

done before, yet it apparently costs more to do them that way and the difference is not in the rise in wages or anything of that nature.

I believe it is the dissipation of energy through competition. These 216,000 choices do not mean the choices of the consumer, but merely mean, as one of the speakers said this morning, a means of building up lagging sales, a bright idea of some salesman or sales manager to produce a certain style that somebody else does not produce. I believe that also brings out the point that there must be a coordination between the various departments of business, a coordination especially between the department of sales and the department of manufacturing.

SANFORD E. THOMPSON<sup>1</sup>: From a labor standpoint perhaps most of all is there the greatest need of standardization. This has been mentioned already, particularly the seasonal employment, due to lack of standardization, in clothing manufacture, and it is the same in the manufacture of shoes and various other commodities. Not only does this phase effect the workers, but, also, there is the time which is lost by them in the factory and in irregular employment from day to day. Let us consider this, for example, in the manufacture of shoes.

In making shoes the lasts control the manufacture to a large degree. Lasts change every season, comparatively few lasts running over from one year to another; consequently the manufacturer uses as small a number as possible. On this account, and the fact that the lasts must be carried for all sizes and widths, the manufacturer can run through only a small number of shoes of the same kind in one lot, usually from two to three dozens of a style, and these include the required variety of sizes and widths. Also, he must plan his lots ahead so as to make his cycle of lasts come right, not simply for style but for size and width. Further, if one lot of shoes gets behind while on the lasts, through shortage of some special findings or other causes, the entire schedule is broken up.

Let us see how such delays as occur through these causes effect the worker. As a result of these variations we may have in the same day's run three dozen pairs of low shoes made with one kind of leather and of one particular style; three dozen pairs of high shoes, some of the operations of which may take, for example, three or four times as long as the operations on other styles. We may have three dozen pairs of white

<sup>1</sup>The Thompson & Lichtner Co., Industrial Engineers, Boston and New York.

shoes, and so on; some of these styles have one kind of trimming, others another. Instead of being able to run these various styles through in large lots and route them to the machines and groups which handle them to the best advantage, they must be worked on one after another, and the work dove-tailed in as best it can be.

This means that in a department a certain machine, which is adapted to one style of shoe, may be busy all day; at other times it may be busy only half a day. The operators on certain operations are, therefore, frequently thrown out of work, and, as is the custom in shoe manufacture, they lose their time. Furthermore, the shoes coming from one department to another vary from one day to the next in quantity, because the character of the stock and the grouping of styles is such that a relatively smaller amount comes through on one day than the next. These are actual and not theoretical conditions in nearly every shoe factory in the country.

As a result of this lack of standardization, the piece worker loses a considerable percentage of time while nominally employed. Eventually, however, this must come back to the manufacturer, and finally to the buyer of shoes, since for irregular employment, whether it be through seasonal variations or delays occurring through the day, higher piece rates must be paid than for continuous employment.

To a certain extent these difficulties can be aided by standardization, particularly by well worked out sales policies. There soon comes a time, however, when the limit is reached. Shoe salesmen tell us that there is getting to be as much style and individuality in shoes as there is in bonnets. We must not neglect, therefore, the other side of the matter, the standardization of work in the shop so as to bring down the cost of manufacture of the fancy styles—the styles that appeal to the eye. And this is just where scientific management in the shop must cooperate with scientific sales methods. To a certain extent our salesmen for best economy and profit must consult with the production departments; the sales must tie in with the shop. The production man may say to the salesman that styles must be standardized. On the other hand, the salesman may well say to the production man that he must standardize his processes and methods so that the cost of manufacturing the more fancy styles, which he can sell for larger profit, must be brought down to a figure scarcely higher than the plainer shoe.

DR. N. I. STONE<sup>1</sup>: I hold no warrant to speak in the name of labor but as a labor manager who is coming in daily contact with labor in the factory I think I can speak from practical experience. Even before I took hold of my present job, as an investigator going through factories I was struck with the fact that labor instead of objecting to standardization from the standpoint of a lack of diversity and monotony to which Mrs. Parker referred, quite to the contrary preferred it.

All of those who have worked in factories, those of us who are accustomed to intellectual labor, want to judge the worker from the point of view of our own preferences, whereas the worker has a psychology all his own. The great bulk of workers have grown up in a factory from childhood. Instead of seeking variety they prefer a definite standard set of motions, and one great difficulty that every manager has is to make a girl change from an operation she is accustomed to, to something else. "We have always done it that way; we don't want to do it this way." You have to argue that you can prove that the new way is the better way. She will object to it, invariably. You take a modern factory, whether it is clothing or shoes or anything else, and there is an extreme sub-division of labor which means that each particular section, whether it is of a garment or of a shoe, has only a small number of people working. You may have a section of four people turning out a certain part of the garment, although you have a thousand people in that factory. The result is that if one out of the four is missing there is a decline in production of twenty-five per cent from that one section, which will hold up the rest of the production of your factory.

It therefore is an extremely important thing to every factory manager to be able to get a worker from another section as a substitute on that operation. The worker objects to the variety which we imagine and assume—most of us who haven't been in factories—that the worker would love and prefer simply because we would prefer it. There is an entirely different psychology.

When I first visited the Joseph & Feiss plant I was surprised to see that workers there whenever asked to change from one operation to another, did it with a smile, and it took me some time to get on to the trick. Why was the psychology of the worker there entirely at variance with what I have observed in factory after

<sup>1</sup>Labor Manager, Hickey-Freeman Co., Rochester, N. Y.

factory throughout the country? I soon found out why. Mr. Feiss is not only a good manufacturer but probably one of the reasons he is a good manufacturer is that he is a good psychologist. He pays his worker for doing what he wants him to do. He gives him a special inducement in dollars and cents. A girl, in order to be induced to learn another operation, is given what they call a retainer. They pay retainers not to lawyers but to girls. The retainer is in the form of a special fee in addition to all she can earn by piece work. In other words, the girls there didn't accept the opportunity for variety of work to which Mrs. Parker referred as a pleasure and inducement; they had to be paid to do it.

I can say now from practical experience that I was able to solve the problem the same way by copying Mr. Feiss' method. I found the first year, while the factory was still running in its old way, that we had the same problem. Workers absolutely refused either to change methods to which they were accustomed or to learn an additional operation. No amount of arguing that by learning an additional operation they really became more valuable, to themselves and to their employers; if they left their job and looked for another one elsewhere they had two chances to one by knowing two operations instead of one; no amount of such arguing made any impression. It mattered not. They would say, "I would rather sit idle for two months and wait for my job." And only by paying them "extra" while they are learning, can you get them to do it. We are absolutely wrong in judging the psychology of the worker from our own psychology, the intellectual worker as compared with the manual worker who has been trained always, all his life, to do simple manual work.

Concerning the remark made by a speaker about the attitude of labor in a plant in the metal industry, the opposition of labor to standardization from fear that it will interfere with earnings: the old-time craftsman who can do a complicated piece of work is probably the only worker who will object to standardization—not because of greater monotony but because of the danger to his earnings. He does not object to standardization, what he objects to is the sub-division of labor which substitutes labor of less skill for his greater skill, for the very simple economic reason that it substitutes a lower paid worker for a higher paid worker; in other words, the danger of not being able to demand the same high wage that he does at this time.