

fect, and if you make an assertion and cannot back it up, everybody is going to know about it.

In this mill, the superintendent was the highest paid person in it, and was said to be the highest paid superintendent in the country, and was deriving the high salary because the management of that company said he was the best man in the United States, and that they couldn't run their business without him. That was a terrible indictment for that company! That concern was in a rather dangerous condition. No method of organization of management can afford that sort of thing. Before we had made a suggestion as to what we were going to do, we absolutely demonstrated to our own satisfaction that what we said, could be done. We were going to have opposition from this superintendent, who had been all the time opposing the thing that we had been suggesting. I went to the manager again, and told him what we wanted to do, the work we had done, and the conclusions we arrived at, and what was to be expected. The general manager suggested calling the superintendent in right away. Since the superintendent was familiar with the experiments we had been making, I was glad to have him called into the room. I had been in this establishment possibly eight months, and it was only the second paper mill that I had been in. The general manager of the company said to the superintendent,—"Now these people have made some studies on calendaring paper, and beginning next Monday morning, they are going to start," (and so on, etc., etc.) I will never forget what happened! Up got this high-priced superintendent—and he had a violent temper, too,—and he walked up and down the room—and said to the general manager of the company,—"All right. If that is what you want to do, do it, but I wash my hands of what happens to your plant. If you want to take the opinion of this 'boy' who has never been in a paper mill until he came here, against mine,—go ahead and do it. It is up to you."

The general manager was sort of up against it, but told us to go ahead and do it. Then the superintendent said, "What are you paying my salary for? This thing he says can be done *cannot* be done and I will stake my reputation or my life on that fact."

When the general manager of the company was put up against that sort of proposition, it made me wonder about "this boy," and how about this \$25,000 person. And it was right then and there that the general manager showed his spunk, and simply said to the superintendent, "I am sorry you don't agree with him, but

it is going to be tried out." If we had not been absolutely sure of what we were going to do, beforehand,—what a monkey the "boy" would have looked like! That kind of opposition is bitter. You are going to run into it, and the people who take you by both hands when you come, and say "I am so glad to see you, and you are giving me just the thing I have been wanting," etc., etc.,—and when you get there and commence to tread on their toes—which you will have to do—they are going to turn and bite you.

The next difficulty that you are going to encounter comes from the top itself. What I have told you about the opposition from the worker and the mechanical difficulties of doing what you want to do, the opposition that you are going to get from the foreman and superintendent fade into insignificance when you encounter the man who sent for you to save the plant or his life or the world,—who told that you were just the man he wanted to do this job for him,—he is the man that before you get through with what you want to do, is going to have misgivings. He is going to see how much money this will cost, and whether he is doing the wisest thing, and he is going to find this sub-official and that sub-official and superintendent and foreman, and the people in that class—and the heads of the departments—they are going to say that this won't do. And the \$25,000 superintendent is going to say it. Some other foreman is going to say it. And the cumulative effect of that on the man at the top is something that you are going to have to encounter, and face, and is the hardest thing of all because the man at the top is the man who finally says "yes" or "no"; he is the man who has the final say as to whether or not you are going to stay, and whether what you want to do is going to be done or not. This will outline the character of the difficulties that you are going to encounter in your work. I think that what I have said so far is sufficient to indicate the kind of opposition that you are going to have.

How are you going to overcome it? In the first place, you go out as engineers in organization or management work, and you have got to be people of absolute honesty and integrity. I don't care how much you may learn,—I don't care much how wide your experience has been, unless you can go into an establishment with a knowledge on the part of the people you are working with, that you are absolutely honest and that you are of unimpeachable integrity, you sooner or later are going to get into trouble. This is the only foundation on which this whole engineer-

ing profession must be based, if it is to successfully fulfill the obligations that have been placed upon it by society. There must not be the faintest whisper that what you are about to do is for the exploitation of somebody. There must not be a question of the means of incentive that perhaps this fellow has some motive for doing this thing that is going to give one fellow an advantage over the other. You can't do it! You must play the game clean. Lay your cards on the table. Look every man in the eye with the consciousness that you are doing the right thing. I cannot emphasize that too much.

Now there are certain qualifications, in addition to these, that are very essential. In the first place, you must have knowledge of what you are trying to do. You cannot go in and carry out this work on the basis of bluff. You can do that sometimes with things of little importance, but you cannot do it on the things that are worth while. You had better admit that you are sorry you do not know, and don't be ashamed of doing it. Know what you are talking about.

You must have a large quantity of three qualities. They merge into each other so closely that in my notes I put a bracket around them. They are:

- (1) Perseverance
- (2) Patience
- (3) Consideration

You cannot give up when things begin to go wrong. You must persevere. And things are bound to go wrong. The things that we accomplish in this life without things going wrong are not the things that amount to very much. We must be unwavering in our perseverance. Next, you must be patient. This kind of work will try your patience as nothing else that I know of. People appear to be awfully stupid. You cannot understand why they are so dumb. You have the inclination to put on your hat and go out! And the thing that will make you patient is the third thing—your "consideration" for other people. That word "consideration" means a great deal. You must be considerate,—you must sympathize to a large extent with the other fellow's point of view. You should fully understand why it is that he feels the way he does, and says the things that he does, and you must be very considerate of him.

And then, you must have vision. God help you if you cannot look ahead when things are sort of black. You've got to be sort of an idealist. By "idealist" I don't mean a wish-washy sloppy fellow, but I mean a fellow who fixes his sight on something high, enno-

bling, and good,—who is not going to let anything that happens dim that vision, and who is going to press on to it in spite of anything that happens.

Then, with your vision, put into your work two things,—common-sense and decency. I am interested in scientific management and have been for a number of years. I read a good many definitions of scientific management; I have given a good many definitions of scientific management, studying into things and trying to find out scientifically what the right thing to do is, and what is the right type of organization to have,—and then making everything tie up. This is the object of modern management, or any one of the terms that you hear applied to it. But I have found that if I can keep in the back of my mind these two things, that I have got to have some common-sense, and I've got to be decent,—that I come pretty near being everything that could be included in the term,—"scientific management."

There is a lot of foolishness and a lot of bunk. The late Frederick W. Taylor used to say,—"I haven't invented anything new. I haven't a system, I haven't a panacea for all of the ills of society or an industrial organization, but all I have is what I have taken from other people, and organized and applied some principles of common-sense to,—and that is all it is."

All these things I have been pointing out to you are to guard you against losing sight of that thing that you've got to hang on to—common-sense.

And decency means giving everybody that you come in contact with a square deal, and if you have these underlying qualities that I spoke of at the outset,—honesty and absolute integrity,—you will be able to be decent with the people with whom you come in contact.

I wish I could give you a picture of the sort of things that you run into every day in industry. I wish I could give to you a picture of the crying demand of industry for men who have the training that you are getting right here. There is a terrific responsibility connected with this,—a responsibility so great that it should frighten you every time you stop to think of it. Here is a group of young men who are being trained with the idea of becoming leaders,—who step out in this confusion that the world finds itself in today, and show people the way out. It is a terribly hard thing to do, and we have to keep in our minds this responsibility that we owe to society, and we have trained ourselves and drilled ourselves, so that we can step out in this field, and take the posi-