

a great deal to get it going.

Mr. Redfield: Tell us about it.

The Chairman: May I ask this question? Are there any such cost-sheet methods in existence now?

Mr. Barth: Most assuredly; they are the only ones we advocate.

Mr. Redfield: I wish you would tell us what the proper way would be. Your criticism applies so far only to the labor charge, and it is obviously a good criticism on that. How was the burden charge ascertained at Yale & Towne?

Mr. Barth: I can only tell you that when I came there they did not include depreciation, taxes, and insurance, which they withdrew from what they considered their gross profits at the end of the year, to leave the net profits for the year; but after I had been in touch with them for awhile, their treasurer, who had charge of costs, the following year came out with a new way of keeping costs which did prorate those charges as part of the overhead burden per month.

The Chairman: Would not the burden charges vary at various seasons of the year on the same products, in accordance with the state of trade and the amount of business the shop had to turn out?

Mr. Barth: Most assuredly; it varies all the time.

Mr. Redfield: Is it not a fact that the burden charge not only varied, as the chairman has said, but was different for each separate department of the work?

Mr. Barth: Absolutely; Yale & Towne knew all about that.

Mr. Redfield: How did they apportion it?

Mr. Barth: I did not go very deeply into their methods of cost keeping, only I found that there was a great deal of good in them.

Mr. Redfield: Do you know how they apportioned the varying ratios of burden cost to the respective departments?

Mr. Barth: Not absolutely in detail. I can tell you how we do it.

Mr. Redfield: Tell us briefly how you do that.

Mr. Barth: The world has been looking for a hundred years for costs, and it is too big a subject to make very brief.

Mr. Redfield: Tell us as briefly as you can how to apportion the burden charge over the different departments, in their proper ratios.

Mr. Barth: Broadly speaking there is no such

thing as a proper way; because no matter what you do, you must compromise a great deal, and it therefore becomes to a great extent a question of judgment, which is the better of a thousand ways which may suggest themselves, and which have been suggested. But after having studied thoroughly for years the methods adopted and advocated by Mr. Taylor, I have been unable to agree with those who disagree with him, although a great many very valid criticisms of the methods have been found, and will constantly be found; so much so that it would be absolutely foolish to say that it would be wise to apply them unmodified to all classes of manufactures and under all conditions; but they are the ones seriously to consider before anybody makes up his mind to do anything else.

One of the fundamental principles of Mr. Taylor's system of cost keeping is that every penny of expense incurred during any period of production should be saddled upon the product produced during the same period. How this is carried out would best be elucidated by taking a concrete case. Suppose there is a factory that sells its own product, and it is considered desirable separately to keep track, as far as possible, of what some people call commercial expense.

Mr. Redfield: You mean selling expense, in addition to the burden cost in the factory?

Mr. Barth: Yes. That is a good way to put it. I like also to mention that, as but few salesmen can be made to understand how costs are made up, and the necessity for what appears to them extravagantly high burden factors of one kind or another, we considered it expedient to so keep the cost that the salesman knows nothing about how this is made up, but merely gets the statement that the cost of a certain article is so much; so that if he sells that article for 1 cent less the company has lost 1 cent.

Mr. Redfield: Tell us how you arrive at this cost.

Mr. Barth: We divide our sum total of overhead expenses or burden into at least four groups. These are:

1. The auxiliary shop expense.
2. The shop expense proper.
3. General operating expense.
4. Selling or commercial expense.

Mr. Redfield: Do these four items comprise your burden charge?

Mr. Barth: Yes. Under auxiliary shop expense

come all such expenses as is incurred in what we call the auxiliary departments, such as the heat, light, and power department, the planning department, the storeroom, etc., which work for the benefit of all productive departments without themselves directly contributing anything to the product. In it is also included a great many expenses of various kinds, which, while they are not incurred in any of the several auxiliary departments, they are, at least, in somebody's judgment, of the same nature, namely, such that they should be shared in some proportion or other by the various productive departments. Added to these come also the monthly prorating of such expenses as depreciation, taxes, insurance, bad debts, perhaps, and so forth.

By direct shop expense we understand the sum total of all expenses incurred in each of the various productive departments, such as repairs and maintenance of machinery, keeping each shop clean, and all material that is used in these departments in any way whatsoever, when the same can not be charged to any special production order. Also all foremanship and clerical help and labor of any kind that contributes to the turning out of the product in a particular shop, without being directly chargeable to any particular production order.

However, each productive department has its own direct shop expense, when it comes to its cost distribution.

Under general operating expense we include the sum total of expenses incurred in all such departments as are more in the nature of general business departments without dealing with the selling end of the business, such as the purchasing department, the general manager's office, including all help, stenographers, clerks, and so forth; also certain of the expenses incurred by men in the planning department whose work has no direct bearing upon the amount of goods produced; for instance, the man who keeps the pay roll, which is apart from cost, and all personal records of employees for any purpose whatsoever. This is for the reason that this general operating expense is proportioned on direct wages, by which I mean wages paid actual workers when engaged on some specific productive work. We positively avoid the term, "productive wages."

Mr. Redfield: Now we have a fourth department?

Mr. Barth: The fourth expense, the selling or commercial expense, pretty well explains itself. It

includes every expense incurred by the company for the purpose of making a market for the goods and inducing customers to take them off their hands.

Mr. Redfield: Let me ask you a few questions, and we will go on. You have now three large elements in cost; material cost is one, labor cost is another, burden cost is another; and of these the burden cost is divided into four heads of which you have spoken. The aggregate of these three groups when apportioned to the actual productive orders for a given period makes the closest approximation we know to the actual cost of the goods?

Mr. Barth: Yes; for that period.

Mr. Redfield: That is what we are talking about. Is it not the fact, as your experience in various factories has shown, that the total burden cost is sometimes as great as the combined labor and material cost?

Mr. Barth: Frequently far more.

Mr. Redfield: Is it not the fact that the actual productive labor per unit in that period and for that quantity is often a minor element in the cost?

Mr. Barth: Perfectly true.

Mr. Redfield: Is it not the fact that the material cost per unit for the lot in that period is often as much as or larger than the labor cost?

Mr. Barth: As much as or larger? Very frequently it is a bigger part; sometimes a minor.

Mr. Redfield: Is it not a fact, therefore, that often in that period and for that lot the unit cost of labor is the smallest element in cost?

Mr. Barth: Perfectly true.

Mr. Redfield: And is it not apt to be so just in proportion as the management is wise and as it is accurate in setting this burden cost?

Mr. Barth: Perfectly true. While I have been intensely interested in my work as an engineer I have become far more fascinated with the cost and accounting side of a business, just because of the many ways in which this may be looked upon and handled, or rather mishandled.

Mr. Redfield: Is it your experience that in the shops you have visited manufacturers know, as a rule, with reasonable accuracy what their goods are costing them?

Mr. Barth: That is absolutely not true, in a great many of them.

Mr. Redfield: Is it or is it not the fact that in your experience the burden charge is commonly