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THE ANNUAL MEETING

The annual meeting in New York was an unqualified success. Upwards of 100 persons attended the various sessions and 36 sat down to dinner at the Engineers' Club. The general subject of the meeting was Scientific Management and Labor and the papers and discussions dealt with the questions of organized labor, wage payments, selection of employees and kindred topics. Abstracts of the papers are given on other pages of this bulletin, together with principal discussions thereon. Complete discussions are on file at the Secretary's office and can be seen by any one interested.

New Officers

The following officers were elected at the annual meeting:

Vice-President, to succeed Wilfred Lewis, Charles Day, Philadelphia, Pa.

Member of Governing Board, to succeed H. P. Kendall, Sanford E. Thompson, Newton Highlands, Mass.

Members of the Membership Committee, Carl G. Barth, Philadelphia, to succeed F. A. Parkhurst and C. B. Thompson, Harvard University, Cambridge, Mass., to succeed Wilfred Lewis.

New Members

The following were elected to membership in the Society at the annual meeting:

Members — J. A. Bursley, Prof. Mechanical Engg., University of Michigan, Ann Arbor, Mich.

Richard A. Feiss, of Joseph & Feiss Co., Cleveland, Ohio.

Associate Members — John M. Bruce, Consulting Engineer, 5710 Grand Central Terminal, New York.

Milton Herrmann, of Herrmann, Aukam & Co., 31 Thomas St., New York.

Junior Members — Lyle E. Jenne, 120 E. Washington Lane, Germantown, Philadelphia, Pa.

D. J. Walsh, Jr., Herrmann, Aukam & Co., Lebanon, Pa.

Applications for Membership

The following applications for membership are before the Membership Committee:

Arthur Ro. Zachert, Babcock & Wilcox Co., Bayonne, N. J.
Elroy C. Robertson, Leavenworth Apartments, Syracuse, N. Y.
Robert B. Wolf, 128 Prospect St., Berlin, N. H.
Walter N. Polokov, 1233 Chapel St., New Haven, Conn.

NEXT MEETING AT NEW HAVEN

The next meeting of the society will be held at New Haven, Conn., on Feb. 12 and 13. The general subject of the meeting will be Cost Accounting and Scientific Management. Features of the meeting will include a visit to the plant of the Acme Wire Co., an informal smoker, and a dinner at the Hotel Taft. A tentative program is given below. Details will be announced to the members through the mails at least one week prior to the meeting.

PROGRAM OF NEW HAVEN MEETING

Friday, Feb. 12

8 P.M. — Address, "Cost Accounting Theory and Practice," Yale University, Mason Laboratory.

10 P.M. — Smoker, Hotel Taft.

Saturday, Feb. 13

9 A.M. — Visit to Acme Wire Co.

12.30 A.M. — Luncheon, Hotel Taft.

2 P.M. — At Yale University, Mason Laboratory.

Address, Scientific Management as Applied to Public Service Properties with Special Reference to Cost Statistics — Charles Day.

Address, An Outline of the Scheme of Accounting as Developed by F. W. Taylor with Especial Reference to the Relation of Cost Keeping to Other Functions; Mnemonic Symbolization; Classification of Expense; Distribution of Burden. — H. K. Hathaway.

6.30 P.M. — Dinner at Hotel Taft.

8.15 P.M. — Discussion of papers of the afternoon session.

CURRENT WAGE THEORIES[1]

By PROFESSOR C. A. PHILLIPS[2]

Economic Science is passing through a stage of readjustment. Old theories, notably wage theories, have been cast aside, and new ones, ardently advocated, are being subjected to rigorous

tests. Of current wage doctrines the "marginal productivity" and "bargain" theories command hearty assent. The advocates of bargain theory of wages regard the wage question as a price problem, the solution of which is to be found in the relation between the supply of labor and the demand for it. While the supply of labor is fixed roughly by the standard of life, this force operates slowly, and in some instances it may happen that the lower limit to wages is the bare subsistence of the workers. On the side of demand there is an upper limit to the wages of any group, fixed by the value of the laborer's contribution to the product. Between these limits wages will fluctuate according to the relative bargaining power of employers and employed.

The proponents of the marginal productivity theory maintain that the laborer obtains as wages approximately the value of what he adds to the product of the group to which he belongs. But under the universal law of diminishing returns the greater the number doing the same kind of work that he does, in comparison with the other factors of production in the same group, the smaller will be his contribution to the product, and, therefore, the lower his wages; and vice versa, the fewer doing his kind of work the greater his imputed product and the higher his wages. Whatever tends, then, to reduce the number of laborers in proportion to land and capital tends to increase wages. A rising standard of living tends to raise wages indirectly by entailing a lower birth rate and in time fewer laborers. Trade schools, instrumental in augmenting the numbers of skilled laborers, tend to lower wages in the skilled trades and to raise the pay of unskilled laborers whose ranks are at the same time somewhat reduced. Increased efficiency of labor, provided the efficiency of the other factors in production do not increase in proportion, is tantamount to increased numbers and for any given group is favorable to reduced piece wages.

Professor Taussig, of Harvard, maintains plausibly that wages are fixed, not by the marginal product but by the discounted value of that product, making the rate of interest one of the fundamental determinants of wages.

Points of difference in these current theories are as much apparent as real and careful analysis would go far towards bringing them into harmony.

Discussion

WILFRED LEWIS: At the last meeting when the question was raised as to how a proper basis for wages could be established, I said that the basic wage depended primarily, in my opinion, upon the production of gold which is the standard by which all other values are measured. By this I mean that the average amount of common labor expended for a dollar will not be diverted to the mining of gold unless it can realize thereby at least 25.8 grains of gold. Nor will a gold miner seek other employment if the labor which yields him 25.8 grains of gold does not pay him a dollar for the same effort in some other direction. What a day's labor may be worth, depends, therefore, upon how much gold it can recover from the earth in mining, and this naturally depends upon the number of hours per day that can be utilized to advantage. Organization and capital will, of course, affect the total output in mining the same as in any other industry, but gold mining is the only industry in which the product is money itself and labor's share of that product necessarily fixes the basic wage. When gold is plentiful, wages are high and when gold is scarce they necessarily shrink with it, because the gold produced in a given time is all there is to divide among the workers for the time spent in its production. In other industries labor may have more or less than its share of the products of labor but in the mining of gold it cannot realize more than this without checking or stopping production, and when this occurs the value of the dollar standard appreciates until the same reward commands more labor, and stimulates again the mining of gold. In prosperous times it is possible that labor does not receive its full share of the things produced, but in times like these, I believe labor is generally overpaid. It is the chief item of expense in all manufacturing and when we see a thousand to fifteen hundred failures every month aggregating twenty to thirty million dollars, it is perfectly clear that most of these manufacturers have paid out more in wages than they were able to recover in the sale of their products.

D. M. BATES: As I understand it, it has been a matter of collective bargaining in all instances. Suppose Mr. Lauer's firm has taken a contract to lay twice the usual number of bricks a day, and that by collective bargaining the price had been fixed where they were coming out at a loss. Suppose that happened all over the country. The result would be great hesitation at going into any such contracts. Engineers when asked to bid on such buildings would increase their bids and brick buildings would figure out very unattractive for factories and business blocks, and then skilled bricklayers, thrown out of employment, might be glad to get back at a reasonable price. Is it not time that there is always a compensating factor in human life working in accordance with some such law?

PROF. EDWARD ROBINSON: Prof. Phillips in his discussion of wages used bushels as his unit instead of dollars. The real wage is what the worker is able to get in goods, commodities or other material things for his labor. The speaker had occasion some time ago to look up the matter of wages, hours of labor and prices of commodities in the United States from 1840 to 1900.

Taking the United States census figures for each decade and reducing the figures to the amount of commodities that the average working man received for one hour of labor at each decade, we find that the real wage has continually increased so that in 1900 the worker was getting about three times as much goods for an hour's labor as he was getting in 1840. This is a fact of tremendous significance and is wholly independent of any theory of wages.

What has caused this tremendous increase in real wages in this sixty years? It is very easy to see that the great improvement in machinery, the development of factory organization, the improvement of railroads, etc., has made it possible for each worker to produce several times as much product as he did before. This extra product is divided between labor and capital. Each as a rule gets its fair share. The labor union which stands for the principle of collective bargaining comes in to see to it that labor does get its fair share.

When one labor union is able to raise its wages to a point in excess of its real value it does so at the expense of other workers who have weaker unions. It is impossible for labor as a whole to get more than it produces.

Scientific Management is of the nature of an improvement in the arts and as such makes it possible for labor to produce more and therefore to receive more wages, as the only way in which it is possible for labor to receive more is to produce more.

H. K. HATHAWAY: It seems to me that a discussion of how a basic wage shall be determined in each branch of industry is almost futile at this day. Arguing and theorizing as to whether rates of pay shall be determined as a result of bargaining, the law of supply and demand, or whether there may be found at some future time a more scientific method of determining what should constitute a proper recompense for a day's work in the thousands of different branches of industry and commerce and in different localities does not get us anywhere.

The first and most important thing that we can do is to increase

the amount of wealth produced by each worker each day, as this will result in there being an unquestionably greater amount of wealth to be distributed. Just how and in what proportion the wealth produced shall be divided among those who take part in its production is such an involved subject that we do not get anywhere in discussing it. There are too many factors to be taken into account, none of them being sufficiently constant.

Perhaps one thing more than any other complicates the whole problem, and that is dull times. We go on for a few years enjoying prosperity in a marked degree, and during these periods of prosperity we all of us acquire certain standards of living and certain wasteful or extravagant habits. Wages are increased to meet these higher standards of living and extravagances, and only a few of us are sufficiently provident and far-seeing to realize that such periods of prosperity are almost inevitably followed by periods of depression when our standards of living must be lowered, and we must get along on considerably less than we had during the period of prosperity, and that consequently we should during the period of prosperity be setting aside a certain reserve to carry us through the periods of depression.

During these periods of prosperity manufacturing facilities are greatly increased to meet the demand, and this leads to the raising of those expenses which are known as fixed charges. These charges can be reduced very little in dull times, but must be met as well as in prosperous times. As a result of a factory being run far below its capacity and the product over which these fixed charges must be distributed being greatly diminished, business is done at a loss which must be more than offset by the profits earned in good times. Consequently it would be fatal to any business to pay out in wages all of the money received during good times after deducting all other expenses. The same thing would be true if the entire profits earned in good times were paid out in dividends.

As long as this condition exists and there is so much uncertainty as to the length of time that prosperity will be with us or how long dull times will last it is impossible to fix anything in the nature of a basic wage even if we had a proper means of determining what the basic wage should be for each of the thousands of different jobs for a business running at its normal capacity. Anything in the nature of a basic wage necessitates a certain degree of stability in the conditions upon which the basic wage should be founded.

What is true of a business, i.e., that prices charged must be high enough to cover the cost in good times and to enable the building up of a reserve to meet the loss in dull times when commodities are sold at less than cost, is equally true in theory at least with respect to wages—they must be high enough to enable the worker to set aside during good times a reserve that will carry him through periods of enforced idleness. This does not work out in practice in a very satisfactory manner.

Consequently in attempting a solution of this problem the first thing to do is to try to bring about something in the nature of stable industrial conditions. If this can be done, we shall have advanced a long way in solving all of the problems of industry, and to a great extent the question of a basic wage will take care of itself.

We have all come to regard dull times as being of supernatural origin, that is to say as being something over which we have no control, and which while to be regretted must be endured. On the contrary, however, the future will show that dull times are the result of our own foolish actions, and of one group of men trying to profit at the expense of others.

It has been my thought that if the amount of money, time and energy expended in a scattered and inefficient way to solve this problem could be expended under the control of one commission having almost unlimited power, that a solution might be reached.

[1] Abstract of address at the Annual Meeting, December 4, 1914.

[2] Dartmouth College.

SCIENTIFIC MANAGEMENT AND ORGANIZED LABOR[1]

The Functions of the Industrial Counselor — Possible Relations of Scientific Management and Labor Unions

By ROBERT G. VALENTINE[2]

In beginning my work I had to adopt as a working hypothesis very distinct tentative beliefs. One working hypothesis I adopted was a belief in Scientific Management and claim to understand it very much as you do. The second hypothesis is that I believe in absolute democracy in group action on matters. Without assenting to any particular form of association, I feel that in any community or in any group of people, where you did not find a sane quiet beginning towards group action, that group or that concern, or those individuals are headed for trouble. And so in accepting the facts of our time as we find them, I believe in Trade Unionism as one distinct form of democratic development, despite all its imperfections and its monstrous economical fallacies.

Last Saturday I was called on the telephone by one of a firm of Buffalo lawyers, who asked if I knew anything about a text-book concern in Massachusetts. I told him I had no accurate information about it. He said, "Assuming what you have seen in the papers and what you know about it is all true, would you consider that firm financially sound at the present time?" I said, "Yes, sir."

Then, "Assuming also what you know about it, would you consider that firm, or would you not consider that firm as sound in its methods of management and its processes of doing the work?" Knowing the concern to be what any of us would consider an up-to-date, clean-cut business concern, I said, "Yes; I should consider it perfectly solvent, both financially and as regards the way it is works its processes."

Next I was asked, "Do you think that concern is industrially solvent, meaning that the relations between employers and employees in that concern, and all the partners in that concern, between themselves, and any other relations they have with each other, and with their employees, and with outside labor forces of any kind, and their relations with the management itself, were not only all fixed pretty soundly, but were developing in the right direction?" I replied, "From what I know of that concern I should not consider that concern industrially sound. I do consider it financially sound. I do consider it sound as to its plant and equipment and methods and processes of manufacture and operation, but not so on the side of human relations existing all throughout."

The man inquiring then said, "That is what I wanted to know. I had some doubts about it myself; and we will look into it further now, from what you have said."

Now, to me it is significant that that type of question is rising. I want to place before you that same question in another form.

Imagine that a large industrial concern desires to issue new capital stock. The ordinary process is for it to go to its bankers. Bankers talk over the situation, and if they think generally well of the plan, they ask the industrial company to have its financial condition certified to by an impartial disinterested concern of public accountants. Bankers also get, either from those accountants or directly through a firm of industrial engineers, a certificate as to the condition of the plant and the equipment. Those certificates appear in the prospectus of the new securities,

and stand to the investing public as a mark of the care taken by the bankers before they lend their names to the flotation of the securities. It also assures the public that the concern did not have capital tied up in unnecessary stores; that its methods of stores keeping were in keeping with economy.

The day is not far distant when the same bankers will demand a third certificate, in connection with any such transaction. The third certificate will testify to the industrial relations existing within the concern. It will be made by industrial counselors, and will certify as to the industrial relations existing in this concern. This concern may have a good bill of health on the first two points, and yet in the next six months they might have a strike on their hands which would make their securities worth nothing beyond the pieces of paper they are written on.

I think that third certificate will read somewhat as follows:

"We have investigated the condition of the X. Y. Z. Co.; first, as to questions of fundamental organization, particularly in their relation to the economic and social forces of the day; second, we have examined all questions of personnel such as description of jobs, selection and development of personnel; third, we have investigated questions of rates, amounts and methods of pay; fourth, we have examined questions of attitude toward labor unions, and all forms of association; fifth, we have investigated relations to labor laws, both state and federal, and to court decisions affecting labor; sixth, we have investigated questions affecting the relations of the concern to the public, particularly in matters of safety, sanitation, health and regularity of employment; and we find that the X. Y. Z. Company is giving due attention to the human relations in industry and is not likely to be involved in serious labor trouble or to carry a heavy burden of dissatisfaction cost."

Such a certificate may seem like the wildest dream to a large percentage of employers in the world to-day; but it will no longer seem so when we can educate ourselves to the point of being willing to move on from some of the outworn political and economical and social theories of our time and give to these problems some of the thought now given to questions of finance and plant. The manufacturer will then change from the condition of a blind or honestly puzzled employer, clinging to traditions of inherited belief in a worn-out economic and social theory, into a business-like practical sense of the concrete industrial forces and opportunities around him.

In making an audit of this kind—an industrial audit—the first task of the industrial counselor is to get the concern oriented. This means analyzing its organization and finding out whether this organization has effective roots in modern conditions. For example: A concern which is found to be doing nothing toward some form of self-government among the employees, can get from me no honest certificate of security against labor troubles.

One of the first things a concern anxious to get headed right must do is to lift its employment department from a subordinate place in some operating department to a level with the manufacturing, selling and accounting branches, and place it directly in charge of a partner or major manager, one of whose chief duties it shall be to develop a perpetual human audit of the kind I am suggesting here. With this personnel branch of its business thus developed at one end of its line of major functions, and some form of internal association among all its members developing at the other end of the line, the concern will become more and more conscious of its real industrial status. From a business point of view no organization of this kind can or should be defended except on the ground either that it pays or that it is necessary in view of existing or imminent law. In saying this I am not for a moment denying to business men other virtues than business virtues; but it is a cardinal point of good business administration, as of ethics, to keep pay and patronage apart.

Don't be led astray by the size of the job when I say that the head of the personnel division of a concern must be actively in touch with economic, industrial, social and political forces of the day; he must be alive to the meaning of trade unionism; he must be able to distinguish between its constructive meaning and its destructive meannesses. He must be equally ready to admit the meannesses of his fellow managers, and anxious about their constructive side. He must be alive to the trend of even the humblest business toward a status in the public service, for the public character that our railroads have taken will be rapidly followed by an effective public interest in the foods we eat and from which we are individually powerless to bar the poison. I am not asking that the personnel manager shall approve of these things. It is not a question of approval or disapproval, but he must be alive to them. So he must be alive to the growth of co-operation, to the real contribution of the trusts, to the growth of consumer's controls, to the backwardness of our educational system as a whole, despite its noble exceptions. He must be alive, still whether he agrees or not, to "votes for women" and the feminist movement. For the personnel manager, in order to be fit for his job, must be an industrial counselor.

And these are questions which affect your business. And when you go to put them clearly down on paper and to analyze them, you will find them not more numerous or more varied than the problems you face in your selling and manufacturing departments and in your accounting department.

While not more numerous, and not more varied, it is true they are more subtle; harder to get a line on because just as in physics you have a number of variables, full of different elements. Yet nevertheless it is fairly definite at that end. And at the other end of science you have the whole field of socialism, which is full of the definite and intangible, and yet it is capable of scientific analysis.

Having charted the situation of the concern in these questions of fundamental organization, the industrial auditor passes on to questions of personnel. At the bottom, the concern is its own business personnel. What are the fruitful sources of labor supply for the concern? Except at the bottom grades is the concern itself its own best resource? It should be. Roads up, out, and in, should be developed. Its basic discipline should be its own educational system. Its foremen and superintendents should be teachers instead of bosses. Are the jobs clearly stated? The best concern to-day has criminally wasteful gaps between functions and overlapping of functions. Are the wastes of selecting wrong people for jobs minimized? Is the concern alive with useful counsel one to another? Are individual friction and jealousy seared and withered and co-operative spirit drawn forth by the magnetic power of what the concern as a whole stands for, clearly held in the minds of each individual within it?

The industrial auditor then passes to questions of pay. Is the wage system already beginning to be modified by some form of profit and loss sharing, which, by the way, can only healthfully exist when a concern has at least rudimentary beginnings toward that bogey of the unawakened employer called "share in the management." The verbal bogeys lose their terror before easily installed sane beginnings of self-government. What do the people make by the week, by the month, by the quarter, by the year?

Out of the pay envelope must come the living powers of employe and manager. For both, the questions are vital of savings, of insurance against illness, accident, unemployment, old age and death; of housing; of purchasing power; and of such social questions as health, education and recreation. That is what each one in this room is up against, whether he considers it or not. To what extent may the concern, and should the concern,

efficiently share in these?

And from these more internal questions of organization, personnel and pay, the industrial auditor proceeds to the relation of the concern to labor organizations, labor laws, and public standards. If the concern deals with labor unions, are its dealings merely defensive or are they constructive? Does it take a legitimate hand in seeing that wise laws are framed, or does it fight the principle of a new labor law in toto and stand aloof from details only to be handed later an inefficient statute, a hybrid output of timid politicians and sentimental philanthropists? Are the employees safe from fire and accident? Are conditions sanitary? Is the need of a healthy personnel understood? The shifting force in a large business is at once, perhaps, the greatest waste of our times both from the point of view of the business itself and the community.

The development of the technique of an industrial audit is, of course, in its infancy. But already the constructive power of merely asking these businesslike and practical questions in an ordered and businesslike fashion has been wonderfully fruitful. They open up new horizons to business enterprises. The organization chart of an old time industrial engineer showed a lot of pretty oblongs or ovals connected by interesting lines. Functions and positions held impersonal sway among them. In the new organization chart, the people appear by name; the best paper organization in the world is nothing apart from the men and women who run it. The quality of the personnel is the last and greatest fact in business solvency.

Today when a business concern gets into labor troubles the usual course is for the management to call in their lawyer. As a rule, lawyers have no grounding in the industrial problem; and furthermore, the methods and practices of our courts are not at all the methods and practices proper to the decision of industrial questions. That is one reason why the courts are not the arena in which labor problems can be successfully tried out. Courts are not equipped either with the knowledge or with the machinery. Many lawyers, of course, as individuals, have gone into various aspects of the industrial problem, and some of them so deeply and skilfully as to have been already in a position of substantially practising another profession alongside of their legal profession.

The industrial counselor should not be the advocate of either side in a controversy, helping it to put its own ideas across. He should be a master in the growing laws of industry and should have it specifically understood in connection with every service he performs, that his job begins and ends by helping his client to understand and fulfil those laws. Thus he is valuable either to employers, employees, or the public, and whichever is his client, in the sense of paying him, can expect from him only such service as is to the interest of all three parties. No scientific and just service could be built on other grounds. It must be understood that his job begins and ends by helping his clients to understand and fulfil those laws; and thus he is valuable alike to employers, employees and the public.

Possible Relations of Scientific Management and Labor Unions

Suppose a manufacturer should say to me, "I wish to start, equip and run a new plant in a certain section of the country." I suppose the ordinary method would be to begin to decide about the size of the plant, what you would make, etc. After you had decided what you were to manufacture you would start to consider building the plant and equipping it, and the processes of manufacture and management. And after it was all together you would expect to pick up your labor supply.

The first thing that I would do if I were confronted with such a proposition would be to make a study of the labor situation in that locality before the ground was broken. The first thing I would do would be to take up the question of labor supply, with all of the existing sources of labor supply at that time. I would go to the labor unions and raise all the questions in advance that might be raised afterwards, as far as one could humanly foresee them. Next, I would show that insofar as there were any unions in that vicinity connected with those trades—I should run a preferential shop—I would appeal to the unions for men before I appealed to anybody else. If they could give the men I wanted I would take them in preference to anybody else. Then I would say that I would pay as the piece rate of my wages the union rate in that vicinity, regardless of whether or not the shop was unionized. And any other methods of pay would have to be built on that.

Then I would make the union mad by telling them that I would pay a minimum wage in that factory. My great quarrel with the union men is that they have their minds fixed on so much an hour, and they are giving shamefully too little attention to the idea that a week is the shortest unit a man can count on.

I would like to see the union leaders awaken to that job, and see that the ideal of employment is not the week, but it is one year. A year containing the four seasons is the lowest ideal unit of planning which one should engage in. But if one could get industry on a carefully graded weekly basis, instead of the hourly rate, a great step in advance would be made.

When I put that question to a small group of manufacturers the other day, they came back and said, "Supposing you could not afford to pay the minimum wage in some catastrophic time?" Then I said, "That concern should be declared industrially insolvent, exactly as they do when a man does not meet a note or a company does not meet the interest on its bonds."

Then I would demand that you should plan as far as you possibly could for regularity of employment; first by regulating your own business to the greatest extent possible, and secondly, that you establish and have some idea of co-operative relationship with other concerns in other lines of industry, so that when your slack period came, when yours came against his full period, you could make some shift to the advantage of each, and thirdly, as business men looking after your own interests, that you take some kind of interest in state public work, so the state would not be going into the market when wages were high and business good, but instead when conditions of unemployment bad.

When I had done those things in regard to the labor situation then I would turn to the side of production, and I should consider there everything that deals with individual capacity and in its relation to securing the greatest possible output socially possible at any time. Absolutely getting out of limitation of output, it seems the first thing is to develop the selling department as nearly as possible to a state of perfection, and study the flow of orders that will come into that plant through proper salesmanship. It has been my experience that frequently the selling side of the business is left to be organized until long after the factory side has been organized. At the end when you have your selling organization completed in this new factory, then I would do all my planning work, and all the system for maintenance of schedule, and all kinds of work analysis. I think before the Motion-and-Time people get on the job, these things should be considered, task matters should be considered.

Then I would shift the lower costs to the heading called "The Rights of the Consumer in the Business"; and there I would lay out the maximum conditions of the business. I would not wait for the law to reach me—I would have no watered stock, restricted dividends, no concealed management salaries—and I would see that the sanitary conditions are good; and then I would say, that it is due to me and to the consumer for me to get my unit cost lower

and lower and lower.

If there were some labor union men in this meeting I should take pleasure in saying that where I had arranged to deal with the unions—and this of course would be easier in a perfectly new undertaking, rather than in an old one, although it is practical in both—I could still get by every single thing that a majority of you people in this room would declare to be legitimate scientific management; that I could get by every single element, because the whole business of relationship between employer and employe would have been shifted from the violent method of adjustment to a constitutional basis, and the whole list of crimes now committed by labor unions and by employers also would have departed.

Discussion

HENRY P. KENDALL: Mr. Valentine has made some revolutionary suggestions. He has touched on one significant factor of organization—lifting the employment department to an equal status with that which has to do with the production, with machinery, with sales, and other parts of the organization. I think that too little attention is given to the employment feature in any industrial concern. The old form of putting that work up to the foreman, to hire and to discharge, to regulate wages, administer discipline is fast becoming archaic.

I am not ready to accept Mr. Valentine's theory of putting such a man on the same status as the other partnership members in the business. I do not know where such men can be secured at the present time. It is a stiff proposition to get by a Board of Directors, too, I am afraid. I feel sure, however, that that sort of thing is coming.

The matter of the regularization of employment is a question of the utmost importance to the American people. It is a part of this question of non-employment now surging throughout the country, in the different cities and different states. I feel that for any management to impress the people they must organize by industries, and force a change in the customs of the country that affect seasonal employment. One of the greatest drawbacks in the business in which I am engaged—that is the printing and the binding of school books—is that it is a seasonal employment. As schools open in September and public school boards never adopt the books until their last meeting in June, it brings the business of furnishing these books into a few months and prevents the manufacturers from knowing in the winter time what they can manufacture. There is no reason why pressure should not be brought on the public authorities to compel school boards to adopt in January the books for their next season's business. And yet that custom is one of the causes in the book business for seasonal employment. Each manufacturer and employer must work to meet these conditions.

In the second part of his paper, the "Possible Relations of Scientific Management and Labor Unions" I feel that Mr. Valentine is a rank theorist. The whole hypothesis of democracy in industry is all right as a working hypothesis. There are some of us, however, who are engaged in one single cross section of industry. We have to think of the payroll for next week, how labor opposition will affect our sales next month, and how this law will absorb our surplus through factory changes and workmen's compensation. That is, we are fighting the whole situation all over the country; but we also have an eye on the cross section which affects us; and we are powerless as an individual plant to affect the whole problem.

I do not know that I should begin that new industry which Mr. Valentine speaks of in exactly the way he would. I should have too much fear that in some communities with the closed shop prevailing, and the labor union leader who could hardly be distinguished from the ward boss politician—and there are such—whether such an industry could even get started, to say nothing of holding its own later on. Those are problems which a man viewing the cross section too closely might well hesitate to take his chances on.

There are always other factors which control labor unions than merely the local group. Your local group in the city may be entirely in sympathy with your enterprise and willing to co-operate in every way. The national union and the affiliated unions may have the opposite view. The question is whether you can view a particular industry, or your particular job for the next five years as the basis for the whole theory of industrial democracy, or the cross section of it which will touch you in the next five years; will you not have to view it as a cross section, but with the understanding and sympathy and belief which you should have for the whole problem.

MR. C. B. THOMPSON: With Mr. Valentine's main point, the necessity of recognizing and co-operating with organized labor, I must of course agree. I have been preaching this policy continuously for two years and I proposed a definite method of co-operation between employers and organized labor at the Chicago meeting of the Western Economic Society early in 1913.

It seems to me, however, that Mr. Valentine's suggestion has omitted one vital factor. Assuming that sooner or later we will have to work with labor unions, what are we going to do about their policies of restriction of output and equalized wages? Both these policies are of course denied by some labor union leaders but their existence and constant practice are matters of every-day observation. If we must sooner or later accept collective bargaining as a policy of Scientific Management, our bargain must include some specific and definite provision for the application of these principles of Scientific Management which are not in harmony with restriction of output and equalized pay for unequal effort. There must be provision for the establishment and enforcement of a proper day's work and for the characteristic application of the bonus.

ROBERT T. KENT: Several years ago I proposed that unions should grade their own workmen according to their ability; that a $4 a day man should get a card showing that he was a $4 man; a $3 a day man should get a card showing him to be a $3 man. The employer could agree with the union that if he wanted a $4 a day man the union would supply him with such a man. Today, if we get a union man in the shop, we cannot be sure that the union has supplied us with the kind of man we want. The union insists that we pay the union rate, whether or not the man is nothing more than a $2 a day man. The fact that he carries a union card entitles him, solely by virtue of that card, to demand the union wage. If the employer could be sure in getting a union man he would not be paying $4 for a $2 man, there would be less opposition to union shops.

I believe that the Brass Workers Union of England has adopted this scheme of grading its men according to their ability; that a man unsatisfied with his wages could apply for examination before a joint board selected by the employer, the unions and the town authorities. The man had to demonstrate that he was a better man in his trade than the rating assigned to him called for. If he failed in the examination he had to abide by the rating he had, and he was debarred for six months by the union from applying for an examination to regrade him. If the unions would take a step like the Brass Union in England is reported to have taken, we would have less difficulty over the question of closed and open shops.

C. N. LAUER: Mr. Valentine stated that in starting a new industry he would discuss his problem with the trade unions in the locality. What would he accomplish by that except a closed shop?

MR. VALENTINE: You would have a closed shop with the union working with you instead of opposing you. The only difference between a preferential and a union or closed shop is the method of getting the men. The preferential shop arrives at the closed shop with the door always open to get people from outside if the union cannot supply men who are up to the standard, and the union must accept your standard. Those who claim that there is an ultimate difference between the closed and preferential shop are wrong. For the union to state that it will make a closed shop is violent, whereas a preferential shop is headed for the closed shop by the educational method, which leaves everyone in better shape.

W. J. ADAM: What does Mr. Valentine mean by cooperating with employees to restrict output for a definite period. What is accomplished by that?

MR. VALENTINE: Assume that a concern was refusing to deal with unions, or with forms of association, I would consider it absolutely necessary as a practical method for the union, in order to retain its membership and get ready for the ultimate results which will come from group action, to insist on group action and equal wages. Otherwise their organization drops. As in war, they must present a steady, unbroken fighting line. As soon as the necessity of fighting for their life as an organization is removed, you will find the union assisting you in differentiating labor. But until this little element of democracy is infused into the movement, the unions will deal with you as a group. The moment the union is recognized, the level wage is the worst thing that they can have.

SANFORD E. THOMPSON: Not long ago in Chicago a prominent labor leader said that he believed in the principles of scientific management so far as they applied to the elimination of unnecessary operations and of unnecessary work for the employees. More recently I was talking with the president of one of the strongest labor organizations in the country, and he agreed that if a two dollar man could replace a three dollar man at a machine, so that the three dollar man could be employed elsewhere at a higher class of work for which he was fitted, it would be advantageous. Such indications show a tendency toward the acceptance of some of the fundamental, economic principles referred to by Mr. Valentine.

One of the primary difficulties with many labor union men is the belief way down deep in their hearts that there is not work enough to go around unless they work slowly. This of course is another way of expressing belief in the limitation of output. This point was brought forcibly to my attention the other day by a member of the Department of Public Works of a province of Australia. He told me that the leaders of the unions there were taking the definite stand that there was not work enough for their men unless they worked slowly. With this in mind the bricklayers have limited their output to 450 bricks per day on all classes of work, although even with the larger sized brick that are used in the United States they could readily lay twice this number in many cases. As a result of this stand, the cost of building operations had increased, he said, so much as to greatly retard construction.

The matter of seasonal employment brought up by Mr. Valentine I consider one of the most vital problems from the standpoint of the working man and, in fact, for all classes of wage earners—a problem much more serious than that of the minimum weekly wage. A very interesting little book has been written by the Misses Clark and Wyatt on "Making Both Ends Meet." They bring out in a most interesting manner and very fairly the difficulties met by wage earners through irregularity of employment. The prevention of seasonal idleness must involve in many cases a readjustment of wages and also a readjustment of prices, for a margin of profit is essential in any industry if it is to live, and in many cases the margin is so small that a radical change would simply cause a shutdown which would throw the factories entirely out of business.

Recently a Committee of the Boston Chamber of Commerce, cooperating with the American Association for Labor Legislation and the American Association on Unemployment, has been making an investigation of seasonal employment, and while no final report has as yet been presented, some tentative suggestions have been formulated. These illustrate the effect of irregularity of work upon both the manufacturers and the employees. As the suggestions so far as I know have appeared simply in the publication of the Boston Chamber of Commerce, "Current Affairs," and they may be of interest in this connection, and I give them, as follows:

1. On the basis of records, a careful calculation of expected output should be made in factories at the beginning of each year, and this output divided as equally as possible among the different months—advertising, buying and selling being directed to this end.
2. A close connection should be maintained in factories between the manufacturing and selling departments, and the head of the sales department should thoroughly understand the manufacturing end of the business and organize his selling force so as to find or develop markets that will take goods in the slack season.
3. Manufacturers should consider carefully the advantages of keeping a stock department. Such a department is practically a storage for temporary surplus, making possible production in advance of demand.
4. Manufacturers should endeavor to bring to bear upon jobbers and retailers a strong influence to anticipate sales and place orders early.
5. In certain industries where rapid changes in style are particularly detrimental, organized attempts should be made to restrict such changes of style within reasonable limits.
6. Manufacturers should study the possibility of developing a variety of products and introducing new lines which will be likely to find a market in seasons when sales of other staple lines fall off.
7. All establishments of any considerable size should maintain a special employment department required to keep careful records of employment, including the number of workers of each class employed throughout the year in each department; the wages, hours worked, number hired and discharged. The policy of such a department should be directed toward maintaining regularity as far as possible and instructing other departments of the business as to their employment requirements.
8. So far as possible, employees should be shifted from one department to another so that they may become familiar with various kinds of work necessary to the conduct of the business. In certain seasons, such training may make comparatively easy an increase of the force in some departments and a decrease of the force in others, thus

reducing or eliminating the necessity of discharging experienced workers.

9. Employers should be educated to the necessity of maintaining an efficient organization by providing regular work, even at some apparent financial loss, in order to prevent the much greater financial loss incident to the reorganization of the working force at the beginning of the busy season.
10. Every effort should be made to bring about a thorough organization of the labor market in every trade or group of allied trades. It would be a great advantage to employers to be able to draw their labor from a central bureau which would, with experience, reach a position where it would be able to meet the demand for workers by shifting them rapidly from one job or one employer to another.

H. T. NOYES: I think Mr. Valentine's theory is right. I believe the development of the profession of industrial counselor is of interest to those with the subject of scientific management at heart; and I believe the two subjects go together, and that the minds of business men may be opened to these points. I sympathize with Mr. Valentine's viewpoint, but I think his theories have carried him very far.

One suggestion he made seems ridiculous to me. I am connected with an industry that must use a payroll. Mr. Valentine spoke of the institution that guaranteed a weekly minimum, whatever the conditions of the industry. Theoretically it is fine, but extreme conditions sometimes arise. He said that in a given industry he would assume the responsibility of standing squarely on this proposition, that if an industry failed to meet its weekly guarantees, that it should be declared insolvent and put in the hands of a receiver, as it would be practically for a failure to meet financial obligations.

I will give him a few figures: Many industries in the last few months, due to the very unusual condition of affairs, have been booking business at 25 to 30 to 40 percent of normal. Out of the clear sky things have happened which could not have been foreseen. Assume that industry had guaranteed weekly payments—say 1,000 people are guaranteed by a concern a weekly minimum, it might easily be true under these conditions, if they paid that weekly guarantee they could lose in one month perhaps an amount equal to what they would pay for one year on their bonded indebtedness and by way of dividend on their preferred stock. Their loss in one month might equal or be somewhat in excess of the sum they would have to pay annually on bonds and like indebtedness. Therefore it seems to me Mr. Valentine should be criticized for making such emphatic statements and saying that such a concern should be placed in the same category with the bankrupt.

MR. VALENTINE: There is nothing so theoretical as a practical man. I do not want for one minute to appear to retreat from the statement I made, but possibly it was overlooked, and you are almost entirely sure to overlook it, that I said, "A very carefully guarded weekly minimum." I do not retreat from my general statement: It should be a carefully guarded minimum; and if you went over with me the definite safeguards you would be inclined, I believe, to agree with me.

The particular safeguards I worked out, I worked out with a partner and a manager in a concern employing 1,000 people outside of the industry in question under this minimum wage matter. And it was the manager of this concern employing about 1,000 people that developed a plan for a weekly minimum wage under certain conditions which he felt he would be perfectly safe in adopting in his plant, and which he is considering adopting irrespective of whether the law established a minimum wage in his industry or not.

The particular element in the plan he worked out was: That the weekly minimum wage should be installed by ten-week periods. We will say that the law determined that instead of an hourly rate with an $8 minimum, the weekly rate minimum should be $7.75; that there should be reduction for voluntary absence, and the manager should be free to turn anybody out, and he should not be restricted from paying this minimum to any number.

Then, in a sense, the minimum wage is not a wage, it is simply a retainer fee for labor. I ask you, when you come to me, what does it cost you to work, and you say that you can get by on $7 a week. Then after you have been with me a few weeks I would determine if you were or were not working within your retainer fee, and also determine whether your wages should be more or less than that amount.

It is merely a retainer fee for labor, and the man must earn that money in the course of the week for the employer, in order to enable the employer to pay him that much out of it. So you see he creates his own wage scale.

Now this is the most helpful thing I had done for me, and that is that even that weekly wage, $7.50, should not be paid to the employee for each week, but that it should be for a period of ten weeks preceding. That is, the employees should count on $7.50 each week, and when they earn anything in any given week, say $6, they get $6 for that week; and if they earn $8 the next week, they get $8, and when it is figured up at the end of the ten weeks, the extra $1 for one week will balance the lesser payment of another week.

PROF. HOXIE: I have been studying the bringing together of organized workers and employers. The possibility of bringing them together into some collective arrangement, whereby the principles of scientific management could be put over, has occurred to me. Now I do not think that abstractly there is any great difficulty to be found in getting some agreement between employers and workers whereby the principles of scientific management can be applied to industry under collective agreement. I say abstractly. The trouble is to do it concretely.

The trouble lies in two things: (1) The unions think they know all about scientific management, whereas they know nothing about it. (2) The employers and scientific managers think that they know unionism, and they know less about that than the unions know about them.

There is a constantly reiterated statement of employers and scientific managers that the unionists believe in the restriction of a scientific output. Now, the unionists do not believe any such thing. They do restrict output, we will have to grant, but they do not believe in it. And that means simply this, that you cannot say what the unionists believe in until you get below the surface of their actions and have discovered the reasons for their actions. The employers simply see the actions of the unions, and they assume to know what the beliefs of the unions are and what you can depend on the unions to do. The unions do the same thing for the scientific managers and the employers.

If each could understand the why of the attitude of the other side, we would be able to come to some agreement. Why don't we get to the point where we can have each side understand the why of the other side?—Because when the unionists discuss the deviltry of the employers and explain it, they do it among themselves; and when the scientific managers discuss the question of the possibility of getting together with the unions, they tell each other what the unions do. My suggestion to you is if you want to promote the science of management, that you change your constitution so as to admit members of unions, and then

make a campaign among the labor organizations; and if you do that I will furnish you with some names of trade unionists that will join your organization, who are as keen as any of you here, and when you come to the discussion of restriction of output, you will find out why they take that stand.

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[1] An address at the Annual Meeting, December 5, 1914.

[2] Industrial Counselor, Boston

THE SUPERVISOR OF PERSONNEL[1]

By ERNEST M. HOPKINS[2]

The development of machinery and the later discovery of the sources of power, which made necessary the centralization of machinery within factory walls, imposed upon the industrial world a multitude of problems, which had to do, at first largely with machines and afterwards with the plant—that is, the structure of the building and its arrangement within. Meanwhile, the laborer was taken for granted, and if thought was given to him at all, it was with the promise that he was of lesser concern and that such discontent as he might have could better be quelled than removed. Along with this, there unquestionably has been the assumption that gradually industry was getting to the point where it would be less dependent upon the human factor.

IMPORTANCE OF THE INDIVIDUAL WORKER

Something of the same sort, as regards the importance of the individual, has proved true in industry. The functions of the individual workman have changed but dependency upon him remains. The day of large profits is passing. The time has already passed when knowledge and skill were confined to a few. Machinery and methods of production alike are becoming standardized. One does not see, to any large degree, manufacturing processes carried on in the type of building common fifteen or twenty years ago. Now, attention is centered on the status of the individual worker, and the individual worker is coming into his own as a supremely important subject for study and for development. Industry has become a science. When there is no advantage to one over another in plant, machinery methods, price of raw materials, or opportunity for distribution, varying grades of success will be determined by the intelligence of selection of the personnel and the reasonableness of the adjustments with it.

The production corps as a mass is a necessity of industry, and cannot be done without. No man, however great his capacity, could be omnipresent enough to cover the attendance at numberless machines, or to execute the variety of processes of the modern factory, mill or shop. The efforts of the mass need co-relation and direction, to be sure, and for this the executive exists, but it is not considered now as in some times past, that the executive is the sole necessary adjunct of the institution, and that the productive force exists but to supplement his efforts. The cold logic of the proposition is rather the reverse.

THE SUPERVISOR OF PERSONNEL

Now if that be so, it should not be in any institution that department heads should be called upon to superimpose upon their other duties the necessity for choosing their employees. A man capable of directing the running of a machine, or of a hundred machines to maximum capacity is not necessarily the man who knows best how to get at the available labor supply of the given city or town and to pick from it. That is a separate and distinct function, and must be developed on its own lines. Thus it has become generally accepted that the selection of personnel is work for a special functionalized officer, a man who has made a study of this problem, and who goes at it with the same scientific attitude as that of the man who builds the plant or selects the mechanical equipment.

It should be said that it is true in every concern, unfortunately, that there are a few foremen and sub-managers who feel that in some subtle way their authority and discipline are impaired unless they independently seek their people, interview the applicants originally, and make their own arbitrary selection from them. To these, the establishment of an employment department is an offense and all its operations are anathema. The economic loss of detaching their attention from the operations on which they are specialists on the one hand, or of assigning the interviewing and selection to a subordinate in the department, on the other hand, never appeals to them. It is generally the type of foreman or manager which would most resent any suggestion that another might know anything of his business which most quickly resents the suggestion that a specialist on employment might be useful in sending to him a preferred group of applicants, saving him, at least, the weeding-out process. In the main, however, foremen and managers work heartily in accord with the employment manager and make his work pleasant.

NO FIXED "SYSTEM" FOR SELECTING WORKERS

The waste of money involved in unwise selection and consequent change is beyond the belief of those who have not investigated this. It is not enough that a position should be filled with one who will not botch his work; it needs the best available candidate, and changes as infrequent as may be.

I do not undertake to say that some of the widely advertised methods of judging human characteristics are not all that are proclaimed for them, but I do believe that cause and effect have been mixed under some of these—that the superficial attributes which are accepted as an index may have been developed by past achievement, or lack of it, and that while accurate in regard to this, the index may fail sometimes in determining potentiality.

There is, in my estimation, no "open sesame" which will do for all employment work. It is a matter of records, carefully gathered and scientifically kept, in regard to the sources of supply, special requirements of different departments and individuals, and respective successes and failures. It requires hard work, common sense, and good-natured persistence, wherein it is like most other work.

The position of the employment manager in the organization is of vital importance to the success of the work. He should have a rank which will at least make his work respected for the importance attached to it by the management, while he is gaining respect on the basis of accomplishment. He should report to the general manager or to the officer who fulfills the functions of general manager, whatever his title. I have always emphasized this when asked by a company for suggestion as to the establishment of such a department, or when asked by an individual in regard to going to a company for employment work. If the human element is not considered of enough importance by a concern for its representative to have ready access to its corporate ear, there had best be no pretense of undertaking work having to do primarily with its personnel.

THE HEALTH OF THE PROSPECTIVE EMPLOYEE

If the employment department is to have the fullest possible knowledge of the fitness of the candidate for the position for which he is under consideration, it must have assurance in regard to his physical condition. Therefore, the health work naturally

falls into this department. The prospective employe should certainly be capable of the physical or mental effort required for his particular work, and he should be free from any taint that might contaminate his fellows, if he were to be put to work. There are some difficult questions that arise in connection with this, but I know of no safe basis for settlement of these except consideration of the greatest good for the greatest number of the employes. It obviously is not necessary to require examination until an applicant has satisfied other requirements, but it should be required then. Health work is capable of extension far beyond this. It has aroused opposition in some cases because of abuse on the part of employers, who have utilized paid nurses illegitimately in seeking information in the homes.

The effects of health work in great plants have been more clearly shown in the decrease of tuberculosis, perhaps, than in the case of any other specific disease. Of course, the whole tendency toward this disease has been much lessened under modern factory standards. The light and air and all around cleanliness have been the foundations upon which health work should be built. If, now, there is added to these features the prevention of the disease being brought in by the new worker, a still further advance has been made in the general safety. If there can be added to this some system of periodical examination of the employes at work, looking toward the early exclusion of any who may be developing traces of disease, the matter will be as thoroughly safeguarded as possible. It must be recognized, however, that the introduction of a system of periodical physical examination is likely to bring trouble among the older employes. This, however, to a large extent can be eliminated, if it is generally understood that the company proposes to help in the case of any individual whom it finds necessary to lay off because of physical condition. What very naturally arouses strong feeling in the minds of working people is the idea that some impairment of their physical vigor may be discovered and that, in consequence, they will lose their positions, no matter how they may have struggled to keep up their standard of work. If a concern is to undertake the conservation of health among its employes, it needs to act with the utmost discretion and broad-mindedness.

THE ADVANTAGES OF EDUCATIONAL WORK

In any discussion of so-called educational work, which is another phase of the employment department's responsibility, it is necessary to lay down premises which would have caused much dispute a few years ago but are accepted now, except in the cases of employers who have failed to keep step with modern movements. One of the greatest curses of industrialism now is the settled conviction on the part of many that classes are practically fixed and that employers have every desire to keep the wage earner always a wage earner. It would be worth almost anything to capital if this conviction could be shown to be false.

The mathematics of the proposition is that there is always such a plentiful supply of labor of the lower grades and that the supply rapidly becomes so much smaller as the requirements of intelligence increase, that a company can afford to do very extensive training work itself in developing its lower grades of employes to the point where they are capable of accepting better positions. It must be borne in mind, in this connection, that many an employer and many a manager will oppose this statement in the beginning, who would readily concede its truth, if he should be enough interested to investigate the interest of his business as a whole. It must be remembered that the employer who desires a stable personnel, but the grade of whose work is such that there is constant shifting of employes in his department, is very naturally reluctant to see any system introduced which will bring discontent with their station to his people and will constantly take away from him his more ambitious employes, as they qualify themselves for higher grade work.

Nevertheless, it is becoming all the time more generally conceded that in the long run the concern benefits itself specifically as well as industry in general when it gives every assistance to the individual worker for qualifying to better his position, whether such betterment means transfer from one department to another, or transfer from the particular concern to one doing work of higher grade and, therefore, capable of paying higher wages.

THE EMPLOYMENT DEPARTMENT A MEANS OF BETTERING THE RELATION OF EMPLOYER AND EMPLOYEE

In the final analysis, the employment department should be a great service department, representing the interests of employers at all times and especially in the selection of the best available working force, but standing ready, also to see that the interests of employers are further safeguarded to the extent that they should always know the point of view of their working people. Now, anything is capable of various interpretations and, in my belief, the convictions and aspirations of the working people have been all too seldom interpreted sympathetically to the employers. Many times a sympathetic interpretation would have won recognition and usually this interpretation is thoroughly justified. I have always felt that the employment department stood toward the employes engaged through it somewhat in the position of the man who guarantees a note. The department represents the concern to be certain definite things. All machinery of present day industrialism is designed toward holding the worker up to his job. It is not only simple justice but it is for the best interests of capital that some department should make it its prime interest to hold the employe up to desirable standards, as far as his relations with his people go. It is for this reason that the welfare department ought to be classed as a phase of employment work.

Having secured the employe and placed him at his work, it is the desire in any well regulated concern to retain him. He should, therefore, be convinced that the company is interested in doing the fair thing by him as well as getting the utmost from him. It is highly desirable that he should feel contented to the extent that will make him wish to stay with the company rather than to go elsewhere, and also that there should be an esprit de corps which will give him maximum enthusiasm and loyalty.

In regard to the matter of wages, the whole trend of things is toward a more liberal attitude on the part of capital. We grew, a long time ago, away from the theory of "caveat emptor" in trade, and it is recognized to-day that there can be advantage to both the buyer and the seller of a commodity—that it is not necessary for the one to have advantage, that the other should suffer disadvantage. I believe that we are coming to something of the same sort in the buying and selling of labor. The theory is pretty well discarded already that the price of labor can fairly be determined by supply and demand, especially if the demand come from the modern aggregations of capital and the supply be considered wholly as individual units in the negotiations.

THE PLACE OF WELFARE WORK

Welfare work is, of course, variously interpreted in different concerns. In some, it has to do simply with superfine things, while in others it exists as a free-lance proposition, with full liberty to interest itself in everything which its name could be conceived to cover. It is a certainty, however, that it ought to interest itself in fundamental things before it goes in for the

luxuries; for instance, it is highly undesirable to ignore the matter of safety devices, prevention of occupational diseases, safeguards against fire hazards and like matters of concern, and meanwhile, provide such luxuries as flower gardens, concerts or lecture courses.

SANITATION OF THE FIRST IMPORTANCE

One of the most frequent causes of irritation complained of has to do with the matter of lavatories, toilets, locker rooms, etc. When you bring in a working force of three, five or ten thousand people and force them into cubby holes to get their street clothes off and their working clothes on, then jam them into crowded elevators of which there is an insufficient supply to carry them to their work, so that it is necessary for them to add from half an hour to an hour on each end of their day in getting to their assigned places and getting away from their work, you will find irritation and discontent more than sufficient to wipe out appreciation of other benefits which may be conferred.

I know one of the most progressive concerns in this country which has given the most radical acquiescence to the claims of its employes in general, but which has so ignored this problem as to have but an ineffectual and thoroughly irritating checking system, which is troublesome in every way. The net result of this is that in spite of all that has been done, the people arrive at work in the morning vexed and go away from it at night delayed and irritated.

It is the belief of not a few that great as have been the strides in the processes of production in the past, there will be advances as great or greater in the near future, as a result of the efficiency which will come from the co-operation of labor and capital, working with knowledge of each others' interests, for the common purpose of creating an increase in economic wealth, each deriving its advantage therefrom. Such a result will be dependent on employes giving not only a perfunctory and formal attention to their assignments but a loyalty in sentiment and an enthusiasm in accomplishment which will carry the output of productive methods into new realms. It will likewise be dependent upon the employers' knowledge not only of plants and machinery but also of the temperaments and attributes of their man. This is the most valuable function which the welfare department can fulfill— aiding each to understand the other.

FATIGUE STUDIES NOT TO BE NEGLECTED

The scientific study of fatigue, for instance, has revealed that employers were failing to conserve their own interests in the long hours formerly required. As a result of this, we have the movement toward the decrease of working hours to the point of maximum efficiency where vitality enough can be preserved for interest in participation in those things outside of industry which broaden life, while at the same time relieving worries, leaving the man not only a better citizen but a more effective workman.

Many who would not argue that an employer should shorten hours simply for the sake of giving employes more time to themselves would concede that the employer should know at what point in the number of hours required per day or week he gets maximum production of major quality. It is a matter of record that in various industries an actual increase in output has resulted from decreasing the working hours per day. There is probably a much greater number of industries which could reduce the number of hours without loss of production, at least.

I have personal knowledge of a textile industry in which a reduction of hours from 62 to 57½ was made, in which the superintendents of the mills involved testified that there was no reduction in production and that, if anything, they were getting more. Another well known company discovered, upon analysis of its working conditions, that it could so arrange its hours as to close on Friday night, not opening again until Monday, thus giving its productive corps two days a week. The plan has been entirely successful. Three years ago, a great department store made an analysis of its summer sales and decided that it would make an arrangement by which its people should not come into the store at all on Saturdays during July and August. Since that time, this principle has been adopted by stores in most of the great cities of the country.

There is, of course, some point at which this process stops, but my contention is that the intelligent employer needs to be guided by something aside from precedent. Meanwhile, it goes without saying that when such reduction in hours is made, the employe needs to recognize, as he generally does, that he must put more concentration upon his labor, if he is relieved from conserving his energies for the more prolonged effort.

IMPROVEMENTS SHOULD BE BASED ON ANALYSIS

Intelligent analysis, therefore, of working conditions, that knowledge may be had of them by employers, is not only the employes' right, but it is due the industry itself. The so-called welfare activities should be founded upon this principle, and if commercially worth while, they must hark back to it continually.

Conditions under which an individual or a small group of individuals might work not uncomfortably may become almost intolerable when hundreds and thousands are gathered and subjected to the regulations necessary when men are assembled in large bodies. State and national inspections are forcing upon the laggards the modern view of the workingmen's right to work where his life, his safety and his health are endangered as little as may be. There are some lesser things of fundamental sort that are not as rigorously watched, that an employer cannot afford to be ignorant about, and with which a welfare department should concern itself. Opportunities for personal cleanliness, such as running water and washing facilities, including soap and towels; conveniences, such as locker rooms and toilet facilities; essentials to health, such as temperature regulation, ventilation, light and pure drinking water, need constant and solicitous attention. Furthermore, these are rights of employes, and must be provided as such, for if they are given as concessions or benefactions, the co-operative aspect is lost, and they become assumed to be another effort of capital to make labor dependent upon it.

THE EMPLOYER MUST KNOW HIS BUSINESS

The greatest grievance that any group of employes can have against their employers is lack of intelligence in the conduct of their business. In general, we expect leadership to be informed about the path along which it purports to lead, but one of the most disturbing factors in our industrial life has been the employer who has had no further knowledge of where he was going than that he was on his way. The man who assumes industrial leadership is an industrial menace, unless he makes or has made those strides which shall inform him as to the vital facts of his business, such as manufacturing costs, hours of labor required for maximum production, the very great distinction between increased individual wages and increased total expense, and so on. Gradual elimination of seasonal employment and reduction in labor turn-over must be his aim.

The domain of the work of such a department as we have been discussing ought not to be too definitely defined. Its work is bound to be staff work in the main. It offers opportunity for centralization of the practical idealism, now to be found in connection with most industries, and for the adjustments which are so necessary to keep the proportions of things right. Its

goal must be to contribute as much as possible to hastening the day when an efficient, profit-making industry, and prosperous, contented workers see their mutual dependence, and live with mutual respect. Such is "the day" toward which we must all look, and our greatest satisfaction must be the fact that every once in a while, as we look, it seems not so far away as when we looked before.

MORRIS L. COOKE: My principal objection to Mr. Hopkins is not his attitude, but this: I am primarily a democrat. I do not want to do anything that does not fit in with the widest conception I can form as to how society will be assisted in what I can say. So, when we talk about the workingman wants, there is the reaction. We can give them a place, I think, that takes that sting out of it, so that this work of the supervisor of personnel is not done with any particular group in mind. Those of us in responsible positions do need the help of just such an agency as Mr. Hopkins is trying to describe. And if we can make it something that applies to all the different grades in the business and all the different people in the industry, men and women, from the top down, it takes that sting away from it.

One of the first things which struck me in reading Shop Management by Mr. Taylor was his reference to the agency used for employment of men. Now it seems to me we can turn this over to Mr. Hopkins's supervisor, and we are ready to consider the exceptional man, and to come into contact with certain employes where even the supervisor of personnel may feel he is not the man to handle the situation. We should in turn classify any people who are specifically qualified for that work.

What makes me say that is my experience with factory owners. I have what I call my social secretary. If I were going to get the most out of politics I certainly had to perform some of the services formerly performed by the Ward Boss, and when someone was born or died or was sick, or something else happened to them, I must do what the Ward Boss formerly did. So I put on a young woman whom I think of as my social secretary. I have seen factory owners that were not of the kind Mr. Hopkins has in mind. I believe there are more factory owners and others with titles corresponding to that, that hurt this movement more than they help it.

I have in mind now a case of a factory nurse who was used as a spy. I know another factory nurse in a New England establishment that did very good work. But I have found that I must keep away from my social secretary as much as two months at a time without talking to her. I have ascertained that the impression was going out that this young woman went into the homes of the employes—and she always goes to the hospitals when we have any man sick there, and we always have someone there—I found the impression was being created that she was reporting directly to me about these things.

Now, that is an unfortunate opinion for the workmen to have. However benign the employer, the employes do not want to feel that everything that a particular employe assigned to social work knows, goes to the management or to the Board of Directors. This scheme of having a department of personnel acts as a sieve. We must remember that it cannot be efficiently carried on if the employes think the information is going to headquarters.

Another thing suggested by Mr. Hopkins's talk is this suggestion of social welfare. I was glad to hear him say there were many things that could be done in that department. In Dayton they give a physical examination of every employe that comes into a certain establishment. Now, I believe that is brutal. If you said that everyone should be physically examined, there would be probably 85 to 90 percent examined.

Now, do not let us injure this cause of improving conditions, by being too arbitrary about it, and making the employe feel he is not a part of it. I have had a lot hammered into me in the last three years, and I have found you can work with some pretty high class people and yet have their views differ from yours on many things.

Now, if this is true of people in the higher grades, it is even more so in the lower grades. You must avoid in every way you can, imposing on them rules and systems which they cannot understand. Start with that idea in view and announce your programme, not too loud, get all you can into the first year, and then the next year exert a little pressure, but do it so that no one will know where it comes from, and by and by you will get it completed through a process of psychology, which will be more efficient than by doing it overnight and under pressure.

My experience in the last year, and especially in the last few months, seems to teach me that if you are doing big things—the bigger the things you are trying to do, the more mobile your organization must be,—the less and less you are going to regret losing people. You may lose them because they are going on for their own betterment. But whether they go for this reason or for any other, you have got to get away from the old idea of holding on to people. Undoubtedly unemployment will be reduced by building our organization so that people can stay if it is to their advantage, and your advantage for them to stay; and the more valuable they are to you and you to them, the more unlikely it is that people will change.

H. V. R. SCHEEL: It is admittedly good business to consider the psychological side. Take a case where three men have about the same kind of responsibility, or are doing about the same kind of work, instead of considering them as equal jobs of equal value, it has been found better to arrange them arbitrarily, one above the other as to importance and pay, into a lower and intermediate and an upper grade, so that a line of succession is established and advancement will be possible from one to the other. The result is psychologically that the man in the lowest of the three has something to look forward to, the man in the highest of the three has something to look back upon. It has been worked out satisfactorily with clerks. It is worthy of consideration. The disadvantages of the greater number of changes due to more frequent promotions are taken care of by having the men themselves take the responsibility for breaking in their successors and acquiring the knowledge of the new job under the penalty of forfeiting the chance to advance.

MR. J. M. BRUCE: Some of the points made by Mr. Hopkins have interested me favorably, and it occurs to me that some of the work along these lines which I have succeeded in doing for the American Tobacco Co. may be of interest in this connection.

The company's sales force is directed from the home office through the supervision of five general districts and under them there are some forty state department managers. These latter have always had the hiring and firing of the salesmen in their hands. In going over the records I found that during the previous four months, 140 men had been hired to fill thirty vacancies and 110 discharged. The salary and traveling expenses of these men who averaged nearly six weeks each in this company's employ, was a heavy burden of expense on the sales department, not to speak of the disastrous effect of the undisciplined work of inefficient men in the various territories and the disturbing influence of this constant changing on the moralé of the whole organization.

After considerable experiment we evolved the following plan now in effect: I will illustrate with a concrete example. Desiring ten new men in the Middle West, the state department manager needing men in that territory was directed to advertise for

applicants and to pick out three or four men for each position to be filled. They were supplied with record blanks worked out by Prof. Walker Dell Scott of Northwestern University—in whose hands the final selection of the men was placed, as will be shown.

These blanks contained specific and searching questions, which had to be answered categorically by the applicants and those responsible persons, either former employers, school teachers or business men acquainted with the applicant. By this means we avoided the usual testimonial with which we are all so painfully familiar—which in the case of a drunkard generally reads: "I have had John Smith in my employ for some time (generally about two weeks) and have found him industrious and honest.—Blank Blank Co." In the case of a crook the testimonial is changed to read, "I found John Smith sober and industrious."

With Prof. Scott's blanks a direct lie was necessary to get one of these men by for further consideration. Quite a few refused to be bothered with so much red tape, and were eliminated. Next a careful examination of the applicant's physical features was made by a regular life insurance physician, special attention being given to the conditions of the men's feet as well as the regular organic examination. Some twenty-four passed these preliminary tests and were sent to Evanston to take the final examination. The test started with the simple Binet Simon test to discover persons of arrested mental development, who are utterly unfit to become satisfactory salesmen, and who cannot be detected in a casual interview by the most expert of examiners. Next came simple tests in memory, accuracy of perception, quickness of perception, etc. These tests were made increasingly difficult and consumed some 6 hours. About 7 or 8 were eliminated, or eliminated themselves. Then came the final determining test. Each applicant had it explained to him that to be a successful salesman he must be able to gain and hold the interest and attention of his prospective customer, and that this operation would have to be repeated many times each day. To show the men's capacity to do this, Prof. Scott, some assistants and some advanced students numbering twelve in all gave each applicant a 5-minute interview on a subject of general interest named by the examiner as the applicant entered the room where the examiner awaited him alone. The last book read—Base Ball—The last play—The good and bad points of the last job—School, etc., were the topics selected by the examiners. Each man was thus required to give twelve 5-minute interviews to twelve different men in an hour. Each examiner graded the men numerically as he found their work relatively interesting, the sum of the ratings and the examinations determining the men's standing.

Twelve men were selected for work in the school. This school is in charge of an experienced state department manager who had been a school teacher before becoming associated with the company. Two weeks were given to training the men in handling the company's forms and reports and giving them some knowledge of products and prices. Then four weeks were spent in actual work in Chicago, first in groups under the eye of the instructor and then individually. Nightly meetings were held, in which the men met, told of their failures and successes and had the errors of their work pointed out by the instructor, often with demonstrations of the correct method.

The result of this work is that of the ten men graduated from the school, nine are now with us and are among our best bonus earners. In fact the high man for the past four months over all the salesmen in the company is a graduate of the school. Of course we are able to follow the work of each individual with absolute exactness because the whole force is operated on the task and bonus system. The tests are not anything that could not be given anywhere by a group of ten or twelve trained observers but the point is that they will not be given under the old system of forcing a hard-driven sales manager to do the work himself—hiring and firing is more easier and more conventional.

WILLIAM KENT: I am interested in what Mr. Hopkins said about paternalism and democracy. At a mining village in Pennsylvania I noticed a row of houses built in blocks, and they were of unpainted wood, and in front of them was a miserable wooden pavement, and between the pavement and the house there was nothing but mud and dirt and chickens and pigs. That is democracy, with every man free to do with his own doorway as he feels.

A few years afterwards I was over in Germany. In looking over a coal mine there I saw a room where 2,000 men could hang their clothes on hooks suspended from the ceiling, and take from the hangers his mining suit. There was a room adjoining with 200 shower baths. In Pennsylvania when the men came home from the coal mine, they looked as though they had been in a coal mine, but in Germany the men went home cleaned up with no trace on them of what their business was. They took us then into the German village, and the houses there were built of brick with a concrete stone pavement in front, and they had grass plots in front and each house had a window box with flowers in it. Then they took us into a house and we went in the back yard. There was a pig out there but he was all clean and polished up. Now, that contrasted very favorably with the democracy which was exhibited in Pennsylvania. If it was wrong for the mine owner to do that, then the village should take it up, and have uniform architecture and flower boxes; and whether you call it paternalism or not, I want to say that I would like to see it done here.

CHAS. DAY: I have been greatly impressed by Mr. Hopkin's able address and believe that he has directed attention to one of the most important subjects with which Scientific Management must deal. Until the matters to which he has referred have been dealt with along substantially the lines suggested, we cannot assume that we are dealing directly with the individual in the broad and helpful manner which is necessary.

I would like to know whether Mr. Hopkins believes tests as a basis for the selection of employees, along the lines suggested by Dr. Munsterberg have, or are likely to prove practicable. For example, in public service work there are certain occupations which are hazardous unless operatives possess the necessary physical and temperamental qualifications. Insofar as I know, specific tests of a scientific character are not applied by any public service companies in the selection of men for such posts. The tests which Dr. Munsterberg developed in connection with the selection of motormen illustrate what I have in mind.

I will be very glad to hear from Mr. Hopkins on this point.

D. M. BATES: I would like to hear from Mr. Hopkins and any other gentleman, as to what, if any, responsibility the concern takes regarding compulsory examinations and medical attention.

About twelve years ago I was with the Bancroft Company in Wilmington, Delaware. One of our young girls was taken ill with smallpox, and we suggested to all the employees in that plant that they be vaccinated. I suppose that 90 percent of all the people in that one plant—400 to 500 people, men and women—were vaccinated. In the four or five years following there were various things that occurred, death or disabilities of one kind or another, and several cases were traced back in the minds of those particular families to that vaccination. I always felt afterwards if we had another such case of smallpox, I would rather go to Siberia than advise vaccination. So I wondered what liability the company sustains in recommendations of that

kind—a recommendation to vaccinate.

Five or six weeks ago, at the Lewiston Bleachery a boy with poor sight walked into a strand of cloth running down into our bleach-house from the "gray-room," and broke his arm in one or two places. We had him properly cared for by the doctor, paid his hospital expenses, and then the question came up as to whether we would pay his weekly wages until he got back. I would have been glad to do that, prior to one year ago. We covered weekly wages for a man for a period of 15 months, and he finally got well and sued us for damages, and the man lost the case. It was defended, however, by the insurance company. We told the insurance company our position, and they advised us in the future to get a release before making wage payments. On the next case that came up, that of this boy, we said, "We will give you the wages; we will pay you, but we must have a release so that you cannot bring any suits against us afterwards." We said, "If you think you have a suit against us, go ahead and bring it now, but we are not going to pay your wages for six or eight weeks and then have you sue us on top of that." And I cited to the boy's father, who was there, this case where we were sued by a man after paying him wages for 15 months.

We had two or three conferences with the boy's father and the boy, and I talked with them. They signed a release, and we paid the boy's wages, and now the boy has recovered the use of his arm and is back at work. The arm, however, is not strong and the physician says there is some lack of the bone-making materials, calcium and phosphate, in the boy's system, which might result in the arm never developing its original strength. This is a matter entirely beyond our control. If that arm does not work out into a strong arm, I would be willing to give the father back the release, if he wanted it, as I have no desire to take any advantage of him should he desire to bring suit. But, this case brings up an interesting point as to how far a concern is responsible for the advice given by its regular physician to one of its employees, who at the time of an accident and afterwards is ready and desirous to avail himself of the physician's advice and assistance. I would like information on this point.

H. T. NOYES: Do you not find organized labor strongly opposed to physical examinations? It is in our city. Would not a factory having physical examinations suffer in consequence?

MR. HOPKINS: I think the danger of which Mr. Noyes and Mr. Cooke have spoken is very real, but the labor opposition as stated by me, lies in the belief that it may work as a spy system back into the home. At any rate we have the full usefulness of it, although against the company's position there was a suspicion. It has come to be understood that the employment office does not know what the doctor finds or what advice he gives.

Our whole point is the greatest good to the greatest number. I believe I could get that across to the labor leaders. We are against injecting into our organization an individual who might be a contamination for the rest. We have not ventured to insist upon physical examination. There must be a verification in regard to his heart and his lungs and his teeth. We do not demand perfectly good teeth, but he shall not have an infection in his mouth, or in connection with his heart or his lungs. They must be good.

MR. NOYES: We started physical examination two and a half years ago. It was not compulsory. Seventy-seven percent of the workers submitted to it. We started again one year ago, and this time we made very thorough examination, giving one-half an hour to each applicant, and the fact that we made the examination so thoroughly seems to stimulate the men to make application for examination. And they were so pleased with our examination the second time that all the old employees save five, voluntarily made application. We had some talk with the five, and recommended it, with the result that every person in our plant voluntarily submitted to it. They were pleased with it because the examination was so thorough and the advice we gave them was good. We got it over the second time by giving them very thorough examinations and good advice.

H. P. KENDALL: I am much impressed by what Mr. Noyes said about the favor in which the examination was received by his employees. When I visited his plant he had some 1100 employees; I would not have believed it would have met with such a full response.

There has been discussion in our concern at one time and another about having physical examination but it has always been abandoned on account of the belief that it would make trouble.

We have gone this far, that all women applicants who are accepted must pass the approval of our factory nurse who gives them a superficial examination, who may ask them for a doctor's examination. This gives her a chance to get acquainted with each accepted applicant, and often she can advise well those whom she rejects. And the factory nurse believes they go away with a better idea of what they shall do for their health than otherwise would be possible.

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[1] An paper read at the Annual Meeting, December 5, 1914.

[2] Manager of the Employment Department of The Curtis Publishing Company, Philadelphia

A PROPOSED MODIFICATION OF TASK AND BONUS[1]

By C.W. MIXTER[2]

The idea of the writer's modification of task and bonus is to accept that method as sound in principle, but to so redesign it as to afford greater satisfaction to the workers and lessen the expense of the employers. These remarks are intended to apply only to typical or prevailing conditions of industry as carried on under Scientific Management.

Jobs on task and bonus under Scientific Management fall into two classes. (1) Jobs with respect to which we feel most certain as to the accuracy of the time allowed, and (2) jobs fit for task and bonus, but with respect to which we feel less confident as to the accuracy of the time allowed.

Under ordinary day wage, if a man should perform a job in two hours and then go home, the time for which he would be paid would obviously be but two hours. If he did the job in three hours and went home, the time for which he would be paid would be three hours. The more time he takes, the more time he is paid for. Contrariwise, should he regularly work all day but gradually shorten the time for performance of this job from eight hours to six, to four, to three hours, etc., the time paid for doing this particular work would be constantly less in exact proportion to the lesser time taken. This brings out the fundamental defect of time wage; the workman works entirely for his employer and not at all for himself. All the gain from time saved on jobs goes to the employer, and the workman has no direct incentive for taking up slack. The method longest and most widely in use for taking up slack is the piece rate method which is at the opposite extreme from the day wage, so far as reward for fast work is concerned. All advantage of gain from time saved on a job, so far as wage cost is concerned, goes to the workman.

To obviate the disadvantages of day rate and piece rate, various systems of wage payments have been adopted, the more prominent among them being the premium system, the task and bonus method, and the Taylor differential piece rate. It is with a modification of the Gantt bonus method that we are concerned here. Under the Gantt bonus, the man is guaranteed his daily wages for the time spent on the job, irrespective of whether or not he accomplishes the job in the time allowed. This is illustrated graphically in the diagram Fig. 1. The diagonal line, AB, represents the daily wage line; the horizontal axis in the diagram represents time spent, while the vertical axis represents wages paid.

If a task is set for a workman to occupy four hours and he accomplishes it in that time or less, he receives in wages the equivalent value of his daily wages for four hours plus an additional bonus of 33%, or 1 1/3 hours.

The objection which the writer has experienced to the use of the Gantt bonus is that there is a sharp demarcation between accomplishment of the task and failure to accomplish it. If the workman exceeds the task time by ever so little, he is penalized in that he loses his bonus and is paid only the regular daily wage for the time expended. It is, as it were, that the workman is climbing a hill represented by the line CD in the diagram and is required to finish the task before he reaches the point D. If he fails to accomplish this task he falls over the precipice at D and suffers injury exactly as he would did he fall over a real precipice, in that he loses a certain reward for work done.

It has been observed that workers under the Gantt system, who find themselves well within the task time will work at their top speed. On the other hand, workers who are closely approaching the task time, will not exert themselves particularly to reduce their time, as the reward for so doing is not sufficiently greater than that for just accomplishing the task to make the special effort attractive. Following this reasoning still further, it has been found that some workers who find that they cannot complete the task in the allotted time will deliberately slow down and consume as much time as possible without getting into trouble with their superiors.

To obviate this tendency on the part of the workers, the modification of the Gantt bonus described below, has been proposed by the writer. The principle is shown in the diagram herewith. It comprises a gradually decreasing bonus for the worker, who exceeds the task time up to a limit of 10, 15 or 20 percent, as the case may be; after which the worker will be paid at only his regular day wage rate. For the worker who performs a job in less than the task time, an increase in the bonus is provided which, in the case shown, has a maximum of 10 percent of the Gantt bonus. This maximum is reached when the worker shortens the time to a point where the time saved is equal to the excess time allowed over the task time before the worker begins to earn only day wages. That is, if a decreasing bonus is allowed for a period in excess of the task time equal to 10 percent of the task time, then an increasing bonus over the Gantt bonus is provided for all time saved up to 10 percent of the task time. For any saving beyond this 10 percent, the worker is paid the task time plus the Gantt bonus of 33 percent plus the writer's modification of 11 percent. This method, it is believed, will compensate for errors in the time study or for conditions over which no control can be exercised and of which time studies cannot take cognizance. For instance varying temperatures, varying rates of humidity in the atmosphere, and similar conditions, which may or may not affect the time in which the work can be done. Thus, if a job is in hand, the time of performing which may be affected by the humidity of the atmosphere, a time study taken on an extremely dry day will not necessarily give the proper time for the same job if performed on a day when considerable moisture is present in the atmosphere. It would be obviously unfair to penalize the employee for failure to accomplish the task under these conditions and yet under the Gantt bonus, he would be so penalized.

Referring again to the diagram, which is intended only to outline the writer's modification, the variation permitted over the task time is represented on the diagram by distances FJ and FK, in this case each being 10 percent of the task time. A man requiring the time AJ for his work will be paid an amount represented by the line LJ, or at his daily wage rate. For work accomplished in a time less than AJ, but greater than AF, as AN, he will be paid an amount represented by the line NP, of the distance between the base line AJ and the line joining points D and L.

For those employees who perform the job in less than the task time in the case under consideration, a gradually increasing bonus whose maximum is 10 percent. of the Gantt bonus, is paid. For a saving of 10 percent. or more, for instance, an elapsed time represented by AK, the man would receive a daily wage represented by FE, plus a bonus represented by the line MR. For a time less than AF, but greater than AK as AS he would receive a daily wage of FE plus a bonus represented by the line TV or the distance between the daily wage line and the line joining points M and D.

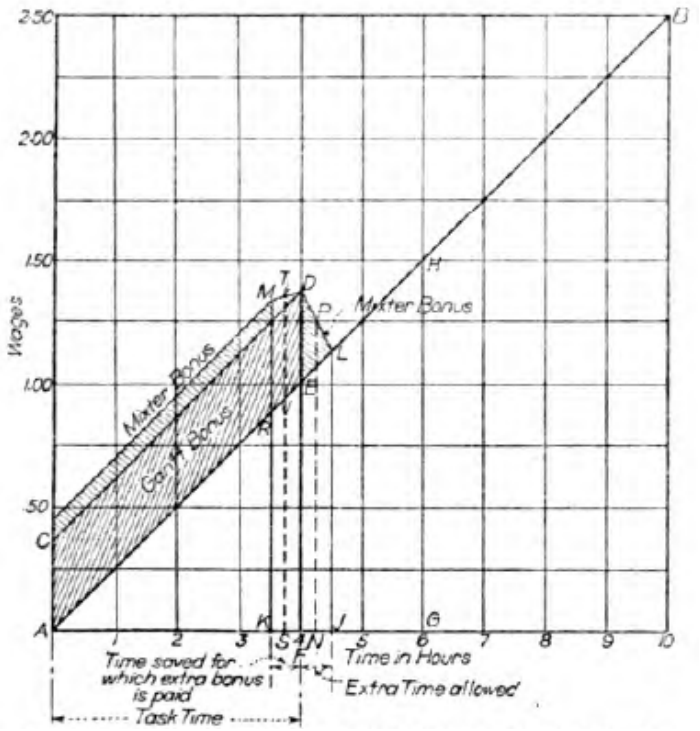

DIAGRAM ILLUSTRATING THE MIXTER BONUS-WAGE RATE, 25 CENTS PER HOUR

[Editor's Note: Professor Mixter's original paper comprised about 12,000 words and 8 diagrams. In order to publish it in the space available in the Bulletin, it has been necessary to abridge it as above. Those desiring to examine the entire paper, will find it on file at the office of the Secretary.]

PROF. ROBINSON: The objection that Prof. Mixter's method interferes with fixing costs seems rather fallacious. Even if the worker is always paid the same rate per piece, if he does more at one time than at another the overhead changes, so that the real cost is subject to change anyhow.

The whole theory of Prof. Mixter's plan is based on human nature. It is based on the fact that people are not alike. It is impossible to get together a set of workers who will all do the same job in the same time.

Even the same worker will vary in his speed from day to day and from season to season throughout the year. It is one of the established principles of Scientific Management that every man shall earn his bonus, that is of course after a reasonable time spent in learning how to do the job. If there are twenty men working all on the same sort of work and they have all become fairly skilled and are all expected to earn their bonus, then it follows that the task must be set so that the slowest man of the twenty can earn the bonus. It seems certainly obvious that some of the workers would be able to do considerable more work than the slowest man.

J. C. REGAN: Having in mind that an allowance over the time shown by the time study is made for the whole job, it seems to me unnecessary to take into account so keenly any variations that are in the worker or in the conditions that exist. If we are all looking for something to fix our piece price, we must have it within a reasonable limit, and therefore, you should be able to guarantee it, for a year or two years or three years.

It would be a fatal mistake in any business to penalize the better workmen by decreasing the bonus, as has been suggested, as the time consumed on a job is diminished considerably below the task time. Why not establish an acceptable labor cost standard and maintain that? Why say anything about the speedy workers? Why not let them get all they can? If the time study is at all near right, you should make money.

H. V. R. SCHEEL: We have one kind of winding machine, having 36 winding spindles on a side. The yarn run by operatives on these machines is of varying size, count or weight. The theoretical number of spindles on the various counts which an operator can run at standard efficiency has been determined, varying perhaps, from 14 spindles to 40 spindles, but the exactly correct number of spindles an operator can run cannot be assigned to each operator, so all of the yarns are roughly grouped into two classes: (1) Those which can be run on 18 spindles, and (2) those on 36 spindles.

Again, sometimes yarn is run from full spools and sometimes from partially full spools, the task being stiffer when small pieces are handled. Accordingly it sometimes happens that one of two operators on a side is running a count of yarn which normally takes 14 spindles, leaving 4 extra spindles available for her neighbor, who perhaps is running a count of yarn (and may be from full spools) which will permit her using these four spindles and doing a good day's work turning off perhaps 16 or 18 hours' work in 10 hours, with the result that the amount of earnings runs up as Prof. Mixter outlines. I think Prof. Mixter's modification would be fair and without the objection which the present system has.

MR. REGAN: If the condition was constantly varying and you knew it had to vary, that would be all right. But with the general run of the time studies made, in the metal trades, the only constant to consider is the constant of hardness in the material, and also variations encountered in assembling, due to machining.

The condition you speak of is one which is met in that field to which you refer; however, is it true of studies, generally?

There is no doubt that we will always find conditions that have to be cared for as we meet them, but suppose we had a case which involved 150,000 to 200,000 rates or piece prices, would it be practical to consider a re-adjustment or re-arrangement every day, as under the Mixter plan, especially when each job may not last more than 6 or 8 hours, and the rate may be as low as 20 cent per 100 dozen?

MR. KENDALL: I should like to ask how Prof. Mixter's scheme will differ from the point of view of the workman, from the differential piece rate? That seems to me to be arriving at the differential piece rate through the means of the Task and Bonus, instead of arriving at it through the usual method of the old-fashioned piece-rate corrected with a stop watch, and then made into a differential. It seems to me Prof. Mixter is arriving at the same thing, only he starts from the Task and Bonus, whereas the differential piece-rate started at the piece-rate, possibly corrected by the stop-watch.

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[1] Abstract of a paper read at the Annual Meeting, December 5, 1914.

[2] Associate Member of the Society