Science of Production Engineering

The Science of Industrial Organization. A New Profession of Interest to Manufacturers and Others

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In these days of stress and strain, many a wise business man has learned the value of retaining the services of a competent physician not only for treatment in time of sickness, but rather for that timely advice and warning that, if followed, will usually avert disaster. One who is constantly carrying his health or lack of it about with him, becomes accustomed to himself, he has little opportunity to make comparisons, and anyway too much introspection tends to make one morbid, while a specialist will readily observe the warning signs and perhaps correct the little mistakes of living that may lead to physical or nervous breakdown.

The same philosophy applied to business has in recent years led to the development of a new profession, which goes by the name of Production Engineering.

One definition of Production Engineering is the science of securing in productive organization the maximum possible output of a given quality at a minimum expenditure of time, material and labor.

The production engineer, by the above definitions, undertakes the study and control of all manufacturing problems. This is a big contract, and at first blush it would appear hopeless for one man to attempt to understand all the details of every branch of production. But, when we learn that a firm of this kind have a staff of men, all specialists in different lines, from the making of a brass casting to the development of an accounting system, the case begins to take another aspect.

Efficiency in the factory, the final measure of which is, of course, net profit, depends in the first place, on the efficiency of each machine and each employee; and the economical systematization of the work. In this, the aid of the practical mechanic, and the man familiar with the particular line of manufacture is required.

In the second place, efficiency depends on organization, the fixing of responsibility, and the elimination of the friction, ill-feeling, and loss of time that results from conflicting authority. It is absolutely essential that each man shall know to whom he is responsible, and for what. This requires definiteness of organization a necessity best met by an organization chart prepared by one conversant with many organizations in a variety of industries, and so in a position to adapt those features best suited to any particular case.

With regard to the office, the aim of the production engineer is to devise a system for each particular business that will most clearly reflect the actual condition of affairs, affording ready comparisons at stated periods with previous periods. It must also show clearly and accurately the total production of each branch, and the total cost of production, with all essential details.

The injury that is done to business by the lack of efficient cost systems is inestimable. Nothing facilitates trade more than a sure knowledge on the part of both buyer and seller of the true value of the goods dealt in. All business talk has this one object in view—or should have. In the case of commodities generally, commodities where the monopoly element does not enter, value is fixed in the end, by cost of production. If then, some fool manufacturer with the best of intentions perhaps, but lacking an efficient cost system, sells his product for less than the actual cost of manufacture, he spreads a false idea of the true value of the goods he sells, and apart from his own financial loss, he is a real hindrance to trade. He spoils the market.

One manufacturer, after an examination of his business by experts, found that the previous year he had made five thousand dollars in one part of his business, and lost three thousand in another. Asked later if he would be displeased at the same firm of production engineers overhauling the affairs of a competitor, he replied, "By all means do it. That fellow is selling below cost and doesn't know it!"

The man who ignorantly sells below cost injures not only himself and his competitor, but also the buyer, who, while saving perhaps at the moment, loses that correct estimate of relative values on which successful business must be based.

The production engineer is a friend of business. He has nothing to sell except his services. He is not necessarily bowed down to any particular system of book-keeping or organization. His one aim is results. Passing from one plant to another, studying mines, factories, insurance, even colleges and theatres, he becomes familiar with fundamental principles of organization in all their varied applications, and being free from administrative responsibilities he is able to take a comprehensive view of any situation, and devote to it that extended thought for which the "daily routine of the paper-buried desk" so often leaves the responsible brain too weary.

Of course every manufacturer has a more or less deep-rooted belief that his organization and system is just a little better than his competitor's. Of course it is always the other fellow who is cutting prices by unfair and ignorant competition. But the number is increasing who take a mirror to themselves, and among these the productive engineer is coming to be a regular and welcome visitor.

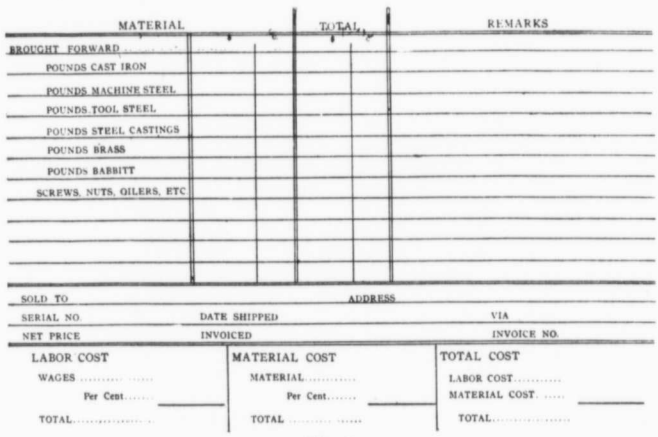

Fig. 3

A NIGHTMARE IN HARDWARE.

ANONYMOUS.

To-day I drove the pigs of lead
Down where the tailor's goose
Was drinking from the old spring-bed,
As was its wont and use.

The sad-iron stood in sorrow by;
The weight had lost its scales,
But the harrow showed its grinning teeth,
And the keg its tenpenny nails.

The auger cried, "Life's one long bore;"
The plow said, "I've my share;"
The copper whispered, "All is ore;"
And the hair-spring tore its hair.

Though the monkey wrenched nut after nut
From the rods that tried to bolt;
Though the cross-cut saw bad-tempered got,
Seeing the stop-cocks molt.

No game the chains put on their links,
Where the planes were smooth as glass;
A heaviness fell on the zincs,
A dulness on the brass.

What strange, hardwaring sights there be;
The jack-screw turned away,
A saving thought came unto me—
I need not weight to-day.

The thing I could not understand;
I turned my pigs of lead,
And drove them with an iron hand
Back to the smelting shed.

—Exchange.