We say that the cost of power is trivial and the saving that can be effected by assiduous work in the plant is not worth while. The percentage may be one-tenth of one per cent, but if this percentage of one-tenth of one per cent amounts to ten thousand dollars a year, it is very worth while for the average small industrial power plant to save. Imagine the case when the bill of a customer is not paid for the amount of ten thousand dollars. Would the manufacturer consider it so small and trivial that he would not consult with a lawyer?

In answer to the question about the actual decrease, I can give a few figures from memory. In a small bleachery of which I showed you a chart to-day, you noticed that the coal consumption for the same output was reduced about two hundred thousand pounds a week. At five dollars or a little more a ton, that amounts to five hundred dollars a week. From another plant that I referred to to-day, I am fortunate in having here the assistant manager of the planning department and he has told me just now that to the best of his knowledge the average saving was one hundred and twenty-five thousand dollars a year. In the state of New York we have a department of water supply, gas, and electricity that has a number of pumping stations, and although they never adopted anything like a planning department, they did some work along the lines that I outlined in my report some six years ago. The official report shows a saving of over two hundred thousand dollars a year. In the department of docks and ferries, the commissioner of ferries reported about a year ago, in one branch, that of ferries, a saving, which he had previously estimated might possibly amount to one hundred and twenty-five thousand dollars, of actually one hundred and seventeen thousand dollars a year, due to the application of a few ideas that I had suggested.

We have been in the habit for a number of years to blame workmen, to blame firemen and engineers for poor results. I am convinced that this is the gravest mistake on our part. Fifteen years experience in this industry, which has put me in touch very closely with a great variety of power plants, has proved to me that the average fireman knows more about power engineering than the average manager of power plants, and that the average coal passer or window cleaner in the power plant has a more clear conception of what contributes to the success of the business than the Board of Directors have. In other words, if we are to increase the efficiency of our industries or conserve our natural resources for the good of the community, and society at large, and not merely for the benefit of a few stock-holders, we must center our attack not on the power plant employee, but on the power-plant owners and directors. The most successful weapons I have found to prove to the owners of the plants what can be done, are the simple charts I have shown. We must start our educational campaign from the top; first of all, supplementing the manager's office with such an organization that the manager will be in a very embarrassing position unless he knows what he is managing and how to manage it.

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THE MANAGER, THE WORKMAN, AND THE SOCIAL SCIENTIST[1]

THEIR FUNCTIONAL INTERDEPENDENCE AS OBSERVERS AND JUDGES OF INDUSTRIAL MECHANISMS, PROCESSES AND POLICIES.

BY H. S. PERSON[2]

During the period in which I have acted as your presiding officer, I have purposely refrained from the presentation of addresses and from participation in discussion. I have believed my contribution could be the more effective if limited to the planning of programs and to the continued development on a high plane of the conduct of our meetings. To-night, however, I lift that self-imposed embargo, for the growth in the effectiveness of your cooperation, the intensity of discussion and the influence of this Society has reached a point which, I am convinced, makes it opportune for me to lay before you certain considerations of the deepest importance; certain principles which have governed and should continue to govern the development of this Society.

These principles have manifested themselves particularly in the construction of our programs for the discussion of scientific management. I have been aware of an inquiry in some minds why our programs have consistently provided for the discussion of the social as well as the purely technical aspects of scientific management. I have been aware also of an occasional inquiry how the views of professors and other "theorists" could be of value to an association of "practical" men. In fact, at our last meeting one of the most prominent of industrial engineers, in a perfectly proper and courteous remark interpolated into his discussion of a university professor's contribution, questioned the value of the opinions of theorizing professors of economics. My first reaction was a stirring of my sense of humor by realization of the fact that the distinguished organizer and manager who was speaking is, by virtue of his tendency to search for fundamental industrial principles, the most professor-like of the industrial engineers of my acquaintance. My second reaction was the realization that there had been presented the opportunity to explain the vital principles which have demanded the inclusion in our programs of the discussion of the social aspects of scientific management by workingmen and so-called theorists as well as by practical engineers.

The programs of our meetings were made up at the beginning of discussions of scientific management with no more than passing allusion to its influence on industrial progress. At the last meeting two sessions—the most significant in attendance and

[1] A paper to be presented at the Boston meeting of the Taylor Society, March 3, 1917.

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