

as soon as "personal government" is outgrown, economic resistance, in this aspect of its manifestation alone (not to speak again of the others), comes in like an armed man. And, indeed, the sheriff is not a long way off, unless with the larger scale of doing things comes a new way of doing things. The hand-made product industry has not, as a rule, with its lack of wealth-creating power physically embodied in machinery, sufficient means to pay for the installation and maintenance of such non-physical equipment as is required if things are to be run properly. And many a big concern gets along under general competitive conditions (as long as it stays in beaten paths) without being shipshape, too. It may even do very well and make money in spite of wretched shop management (if no worse than its competitors) by reason of good judgment and skill displayed in buying and selling.

And now to conclude. There is a possibility of invention, of an advance of the arts, in the art of management itself. Without going into this subject at length, it is sufficient to say with emphasis that such an invention has been made, and its adoption is spreading in the industrial world. Many a small hand-made product business can now successfully expand into a large business because, by employing this managerial invention, it can with less expense do the things necessary for successful expansion. These new managerial devices are found mostly in large industrial establishments, not because they alone need them or need them most (as the layman erroneously supposes), but partly because (as already stated) the large machine-using establishments are in a better position to afford the expense, and partly because the new, big things naturally come in big places first. And now that this movement in industry which we may call planning-room methods or military "general staff" methods¹, is well under way, it draws other improvements to itself; it uncovers further possibilities of advance, notably on the side of industrial humanitarianism as contrasted with mere industrial engineering.

¹In every well-managed army the members of the general staff return for a term of service each five years or so to their regiments. The principle implied here should be kept in mind in the shop. A department in any factory charged with improvement of methods will always fail if it merely sets standards for other people. A true planning room sews up directly with the work itself throughout the plant; it has duties as well as responsibilities directly connected with production. It grows, changes its views, and is duly sympathetic for it, too, is a "toad that knows where every tooth point of the harrow goes."

But in the application of these new deliberative, quasi-scientific, planning-room or "staff" methods (unique in industry because the prevailing spirit of industry is impatient, driving, non-deliberative) the entrepreneur who uses them and must pay for them, and never if he knows it spend five dollars to save four, is confronted by a new form of resistance and the possibility of diminishing returns. It is possible for such things, of course, to be greatly overdone, and, on the other hand, it is equally possible for them to be disastrously underdone. This last happens especially when the proprietor develops a new department for the work made up of men who have grown up in the business. These amateurs catch at the skirts of scientific management and get only part of its spirit and its essential methods. Especially if the proprietor himself or some committee is somewhat niggardly and fancies that omelettes may be had without the breaking of eggs, the result is a grotesque superimposing of new things on old and inadequate foundations. The installation is, so to speak, a sort of veneer of the new art of management. New-fashioned ways of paying wages are put in without the preliminary "standardization" (more or less "job analysis," so called, is as near as they come to standardization) an ambitious scheme of "functionalized control" is attempted in a place where all the elementary principles of a general system of command are neglected; a difficult and at best hazardous system of "scheduling" is undertaken where there is no proper basis of "routing" and "recording." The result, as said above, is often grotesque and costly. In such places there is not a sufficient break with tradition. What is attempted is really in the main pre-Taylor methods dressed up in new and expensive garments.

If the proprietor takes the alternative course and employs an outside professional installer he runs into opposite difficulties. The professional will usually do a better job because he is a professional; but there are incompetents in the profession, and even the best of them may have too many irons in the fire and so be forced to imitate overmuch what has been done elsewhere—not enough adaptation is made to the peculiarities of the work in that particular concern. Some of the professionals are doctrinaire, self-opinionated men, and of the sort that will ruin any enterprise through expense. Every branch of engineering has that type of man—well trained, able, but without the instinct of economy. Indeed, the entrepreneur has no royal road to success, such as cutting down his managerial resistance by merely employing a profes-

sional expert installer. Here, as elsewhere, he must not only choose the expert, but also give him his fundamental instructions. Having chosen him, he must decide how far he will let him go. If he hampers him too much, of course, the professional cannot accomplish anything, and presently throws up the case. That is, the genuine professional will. There are those, the pest of the new trade, who will do anything the client wants; just as there are some physicians of training and ability who are morally of such a caliber that they will prescribe what the patient wants. On the other hand, if the owner of the business does not hold down the management expert, frequently he will put in a top-heavy "system"; he will let his professional zeal run away with him. In general, mere "system building," done imitatively, is the evil to be avoided. Here, as everywhere else, the entrepreneur still has his own peculiar function which can never be dele-

gated. Here, as elsewhere, he must size up the whole situation as to men and measures, things desirable and things possible, things that should be done now and things that must wait. He must recognize the limitations of the improvement of the art of management within his establishment. He must support the expert to put things through against much opposition, and he must find the way of overcoming that opposition without disheartening valued men long in his employ; or, if need be, he must decide what subordinates, unable to adapt themselves to a new order of things, he must let go. Here, as elsewhere, he has to make all the ultimate decisions as to what will pay and what will not pay. He has to determine aright—he himself and no one else—under penalty of diminishing returns and failure if he does not so determine, what to do and where to stop.

ON THE COMPUTATION OF THE PERCENTAGE OF LABOR TURNOVER

I. HOW TO FIGURE LABOR TURNOVER¹

By FREDERICK S. CRUM²

THE term *labor turnover* has been variously defined and as its calculation is dependent upon its definition, attention should first be given to just what the term means. So far as I am able to find out from reading an already somewhat extensive literature on the subject, labor turnover was first used and is still most widely used to express the phenomenon of hirings necessary to replace separations in any given industry, establishment or department of an establishment. Before the subject was analyzed too closely, perhaps, by writers of the academic type, labor turnover or the overflow of labor in any given industry or establishment, was measured in terms of the average or normal payroll, and it was expressed in the form of percentage of such payroll during the period under observation—usually a week, a month or a year. If the average payroll of a given establishment were 1,000 in a business which required that such payroll be kept at that figure and during a year 500 additions to the payroll were necessary to replace separations therefrom, the yearly labor turnover would

be expressed as 50 per cent., or 50%. On an increasing payroll in a growing business the separations from the payroll would still represent the numerator and the average payroll the denominator. On a decreasing payroll in an establishment gradually going out of business, perhaps, or declining from any cause whatsoever, the numerator would be the number hired and the denominator the average payroll, as before. In other words, average payroll by this most generally employed method is always the denominator and the number of employees replaced during the period under observation is the numerator in the calculation of *labor turnover*. As this is the older, so I believe it is also the best method of measuring labor turnover. Whatever method of calculation is ultimately agreed upon, the statistical problem of *labor turnover* can still be truly stated as Richard B. Gregg has stated it, namely, as the "measurement of the movement of industrial workers in and out of their employment, and the analysis of its causes and results."

At the National Conference of Employment Managers held in Rochester, N. Y., May 9-11, 1918, a committee was appointed to draft a report which would define labor turnover and state how it should be cal-

¹Reprinted by permission from *Quarterly Publications of the American Statistical Association*, New Series No. 126 (Vol. XVI), June, 1919, pp. 361-373.

²Assistant Statistician, Prudential Insurance Co., Newark, N. J.