

made at the regular work places and in full view not only the operator but of his associates. This development is especially suggestive in view of the larger number of persons performing like operations in present day manufacturing plants.

The most serious defect in our current time study practice—as it affects and is affected by these group relationships—lies in the almost complete inability to take advantage of the softening influences of publicity. Notwithstanding the fact that our first time studies were made over forty years ago there is today no generally recognized code under which observations are made or recorded. The consequence is that with negligible exceptions time study data is individual to the observer and except in the hands of the person who made the observations cannot be used.<sup>6</sup> The systemization of our data is generally too informal to permit of its being grasped by the layman. For every variety of work it is possible to have at least a reasonably solid sub-structure of time study data relating particularly to "allowances" applicable to a given shop and to operations and sub-operations most frequently encountered and those least likely to change—which can be passed around somewhat as we do the multiplication tables. We are more tolerant of variation where some part of the structure is reasonably stable. In my use of the term "time study" I have in mind of course that painstaking effort to get at bottom facts which involves not only the division and sub-division of the work to be done into its elementary parts but timing observations on each such part in such number as to practically eliminate guess work. I do not have in mind those over-all approximations and guesses which are current in industry under a dozen alluring names.

Curiously enough the practitioners of time study have never banded themselves together—even as a group within a parent organization. Perhaps this is the reason for an almost complete lack of a commonly accepted technique. Certainly the fact that no such organization exists reflects no credit on the art. It will not profit us perhaps to speculate on all the reasons as to why this numerous group of technicians have never sought to estab-

<sup>6</sup>There are, of course, notable exceptions—such as the Link Belt Co. and the Tabor Manufacturing Co. where the original work was so thoroughly done that fifteen to twenty years later it is still in active every day use.

lish this quite common means for the exchange of views and the stabilization of practice. Certain it is that any such organization would necessarily blazon at the top of its program an emphatic prohibition against secrecy in every phase of time study work. There can be no reserve in condemning those who may be using under-cover methods in this field. Observing workers without their knowledge and consent and participation is wholly bad.

When such an organization as I have indicated comes into existence one of its first tasks will be to prepare a very simple treatise on time study—in leaflet form—for the information of the men and women in the shop. In view of the small amount of information which the general public has as to objectives and methods of time study we are assuming quite too much in asking that same public to accept its conclusions.

The literature of time study is replete with references to the difference in productive ability as between a worker designated as "first-class" and one who is rated as not "first-class"—this latter sometimes referred to as "an average worker." In the absence of more exhaustive research than has yet been given to this subject one must tread lightly: But I may be permitted to raise the question as to whether the difference between what might be called "normal" men and what are known as "sports" in biology may not be the real consideration.

Taylor says:<sup>7</sup>

That there is a difference between the average and the first-class man is known to all employers, but that the first-class man can do in most cases from two to four times as much as is done by an average man is known to but few, and is fully realized only by those who have made a thorough and scientific study of the possibilities of men.

The writer has found this enormous difference between the first-class and average man to exist in all of the trades and branches of labor which he has investigated, and these cover a large field, as he, together with several of his friends, has been engaged with more than usual opportunities for thirty years past in carefully and systematically studying this subject.

This difference in the output of first-class and average men is as little realized by the workmen as by their employers. The first-class men know that they can do more work than the average, but they have rarely made any careful study of the matter. And the writer has over and over again found them utterly incredulous when he in-

<sup>7</sup>"Shop Management," pages 24-25.

formed them, after close observation and study, how much they were able to do. In fact, in most cases when first told that they are able to do two or three times as much as they have done they take it as a joke and will not believe that one is in earnest.

It must be distinctly understood that in referring to the possibilities of a first-class man the writer does not mean what he can do when on a spurt or when he is over-exerting himself, but what a good man can keep up for a long term of years without injury to his health. It is a pace under which men become happier and thrive.

Taylor wrote this over twenty years (1903) before modern psychology had discovered that in all groupings, any characteristics are spread over a frequency curve in such a way as to present an altogether new picture of variability. It is no longer scientific to classify on the "white or black—good or bad" basis, but on the basis of a recognized norm and a dispersion about it. Therefore in seeking operatives best fitted for a given class of work we will probably be well advised to look neither for "speed boys" nor subnormals but for high class normals—doubtless corresponding to what Taylor had in mind in using the term first-class worker—"a steady, intelligent and conscientious worker, skilled in the trade who produced good work and whose performance might under proper conditions and instructions reasonably be expected to be attained by any one physically, intellectually and temperamentally suited to the work."<sup>8</sup> It is, generally speaking, possible of course to find highly exceptional men. But just how advantageous it is to look for them in industry is another matter. My own point of view is that of Colonel H. K. Hathaway—a member of these Societies—quoted at length in my introduction to the Cleveland Report.<sup>9</sup> No one interested in the philosophy of time study can afford to miss this statement of Colonel Hathaway's, summarizing as it does a peculiarly ripe experience in this field. An all star cast on special occasions may draw an audience. But such aggregations of talent are not usually continuing commercial successes. And, even more important, they put a burden on the manager which even profits may not sustain in the long run. As with the stage so it is likely to be in industry.

From the standpoint of the workers the statement of Colonel Hathaway's that the use of studies

<sup>8</sup>Cleveland Report, pages VI-VII.

<sup>9</sup>Ibid, page IV and following pages.

of "average" performance may actually result in cutting rates is especially interesting:

For example, let us consider that time studies are made as indicated by the report, on employes of widely varying degrees of skill and as a consequence average production standards are set. Theoretically under such an arrangement the various workers earn proportionately to their ability to produce. Gradually, however, as a result of improvement in management and all of the conditions involved as well as of self-development of the workers the difference in ability between the various workers diminishes until they are all within reasonable limits equally competent. At the same time changes in product, method, etc., gradually come about and new studies are made. The base or minimum wage remains the same. Now, under the earlier state of affairs the earnings of the average worker would have been let us say 100 and that of the first-class worker say fifty per cent higher, which if, as is not so improbable as it may sound, the gradual improvement mentioned resulted in the entire force becoming first-class workers we would find them all earning the figure represented by 100 instead of 150. I am confident that with a reasonably constant force I could bring this about (i.e., the raising of the average level of skill and of performance to the level of the first-class) in from two to four years. Of course there would be a few exceptional people who could exceed the standard as well as a very few who might never attain it, but in setting standards we are not in the first instance concerned with either of these.

From the standpoint of the group these conclusions if valid have an important bearing on the attitude to be taken toward time study. Naturally no group is going to be wildly enthusiastic about any system under which a considerable percentage of its membership is to be barred from further activity. But if, as appears to be the case, it is possible through standardization of process, providing the proper service for the worker, coaching and otherwise within a very short time to carry the great majority of a group of workers to the level of first-class performers and to the enjoyment of the higher earning power (and this without prejudice to their associates!), we can expect to see the great body of workers won over as the Cleveland garment workers have been to the advantages of time study. Colonel Hathaway is undoubtedly right in pointing out the futility of time studies based on the performance of "average" men. It is only time study data based on reasonably first-class performance that abides. The Cleveland Agreement does provide that "average" workers are to be studied in setting production standards. But we seem to make progress at times without being too meticulous in our inter-