

are lazy—one may say incorrigibly lazy. Now when such a man as that is found every effort is made to induce him to cease to be lazy and to work as he ought to work, and generally you are successful in this if you will only keep at the man long enough. I have in mind now several cases in which the worst shirkers under the old system have been finally trained men and developed into foremen, under scientific management, because under persistent, firm but kindly treatment, and with hope of advancement before them, they became such energetic men and developed such an interest in their work. But there are a few men who remain, you might say, incorrigibly lazy, and when those men are proved to be unchangeable shirkers they have to get out of the establishment in which scientific management is being introduced. Scientific management has no place for them.

Thereupon the committee adjourned to meet Tuesday, January 30, 1912, at 2 o'clock p. m.

Tuesday, January 30, 1912

The committee met at 2 o'clock p. m., Hon. W. B. Wilson (chairman) presiding. There were also present Representatives Redfield and Tilson.

The Chairman. Mr. Taylor, what percentage of the increased efficiency under scientific management is due to the systematizing of the work and what per cent to the speeding up of the workman?

Mr. Taylor. In the ordinary sense of "speeding up," there is no increase in efficiency due to that. Using the term "speeding up" in its technical meaning, it means getting the workmen to go faster than they properly ought to go. There is no speeding up that occurs under scientific management in this sense.

The Chairman. How much in the sense in which it has been used—that the workman is required to go faster than he normally did go prior to the introduction of the system? Using it in that sense, what percentage of the increased efficiency is due to the systematizing of work and what percentage to the speeding up of the workmen under the definition which I have given?

Mr. Taylor. That depends, Mr. Chairman, upon the workman and the extent to which the workman was soldiering beforehand—that is, upon whether he was purposely going slow or not. As I have indicated, the amount of soldiering that takes place varies with the varying conditions, and there is no standard or uniform condition with relation to soldiering.

In some trades there is a very great deal of soldiering, in other trades there is less soldiering, so that the question can only be answered in its relation to some specific case. There is no general rule that I know of.

The Chairman. What social or economic necessity is there for speeding up the workman beyond the normal conditions under which he worked before the introduction of these scientific systems?

Mr. Taylor. Again, in its technical sense, there is no "speeding up" that occurs under scientific management. There is merely the elimination of waste movements—the elimination of soldiering, and the substitution of the very quickest, best, and easiest way of doing each thing for the older, inefficient way of doing the same thing; and this does not involve what is known as "speeding up."

The Chairman. If I recall your direct testimony, Mr. Taylor, you have stated that you found a condition of soldiering existing in the plants that you had to do with?

Mr. Taylor. Yes.

The Chairman. Does not your system propose to eliminate that soldiering?

Mr. Taylor. It certainly does.

The Chairman. Who is to determine what constitutes soldiering and what constitutes a proper amount of physical energy to be expended?

Mr. Taylor. The determination of what is right for the man to do, of what constitutes a proper day's work, in all trades, is a matter for accurate, careful scientific investigation. It must be done by men who are earnest, honest, and impartial, and the standards which are gradually adopted by men who are undertaking this scientific investigation of every movement of every man connected with every trade establishes in time standards which are accepted

both by the workmen and the management as correct.

The Chairman. Would not an employer be an interested party because he might profit or lose, as the circumstances might be?

Mr. Taylor. I can conceive that a dishonest employer or a heartless employer might very likely desire, in his ignorance of facts, to set a task which was too severe for the workman; but that man would be brought up with a round turn, because he would find that his workmen would not carry out unjust and unfair tasks; and an attempt at injustice on the part of such a man would wind up by his being a complete loser in the transaction. Therefore, the man who attempts any overdriving of that sort would simply fail.

The Chairman. The employer being a profitter by the expenditure of additional energy on the part of the workmen and not having the additional physical discomfort of the workmen to guide him in determining what constitutes a proper day's work, and what is soldiering—in what manner could the workman protect himself against an improper day's work being imposed upon him?

Mr. Taylor. By simply refusing to work at the pace set. He always has that remedy under scientific management; and as you know under scientific management he gets his regular day's pay, whether he works at the pace set or not. When he falls short of the day's work asked of him he merely fails to earn the extra premium of 30 to 100 per cent which is paid for doing the piece of work in the time set.

The Chairman. Assuming an employer having a thousand employees, and conditions being imposed upon a workman requiring him to do more work than he believes he ought to do, and his refusal to do the work because he believed it to be too much, and the other 999 men continue on at work: upon what basis of equality would the employer and employee be under a condition of that kind?

Mr. Taylor. There is no earthly reason, if it is desired by the workmen, why there should not be a joint commission of workmen and employers to set these tasks, not the slightest earthly reason. And, as I think I have told you before, Mr. Chairman, the tasks which are set

in our establishment are universally set or almost universally set by men who have themselves been workmen, and in most cases those who set the daily tasks have come quite recently from doing work at their trades. They have within the last six months or a year or two years perhaps worked right at those trades. They are chosen because they are fair-minded men, competent men, and because they have the confidence both of the management and the workmen. You must remember, Mr. Chairman, in the first place, that under scientific management the workmen and the management are the best of friends, and, in the second place, that one of the greatest characteristics of scientific management—the one element that distinguishes it from the older type of management—is that all any employee working under scientific management has to do is to bring to the attention of the management the fact that he thinks that he is receiving an injustice, and an impartial and careful investigation will be made. And unless this condition of seeking to do absolute justice to the workman exists, scientific management does not exist. It is the very essence of scientific management.

The Chairman. As I understand, then, very frequently those tasks are set by men who have come fresh from the ranks?

Mr. Taylor. Yes, sir.

The Chairman. Over on the side of the management?

Mr. Taylor. Yes, sir.

The Chairman. Now, is it not true that when a man is selected by the management, as a rule, he is selected because they believe in his ability to take care of the interests of the management?

Mr. Taylor. Under scientific management because they believe in his impartiality, his straightforwardness, his truthfulness, and they believe he will have both the confidence of the management and the men, and equally forward the best interests of both sides which are mutual.

The Chairman. Then, to get back to the original point stated by you—that scientific management cannot exist unless there is a complete change of mind—

Mr. Taylor. Yes, sir.

The Chairman. Now, do you conceive that