a single factor. If the rate per standard hour is agreed upon, all the various piece rates that may exist—no matter how numerous—are thereby automatically adjusted to the agreed level.

The simplification brought about by the statement of output in terms of standard time has made possible a combination of graduated time payment with piece payment in such a way that the full effectiveness of each form of incentive is almost undiminished by combination with the other. A graduated time rate is used, but is not paid for the number of *chronological* hours actually worked; rather for the number of *standard time* hours of work that the employe completes. Under this plan the long run *rate* of payment is determined *wholly*, not merely partially, by the graduated time rate, while the immediate payment from day to day depends as directly upon the quantity of production turned out as if only piece rates were paid.

The most recent development of piece rates is the group rate. Its essential principle is the teaming of the employes engaged in making a common product into groups and the payment of each individual in the group in direct proportion to the group output. The group piece rate combines a social incentive with the direct financial incentive. Each employe works not for himself alone, but for his group as well. Upon him, if he lags, falls not only individual loss, but social disapprobation. In those groups where individual variation is not possible, the straight group piece rate, while being as well adapted to lock-step conformity as the flat time rate, provides an effective incentive to the members of the group, while keeping step, to quicken their pace. In those groups where individual attainment is desirable, it is customary to combine the group piece rate with graduated individual time rates, thus making it possible to recognize whatever individual qualities it is desired to stimulate. Moreover, different individuals within a group may be given different shares in the group total, based on the relative difficulty of their allotted tasks or their individual merit. Individual production records may even be kept and used as a basis on which to adjust from month to month, or quarter to quarter, the ratio that the individual receives out of the common earnings. Thus, in one way or another the group rate may be combined with recognition of the individual, and if this is skillfully done, the various individual incentives are united with an immediate social one, with little loss to either.[3]

The greatest merit of the group rate is not the addition of social to individual financial pressure as a spur to individual effort. It is the transfer of employe interest and attention from individual attainment to co-operative output. Through the incentive of common interest, the employes where group rates have been installed have developed ways of co-operation that have brought about economies and improvements and have led to increases in output as surprising to themselves as unforeseen by the management. This last step in the development of financial incentives indicates not only how effectively the financial motive may be combined with the other powerful human motives in bringing about effort, but also how the financial motive may be utilized to arouse and direct upon the job such powerful non-financial motives as the desire for social approbation.

Which Is Best?

These roughly are the major types of financial incentives in use today. The number of possible—nay, almost of actual—minor variations are endless. It is impossible to say which is best. None is universally superior. As far as I know, none is wholly satisfactory anywhere. There is always room for improvement. Certainly the mere fact that some form of financial incentive works in one shop is little evidence that it will work in another. So much depends on shop conditions. Because of the nature of the product, of the methods, of the management, of the employes, even of the community, what suits one situation well and proves eminently successful there will fail in another. Moreover, figures of output or costs "before and after taking" are not accurate evidence of the value of an incentive, even under the conditions where it is applied. Too many other variables exist: too many other things are likely to have changed while the incentive was being installed and operated. Out of the studies incident to installing any form of direct financial incentive, for example, striking improvements in methods, in conditions and controls are likely to have resulted.

[3]Incidentally, group payment permits of the elimination of much of the handling and inspection between operations which is necessary when employes work and are paid individually.

As to the results of an incentive, it is then difficult to dogmatize.

Even within one factory varying conditions may make time rates desirable in one place, time and piece rates in another, group rates in a third, and Taylor differentials in a fourth. Financial incentives have such a variety of forms and influences and are so affected by conditions that it is rarely a problem of introducing a form ready made. Instead the conditions, the product, the equipment, the employe and the management must all be carefully studied, and out of the multitude of possible factors which might cause the pay envelope to influence effort a plan of incentives gradually evolved which, as it develops, is moulded to conform to the contours of the shop. Such an evolution takes time, if only for its various developments to season. Such a plan is always "in process." Certainly in a world where perfection is so unattainable and changes so unforeseeable, a manager courts trouble if he accepts a plan of human motivation ready made, and then because he has done so, assumes that it is final and requires no further change.

Some General Principles

While no form of financial incentive can be unqualifiedly endorsed or condemned, certain principles apply to the problem generally.

1. *The effectiveness of any form of financial incentive depends largely upon the degree of reliability with which the reward varies in proportion*[4] *to the value rendered.* Consequently, when production records are kept with the same precision as if they were to be the basis of piece payment, and the time wage is frankly determined on the basis of these records, it makes astonishingly little difference whether the worker is paid by the piece or by the hour. In the only instance which has come to my attention where this has been done to the extent that would have made the payment of piece rates possible, and which thus gave a fair basis of comparison, the jump ahead in production and the insistence upon proper working conditions, that are so characteristic of the introduction of piece rates, occurred to as great an extent as in other departments where piece payment was actually installed. Critical forces creating financial inducement are the reliability and precision of the records, the faithfulness with which they are followed as a basis of payment, and the degree to which they are understood by the employes.

2. *The introduction of precise direct-reward incentives must follow, not precede precise managerial control.* This in a sense is a corollary of my first principle. If the shop conditions are not standardized so that the amount of effort per unit of output is roughly constant, if the nature of the item is such that the amount of productive effort put out in making it is not roughly commensurable, to introduce production payment is to base a variable reward upon conditions beyond the employe's control. This on the one hand will lead to constant complaints and exceptions, and on the other hand, to dissatisfaction and discouragement. No step in the introduction of direct payment by results is more important than discovering as nearly as possible the ideal "one-best-way," and then seeing that conditions are maintained at that standard.

Perhaps the most serious evil of introducing piece payment before a sufficiently close approximation to the "one-best-way" ideal has been attained is the dilemma of having either to pay excessive rates or to cut rates. If the setting of rates is followed by a rapid though gradual improvement of loosely standardized conditions, earnings will rise to disproportionate figures without equivalent increase in effort by the workers, and though the improvement of conditions may have involved substantial expense, no positive change in method will be at hand to point to as a basis of setting a new rate. Even when great care is taken at the start, in time improvements in method, material and equipment will occur, if the company is progressive, and yet they will often occur so gradually that it is almost impossible at any point to say that a substantial change in method justifying a change in rate has been made. This problem of adjusting rates to gradual improvement of conditions is one of the most baffling problems of handling financial incentives. So far as I can discover, no satisfactory answer to it has been found. The problem is serious at best—if rates have been hastily installed without first standardizing conditions as far as possible, it is ruinous.

3. *In introducing financial incentives one should always count the cost.* Often conditions are such