

better than in the elimination of seasonal production and its attendant evils is the fact illustrated that what is of permanent benefit to the management also benefits the workmen, and vice versa. That seasonal variation in many cases is not an unpreventable waste has been amply proved by those industries which have attacked and eliminated the evil.

b. Improvement in or Maintenance of Quality

Scientific Management has pretty conclusively shown that as between speed and quality there is not only no intrinsic irreconcilability, but indeed that with intelligent handling an improvement in quality has usually accompanied increased speed. Just why this is so may be left largely to the psychologists—we are dealing simply with the abundantly proved fact.

c. Speedy Production and Accurate Delivery

The firm which can accurately predict and rigidly maintain delivery dates is not only in an enviable position from the buyer's standpoint, but may claim a distinct contribution to itself, to the buying public, and to the community at large. This control, characteristic of the properly managed plants, constitutes a decided antidote to the tendency for ever-increasing costs of living.

d. The Power and Stimulus of Knowledge

As a final consideration under the industrial or non-human aspects comes the confidence, the sense of security, the power and stimulus which spring from the knowledge that we have real control of our business through the ordered regulation of its activities according to adequate knowledge and best practice.

2. The Human Factor

Important though it be for the country at large that we have high production and low costs, that we establish a strong industrial basis, it is of greater importance that while we are making *things* we do not forget that our first and infinitely more important duty is the making of *men*—making good citizens.

a. Industrial Peace

The fact seems to be that in scientifically managed plants there has been remarkable freedom from the turbulent and distressing manifestations of industrial maladjustments characteristic of the last few years. This absence of labor trouble is due undoubtedly to a combination of causes; to a spirit of cooperation—the "mental revolution" which is such a vital part of Scientific Management; to fair dealing; to a proper work environment; to a spirit of democracy; to increased individual production; to high wages unaccompanied by over-exertion; and to a feeling on the

part of the employee that his best interest is being and will be looked after. It is due indeed to all these factors; it is inclusive of them all.

This fact is of pre-eminent importance at the present time. The bringing about of industrial peace in its establishments is unquestionably the *greatest* contribution of Scientific Management.

b. High Wages

Increases in the earnings of operatives working under Scientific Management are too common and well known to need repetition.

c. Proper Working Hours

Mr. Taylor was one of the first to recognize and to prove the fact that overlong working hours are not conducive to high output, and that in very many cases hours of work may be sharply decreased up to a certain point and output increased simultaneously.

d. Conditions of Work as Related to the Health and Well-Being of the Worker

Looked at from the entirely personal, selfish, financial aspect, there can be no question that the very best condition of the employee is the very best condition for the owner of the business. That the owners and managers of plants under Scientific Management primarily and continuously have the best interests of their people at heart—not from any ulterior motives, however, but because they are "that sort of person"—I believe can be doubted by no one who will take the trouble to visit them and their employees.

There is another phase of this question, however, which is of much greater importance in that it affects the workman during his entire life as a productive member of society. This is the determination, through time study and allowances for rest and necessary delays, of "the best day's work that a man could do, year in and year out and still thrive under." It is significant that the first "fatigue study" ever conducted in a really scientific manner, so far as the writer's records show, was performed over thirty years ago by Mr. Taylor as a part of his determination of a proper day's work.

In closing the discussion of this particular topic, it may be stated that, in spite of the oft-expressed fears that the so-called "speeding-up" would result to the immediate or ultimate detriment of the worker, no authentic case of anything but beneficial results of high individual production has been brought to light.

e. Selection, Fitting and Training

It would be difficult to overestimate the advantage

both to the individual and to the nation of a condition where each person could be engaged, under conditions satisfactory to him, upon work for which he is naturally best fitted.

In plants run under Scientific Management, committed as they are from early days to a policy of "scientifically selecting, training, teaching and developing the workman," it is the customary thing to find operatives who are now doing excellent work on their third, fourth, or even fifth trial after having previously been unsuccessful at work for which even they originally thought they were best fitted. We naturally expect to find, and do actually find, numerous cases of promotion from the ranks.¹⁶

f. Free Scope for Individual Initiative and Opportunity for Advancement.

The criticism has been made that in working under the highly standardized conditions and detailed instructions that Scientific Management insists upon, there can be little chance for the exercise of one's individuality. This accusation is true in that we do not let a novice tamper with a new and delicately built mechanism until he proves that he has mastered it.¹⁷

It is not individuality and initiative run wild which is really constructive; it is intelligently applied individuality, and prerequisite to this is an understanding of things as they are and how they have come to be what they are.

So far from killing the right kind of initiative, Scientific Management plants are promoting individual initiative in the truest and highest sense—the initiative of the enlightened type of workman. The oft-quoted criticism that under Scientific Management the worker's job is monotonous, overlooks the fact that monotony is due not so much to the unvarying repetition of recurrent operations, as to the accompanying feeling that the work holds no future possibilities. The consistent

¹⁶Starting with the original instructional foreman inappropriately called the "Disciplinarian," now developed into the modern functionalized Employee's Department (known variously also as the Personnel Department, the Labor Department, the Employment Department, etc.), there is set up not only a means for bringing to pass such conditions as those described above, but also the means to establish and maintain a more intimate personal touch between management and men, and to sit in judgment over the employee on the one hand and the management on the other—acting as buffer, as it were, between the two. The very recent widespread adoption of this safety valve is a decided step in the right direction.

¹⁷As Alexander Meiklejohn says ("College and the Common Life," Harper's, November, 1923): "Let it be understood among us that no man has a right to any opinion on any subject unless it rests upon the best thinking which we have upon that subject."

policy of promotion from the ranks has done much to make every workman feel that he has a marshal's baton in his knapsack. Instructional (or functional) foremanship opens up avenues for advancement to others than the exceptionally gifted workman.

g. Reduction of Labor Turnover

Much of the restlessness in industry is curable. It is caused by the existence of unsatisfactory conditions in just those features of management discussed in the preceding topics—too low wages, long hours, poor working conditions, lack of proper selection, fitting and training, and to a conviction on the part of the employee that for him his present job in his present place offers no future. Naturally, therefore, with the removal of the causes in any particular place the evil itself largely disappears. This has been the experience in numberless plants which have adopted advanced measures more or less completely.

h. Spirit of Cooperation and Confidence and Feeling of Security

As a result of all of the positive products of advanced management enumerated above come the last and most important of them all. Indeed, so important are the spirit of cooperation and confidence and the feeling of security on the part of the whole personnel that nothing should be allowed to undermine them; for without them, although a certain *efficiency* may be obtained, *true Scientific Management* is impossible.

Cooperation may be obtained only by securing the *confidence* of those with whom we deal, and this confidence in turn results only when each man feels *secure* in the belief that he is in the best possible place for him and that he need have no fear for the future so long as he fully plays his own part. Only when the management really assumes its full share of the work and the responsibility may his confidence be secured. And only through making this security and this confidence an actual fact has Scientific Management been able to produce what it so highly prized and what it has so remarkably obtained—true cooperation.

B. Refinements in Technique

There are some significant advances which have been made during the last few years which can be referred to only briefly. Since progress has been rapid and widespread, the following list of accomplishments must necessarily be incomplete.

1. Cost Methods

Mr. Taylor's early work set up admirable means for the collection of costs and the distribution of overhead