

cause to complain if the workman takes anywhere up to twenty hours to do a ten-hour job—it is up to him.

3. There is not a sufficiently clear placing of responsibility on the management for the maintenance of standards upon which the performance of the work in the time the studies show it should be done. If the worker exceeds this time it is too easy to blame the workman, and as in straight piece work the old excuse may be fallen back upon—that some are good workmen and some are poor.

#### Emerson's Bonus System

A time is set for the job and if the workman does the job in the time set, which is called 100 per cent, he gets a 20 per cent bonus. He can exceed that time up to 60 per cent and he still gets some premium. As the time is decreased his premium or bonus mounts.

A time is set, which is not the right time, since it is assumed the job can be done in less, and is called 100 per cent efficiency. But 100 per cent efficiency, in my mind, is 100 per cent efficiency, and not more or less. The Emerson plan as a rule, as I have seen it applied, has not been based upon standardized conditions, or on such accurate studies as are essential to a "task system."

In this scheme, as in some other offsprings of the Halsey system, there is an attempt to average up the "good work" and "bad work" by lumping the "time allowed" for all jobs done during a pay period and basing the bonus or premium on the total time taken as compared therewith. This practice permits considerable inaccuracy with respect to individual jobs so long as on the average the time is amply high. It may, however, work out to the disadvantage of the worker as often as to his advantage.

Its sliding scale of bonuses permits the same evasion of responsibility on the part of the management as in the case of straight piece work or the Halsey premium system.

#### Task System

Taylor was the first man to advocate a task system, a system of pay in which the extra earnings depend upon the performance of a definite task under definite and standardized conditions in a definite manner and in a definite prescribed time. If a man does the job in the time set or less, he gets the high rate. If he exceeds that time, he gets the low rate. Earning the high rate also requires that the quality of the work be up to the standard.

The differential piece rate has some of the disadvantages of straight piece work—notably that the same

rate applies to all workers doing a given class of work irrespective of other considerations, and that if the cost of living goes down, you can not adjust your rates of pay very easily without cutting your rates. On the other hand, under the task and bonus system you can bring about a gradual downward readjustment of wages, if that is the proper thing to do. You may not want to cut the wages of your old hands, but as you hire new people to take the place of men who leave, you can hire them at prevailing rates. This cannot be done in piece rate work.

#### Gantt Task and Bonus System

This scheme is to my mind infinitely superior—once a plant has attained the scientific management stage in its progress—to any of the other schemes we have discussed. Except that the basis is a price per hour instead of a price per piece and that the penalty for failure to accomplish a job in the time set may be less severe, it is essentially the same as Taylor's differential piece rate scheme.

Under Taylor's scheme say the task time is 10 hours and the "high rate" is \$10—if the job is done in 10 hours or less—and that the "low rate" is \$7.50. Now suppose, taking an unlikely extreme case, a man for some reason takes 20 hours to do the job, he will receive only \$7.50. Under Gantt's scheme he would get his hourly rate of pay for the full time taken—say \$7.50 per hour—making his pay for the 20 hours spent on the job \$15 instead of \$7.50 as under the original Taylor scheme.

The arguments set forth in the literature discussing wage rates for and against task and bonus are not all of them quite up-to-date. Some of them do not hold good.

This scheme was developed while Gantt was working with Taylor at the Bethlehem Steel Works, and at that time and for a number of years afterward they felt that its greatest advantage lay in the less severe penalty for failure; that it was preferable therefore to the differential rate, especially during the earlier stages of the development and installation of a system of scientific management, before conditions are fully standardized and the planning and control system still imperfect.

To some extent it was regarded as an intermediate step toward differential piece work. In my own experience covering about eighteen years I have not found that the less severe penalty feature cut any ice in actual practice. It might appeal to the worker and the manager—giving the former a greater feeling of security—but the fact is that if the work which properly must

precede any form of task system has been well done, and if the task system is properly installed, the workers will and should accomplish their tasks in the time set right from the start. So far as that is concerned either system of pay might be established. Another point is that in actual practice, if the system is properly installed and administered, it is an exception for a worker to fail to accomplish a task on time—excepting when the cause of failure is obviously beyond his control. Every such case is investigated and if the circumstances warrant, extra time is allowed for the specific job only—as for instance in the machine shop practice if a casting has excess stock requiring an extra cut, or material is harder than it should be, necessitating less feed or speed than that specified. Where such extra allowances are made, steps are taken to prevent the trouble recurring in the future. They should of course be of infrequent occurrence. Usually they are reported, investigated and adjusted while the job is in progress. It has been my experience that in the great majority of cases, failure to accomplish a task is due to some shortcoming of the management rather than of the worker.

Under the task and bonus system a sufficient number of hours work must be kept ahead of the worker, the loss of bonus in case each job is not furnished on time being large enough to overcome any inclination to stretch a job out when work may appear to be scarce, or to overcome the tendency to soldier, which, as I have stated, arises at times under straight piece work. The worker may be depended upon to turn out his jobs on time and to put up a kick if he is not kept supplied with work or if standard conditions are not maintained. As it is customary to pay the functional foremen in the shops a bonus based upon the percentage of jobs finished on time by their men, they may be counted upon to back up their men in holding the management up to its job. In this, to my mind, lies one of the greatest merits of the task systems—the workers push the management more than the management pushes them.

Failure to provide enough work results in a just penalty upon the management under Gantt's scheme, as the workers must be paid at their "day rate" for any "waiting time," which is charged to that branch of the management responsible and cannot be ignored or hidden by tacit understanding, as is the case under piece work and in varying degree under a premium system.

Task and bonus in connection with suitable mechanisms—route sheets, operation orders, bulletin boards, etc.—for planning and control of plant operation, leads

to the maintenance of a force properly adjusted to the volume of work, instead of one large enough to handle the peak load in all departments or operations. It results in looking further ahead; in more uniform earnings for the employers and in the long run in smaller labor turn-over. Employees are taught to do more than a single operation so that if one class of work drops off and another builds up they can be shifted to meet such fluctuations. Contrary to the opinion held by the uninformed, there is less of objectionable, intensive specialization under scientific management than under "systematized" or "unsystematized" management. Versatility on the part of a worker is an asset, and it is an advantage to be able to pay a higher rate in proportion as a worker is able to do any work to which he may be assigned. This is possible under Gantt's scheme.

Gantt's original plan was to set a task time upon which the "bonus" was based. The rate of bonus varied, depending upon the nature of the work, from a minimum of 20 per cent to as high as 100 per cent of the task time. For work such as general machine work 35 per cent has proved popular.

Classes of work making greater demands on skill, exertion or responsibility, or of a disagreeable nature, would call for a higher rate of bonus. On relatively simple repetitive work 25 per cent is satisfactory, although if the gains in production permit, as they usually do, it is better to pay 30 or 35 per cent. Anything less than 20 per cent is not sufficiently attractive to be effective. How high the bonus rate may be placed depends in some measure upon the savings in direct wage cost resulting from the change to "task and bonus."

For illustration of the working of this scheme, let us suppose that 10 hours is the task time for a job, 35 per cent, or 3½ hours, the "bonus" to be paid if the job is done in 10 hours or less, and the workers "day rate" to be \$5.00 per hour. Then if the worker finishes the job in 10 hours he would receive 13½ hours pay @ 50¢ = \$6.75 or \$.675 per hour. If he does it in less than 10 hours he is paid for the time taken plus the bonus time, 3½ hours. If, for instance, he takes only 8 hours, his pay would be 8 plus 3½ = 11½ × \$5.00 = \$5.75 or \$.72 per hour. His bonus rate based upon the time taken would in this case actually be 43.7 instead of 35 per cent. His total pay for the job would have increased only 6-2/3 per cent while he saved 20 per cent of the time allowed.

Later Gantt changed this—unwisely I believe—so that if in any case the job were done in the task time or