do so. I want to approach it from a slightly different angle.

When I first began to be interested in things of this sort, there were only four generally known systems of wage payment:

1. Day Work
2. Piece Work
3. Taylor's Differential Piece Rate
4. Halsey's Premium

Since that time the number has been vastly increased.

Almost every budding young efficiency engineer seems to have been fired with an ambition to have a pay system or bonus system—or some system—known by his name. All of these schemes are modifications or permutations of the essential features of the four mentioned. What I want to do tonight is to bring out and make clear certain fundamental characteristics and to point out the basic principles underlying the various pay systems.

They may be divided, broadly speaking, into two groups. Taylor in presenting his paper at the A. S. M. E. on the differential piece rate system referred to Halsey's premium plan which, at that time, was attracting a great deal of attention as a "drifting system." One class of pay systems may be classed as the "drifting systems," being those systems in which the management either does not assume or consciously or unconsciously evades its responsibility. The other group may be called the "task systems," those in which the management does assume its responsibilities. The second group would include only the two pay systems—Taylor's differential and Gantt's task and bonus—generally used in connection with scientific management.

Indeed, they can not and should not be used except under the rather highly standardized conditions and precision of planning and control found only under a well developed application of scientific management. The other forms of wage payment are better adapted to what have been characterized as the unsystematized and systematized stages through which it seems necessary for management to progress before attaining the so-called scientific form.

The "task systems" of payment involve the obligation for carrying out in practice what Taylor referred to as the four principles of scientific management:

1. The development of a science or art in the place of "rule of thumb" in each procedure.
2. The scientific selection and training of the workers.
3. A proper division of responsibility between the management on the one hand, the scientifically selected workmen on the other.
4. The bringing about of what Taylor termed "hearty cooperation between the management and the men."

Under the first group of pay systems (drifting systems) the management does not attempt to know how long it should take to do a given piece of work. They do not attempt to select their workers with regard to their fitness for the work. They assume that a man's a man. Some are good men and some are poor men. The management does not assume any responsibility, or at least very little responsibility, for the conditions governing the performance of work. They merely set a time or a piece rate for each job. The management in the drifting systems "passes the buck" to the workmen. You will find in all of them they expect the workmen to use *his* ingenuity and to effect the improvements. It is a carry-over from the old days of the journeyman craftsman. The journeyman perhaps knew and was expected to know more about his particular trade than anyone else.

If you are going to apply the "task system," the

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[1] A paper presented before the Works Managers Course, Wharton School, University of Pennsylvania, Jan. 18, 1923.
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