

and that all of the conditions as to quality are complied with, there should be no such possibility, and it is unreasonable to expect other than the exceptional worker to do a job in less than the time set.

I feel justified in again pointing out that any such expectation indicates a lack of faith in the management's own ability to do its work properly, and will ultimately lead to disaster. Under task and bonus or differential piece work as applied in connection with scientific management, it is just as dangerous and undesirable to have work done in much less than the task time as to have it take more than the task time.

Where workers consistently beat the time it will invariably be found that it is at the sacrifice of one or all of the following: quality of work, tools and equipment, the worker's own welfare. Here lies the objection to Gantt's modification of his scheme, and I assure you that it is a very real one, although most people have to burn their fingers before realizing it.

In one shop there was a perfect mania for beating time. The quality of the work turned out went down steadily, machinery and tools were put out of commission, and the management lost more than it gained. Under the task and bonus system when properly applied, it will be found that, taking a plant as a whole, 95 per cent of all the work is done in the time set.

#### Influence Upon the Management

The effect of this system upon the management is to my mind of greater importance than is the incentive that it gives the worker. It is what vitalizes the organization and the system.

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 finished 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 complain 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 the responsibilities of its job. In this lies perhaps the greatest merit 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 operations, 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 employes, and in the long run in smaller labor turnover. Employes 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.

#### Importance of Clearly Defining Methods and Conditions

In conclusion I want to emphasize the importance of something which is too little understood and to the neglect of which may be traced many of the failures or troubles resulting from any incentive scheme of wage payment; that is, failure to back up the task time with a clear and detailed definition of the method, the machine, the tools and the conditions upon which the set time is based. To say that the time allowed for boring a cylinder is ten hours without specifying these things is comparable to saying that it should take a man one hour to travel four miles without specifying whether he is to go by ox cart or automobile, whether carry-

ing a heavy load or nothing. It is like telling a contractor to build a house for \$20,000 without saying what kind of house is wanted.

For every job there should be a detailed instruction card giving the time for each elementary subdivision of the job and a complete list of the tools required. Examples of these may be found in my paper "Standards" with which I believe you are familiar. These must be made accessible to the worker for each job he does—not filed away in the office or planning department—and the management must see that the method upon which the time is based is followed.

Just as the standard method and equipment involved in the performance of an operation must be clearly specified, so also must the *quality* of workmanship be definitely and clearly indicated on drawings, specifications or their equivalent. Inspection for quality, vitally important under any incentive system, is under a task system imperative. It must be borne in mind that the bonus is paid not only for performance of the work in the time set and according to the prescribed method, but also for its being up to the standard of quality specified, which of course, largely governs the method and time.

If it is clearly understood that the time allowed for a job is for doing it in accordance with the specifications, and the method is covered by detailed instruction cards and tool lists, the time

<sup>3</sup>Cf. *Bulletin of the Taylor Society*, Vol. V, No. 1, February, 1920; reprinted, Vol. XII, Nos. 5 and 6, October and December, 1927.

may be revised without any objection or resentment from the worker, to take care of improvement in methods, equipment or material, changes in design, and so on, a new instruction card taking the place of the old one in all such cases. What ordinarily happens in the absence of detailed instruction cards showing what the time for the job or the rate includes, is that changes of this sort and improvements are made in the work without changing the rate or time allowed. Usually such changes taken individually are quite unimportant and affect the total time very little, but they come about insidiously and steadily, and in the aggregate over a period of several years amount to a great deal. They are perhaps the greatest cause for rate cutting and other apparent breaches of faith; and while they may be justified and inevitable from a business and economic standpoint, the worker cannot be blamed for feeling that they are unfair.

In the lack of standard conditions, clearly defined methods and quality, and of accurate knowledge as to the time work should take, will be found, I believe, the root of organized labor's opposition to any pay system other than straight day work. Gantt's task and bonus system in its original form, when based upon a properly laid foundation and properly administered as a part of a complete system of scientific management, is in my judgment not only the best system from the standpoint of accomplishment in the matter of high production and low cost, but is tremendously valuable as a preventive of those misunderstandings and that mistrust that are at the bottom of most labor troubles.

### Annual Meeting Hotel Pennsylvania, New York December 4-6, 1929

Following the program announced in detail in the August issue, this meeting will include the papers and discussions on problems of policy and procedure raised by the report of the Hoover Committee on Recent Economic Changes—general administration, marketing, employer-employee relations, development technique, etc. Among the speakers already secured are: R. W. Burgess, Western Electric Company; Howard Coonley, Walworth Company; H. K. Hathaway, Consulting Engineer; J. E. Judson, Ford, Bacon and Davis; John Lawrence, New England Council; Wesley C. Mitchell, Economist; Paul Nystrom, Marketing Counsel; N. M. Perris, Stevenson, Harrison and Jordan; M. C. Rorty, International Telephone and Telegraph Company.

*Save These Dates*