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OVERHEAD EXPENSES

HOW TO DISTRIBUTE THEM
IN GOOD AND BAD TIMES

FABRICATED PRODUCTION DEPARTMENT
CHAMBER OF COMMERCE
OF THE
UNITED STATES
1921
The Fabricated Production Department is one of several service departments created by the Chamber to assist its members in dealing with their common problems, especially those concerned in manufacturing and production. These include such subjects as Cost Accounting, Standards, Elimination of Excess Variety, Production Statistics, Industrial Relations, etc.

Its service will be largely educational and cooperative in character, bringing together those interested in a given problem, and by the interchange of experiences and expert advice, reaching a satisfactory conclusion whenever possible.
OVERHEAD EXPENSES

How to Distribute Them
in Good and Bad Times

In our pamphlet "What a Cost System Should Do for You" we called a good system an insurer of profits. Some may question this statement in times of depression when they find their unit costs rising 100% or more, largely because of the increasing overhead on their low or sub-normal production. Let us examine the situation by calling to mind those facts and fundamentals with which we are familiar.

A MANUFACTURING ENTERPRISE—ITS ELEMENTS

A manufacturing enterprise in its simplest terms consists of:

a. A place to work
b. Machines to work with
c. Men to do the work
d. Material to work upon
e. And management to co-ordinate the whole.

Let us see what all this means. A place to work requires maintenance. It must be repaired and cleaned, heated and lighted and watched. A place to work bears taxes, rent and insurance and it also depreciates. Machines consume power and supplies, require insurance, attendance, repairs and cleaning and also depreciate. Men to do the work entail wages, liability insurance and supervision.

MATERIALS include provision for receiving, sorting, handling and shipping. Delivery of material alone may demand a heavy investment in trucks and garage, teams, wagons, and stable, forming, in fact, a compact separate miniature organization.
MANAGEMENT takes care of the buying, selling, financing and administration, purchasing agents, salesmen, accountants, stenographers, stationery, postage, telephones, legal expenses, engineering, advertising, traveling, and so right down the line of what are known as general or commercial overhead expenses.

Such is your manufacturing enterprise in crude outline. Elaborate it, departmentalize, unify and combine it, as suits your own requirements.

WORK—THE ACTIVITIES INVOLVED

That which gives life and vitality to your manufacturing enterprise is work,—something to do. It stirs the slumbering organism into action, starts the wheels a-grinding, the chimneys to smoking. How much work you can turn out,—what are the latent possibilities of your organization,—that is not often shown or demonstrated. Ordinarily your plant is idle sixteen hours out of twenty-four, and a day and one-half out of seven. Only in a great national crisis or emergency such as the recent war do we really speed up production and extract from our facilities the last ounce of usefulness. Otherwise we strike a steady normal gait of healthy activity below the limit of what we can do, above the limit of slacking or lagging. This norm, this mean or middle ground of possible capacity, is an ever-present fact in industry. It is there and should be recognized as a starting point in the discussion and treatment of industrial problems such as costs. Normal capacity is your 100° mark, above which your organization registers in times of excessive or unusual activity, below which it drops in times of curtailed production and demand.

NO WORK—OPERATIONS CEASE, BUT DO EXPENSES?

The even flow of work is subject to many interruptions. There are strikes and transportation tie-ups, machinery breakdowns, seasonal fluctuations, as in the ice business, and years of light demand, such as we are at present experiencing. What happens when there is no work or little work? Do the expenses incident to running a busi-
ness cease or recede accordingly? Your building still carries its taxes, rent and insurance, and needs about the same degree of repairing, heat, light and watching, and meanwhile it depreciates. Likewise your equipment continues to depreciate and requires insurance and some maintenance. Theoretically you can discharge your men, but practically you find odds and ends of work, nonproductive tasks, for the best of them, and of course you retain your superintendents and many of the foremen. You stop feeding the machines materials, but your money is still tied up, and the material deteriorates, and must be insured, properly stored and cared for. When it comes to the management, you cannot sacrifice your executives, your office, you best salesmen, your best engineers, accountants or clerks. Such are the considerable expenses incident to not doing business; expenses which go on for a considerable time whether or not you are doing a dollar's worth of business or work, expenses that must go on if the organization is to remain intact.

THE CONSUMER PAYS?

Since such interruptions of industry are still an ordinary incident of business, and carry a cost that must be reckoned, the business man hopes the consumer will pay for them. "I am offering a service to the community," he says. "If for considerable portions of time my facilities are unutilized, my plant and equipment idle, or marking time, I must include in my price an allowance for this item of suspended operation (inoperative contingencies the paper industry calls it); otherwise I cannot exist." Where facilities are based and attuned to the needs of the market, and are not a war-time mushroom growth, the demand of the business man does not appear unreasonable. The trouble very often is that his cost system does not show him how he can recoup such losses.

When the very considerable expenses of not doing business are applied in full to a reduced activity, very high costs result,—costs out of all relation to the true costs of production, and costs bearing no relation to what the market will bring. In such time two opposite tendencies
develop. On the one hand the business man who is a firm believer in his cost system refuses to take business except on a basis of his inflated costs and thereby further restricts business at a time when the crying need is for more and not less business. The more skeptical business man feels there is something wrong with his cost system, proceeds to ignore it and sells his product for whatever he can get. This treatment of the cost system is more largely responsible for demoralized markets and prices than is realized. Meanwhile the plant is bearing the full brunt of slackened activity.

A NORMAL YEAR—THE BUSINESS STANDARD

Our cost systems are far too rigid. Under cost methods still largely in use overhead expenses are spread too thin in times of forced production and, massed too heavily in periods of slight demand and production, giving in the former case costs that are artificially low and unfair to the management, and in the latter case costs that are artificially high and unfair to the public, and moreover costs which the market will not sustain.

For the sake of convenience, we split up our business into years and treat each year as though it were separate, distinct and unrelated, whereas no such sharp cleavage exists. Year merges and glides into year, one dependent upon and connected with the other. The injustice and inaccuracy of a complete and abrupt cut-off is clearly illustrated by an income tax law which heavily taxes the profit of one year, and makes no compensating allowances for the losses of the following or preceding year's operations.

Cost systems should recognize this continuity of time wherein any single year or month may or may not typify and represent normal production and demand. There are expenses, it has been shown, which continue whether the plant is idle or in operation, expenses that moreover, bear no direct relation to output. Cost systems should provide that these expenses, usually designated as overhead expenses, should be absorbed and pro-rated on the basis of a normal year,—that 100° mark on the business
thermometer. Thus, in time of unusual production,—production exceeding normal,—the overhead should be more than used up in costs, and a surplus out of overhead cost created to take care of those years when the output is below normal and the overhead charges not fully absorbed in the costs of that year.

To take a very simple illustration: Let us assume the normal output of a department is 100 pieces and the overhead $100, or an overhead charge of $1 per item. If the department produces 150 pieces at a normal overhead charge of $1 per item, not only will the $100 overhead be used up but there will an additional $50 as a reserve accruing to the management. When the output of the department drops to 50 pieces, only $50 overhead will be applied to this reduced production, and the difference made up from the reserve established during unusual production. This method of cost procedure has numerous advantages, two of which it is here appropriate to mention.

1. It will assure the business man a reward for his efforts in speeding-up.

2. It will eliminate the needless throttling of business by the impractical attempt to load semi-normal production with greater charges than can or should be borne.

OPERATION UNDER A NORMAL YEAR BASIS

The determining of a normal year is not an easy matter. It requires a long look behind and a far look ahead. It is by no means sufficient to accept the operations of the preceding year as the sole standard. The normal year is different for a new organization or industry from what it is for one long established. The normal year does not remain on a dead level but should probably curve upward gradually and conservatively with the growth of population and markets. To do otherwise would indicate industrial stagnation.
To establish normal unit overhead charges, two things must be determined:

1. Normal overhead expenses for the various departments of the business.
2. Normal production.

When the normal overhead expenses are divided by the normal production, the result is the normal unit overhead charge.

In determining normal overhead expenses, those expenses of the previous years which are accidental should be eliminated. An effort must also be made reasonably to anticipate and allow for the trend of expenses for the coming year.

But there is nothing conclusive, final or binding about this estimate of normal expenses. Each month your cost system gives the estimated overhead expenses and the actual expenses. If there is an increase of the actual over the estimated, and upon analysis that increase is found to be a real increase, due to unanticipated increase of salaries or insurance rates, etc., and not an inflation arising from reduced production, an adjustment upward can immediately be made in the unit overhead charges. Each concern will establish for itself a safety zone, below or above which decreases or increases in real costs will be reflected and taken up in the selling price.

In determining normal production due allowance must be made for interruptions of operation. Even in the job industries, which by necessity have been schooled to base overhead charges on a normal year, the tendency is still to base capacity on regularly operated machines. When these machines do not regularly operate, it is apt to go hard with the establishment. In a paper mill with a possible yearly operating time of 7,488 hours, the plant was idle 689 hours or not quite 10% of the time, because of the usual and customary interruptions from changing wires and felts, starting and stopping, repairs and high water. How transportation tie-ups, strikes, and slackened demand in many industries affect production is, of course,
familiar to all. In determining normal production, then
do not delude yourself by placing it too high,—at a mark
reached only in exceptionally fortunate years.

NECESSARY COST SYSTEM ADJUSTMENTS

Though cost accountants and industrial engineers are
prone to using strange and technical terms for it, the
accounting device used to secure operation on a basis of
a normal year is the now familiar one of the Reserve, or
a modification thereof.

For purposes of illustration, let us recall how a simple
reserve, such as the reserve for bad debts, operates. The
operating account “bad debts” is debited each month with
the estimated amount of bad debts likely to be sustained,
and the account “Reserve for bad debts” credited each
month with a like amount. As bad debts are actually sus­
tained, the amount thereof is debited to the Reserve for
Bad Debts. It is very easy to ascertain for income tax
purposes the amount of bad debts actually sustained dur­
ing the year by referring to the debit side of the Reserve
for Bad Debts, and ascertaining the estimated allowance
for bad debt by referring to the credit side of the Reserve
for Bad Debts.

So the estimated normal overhead expenses will be
charged into costs upon the particular cost method em­
ployed (man-hours, machine-hours, productive labor, etc.)
and likewise credited to the Reserve for Overhead. The
actual overhead expense will be debited to the particular
expense accounts, and closed out periodically to the Re­
serve for Overhead. Accordingly, the debit side of the
Reserve for Overhead will give the actual expense totals,
and the credit side the estimated expense. It is assumed
such a reserve for overhead will be subdivided in accord­
ance with departmental requirements, and where con­
venient the expenses will be scheduled.

The preceding has, moreover, left out of consideration
refinements recommended by cost accountants of the prin­
ciple of the Overhead Reserve, such as Under- and Over-
Earned Overhead or Burden, Overhead or Burden Var­
iance, Supplemental Rates, etc. These do not disturb the
essential principles set forth and are apt to confuse a simple presentation of them.

SOME MISUNDERSTANDINGS CLARIFIED

Certain misunderstandings arise concerning the distribution of overhead expenses on the basis of normal year which should be mentioned and disposed of.

1. *The setting up of estimated overhead charges based on a normal year does not mean the abandonment or compromising of actual overhead costs.*

The actual expense exists alongside of the estimated and one is compared with the other and differences analyzed and accounted for. To an executive such an analysis reveals the story

a. Of inefficiencies that must be eliminated;

b. Of advances or decreases in costs not anticipated;

c. Of costs artificially low or high because of sub- or abnormal production.

A cost system is built for service, not admiration, and must furnish information that will guide and temper the entire policies of an enterprise. At a time when more and not less business is needed, a cost system that literally interpreted instructs an executive to refuse business except on prohibitively high and inflated costs of production, falls down when most needed. Such a system, though arithmetically correct, presents results that are misleading and which may work serious injury. Accordingly, the actual overhead charges are checked, corrected, supplemented and eased by the estimate of expenses based on the normal year.

2. *It is not the intention to forego or wipe out a single dollar of overhead expense that can be legitimately and fairly charged to operation, sales or administration.*

That the management should bear the expense of sub-normal production is a point that has been stressed altogether too exclusively. Meanwhile not sufficient emphasis is given to the converse; namely, that the management should be rewarded for abnormal production. One is as fair as the other.
The balance in the Reserve for Bad Debts is not customarily closed out to Profit and Loss at the end of the year, but carried forward into the next year’s operations, since any one year may or may not be typical of the bad debts normally sustained. So likewise the production of any one year may or may not be normal, and the balance of the Reserve for Overhead, be it debit or credit, should accordingly be carried forward. If the estimate of normal capacity is reasonably low and cautious, such overhead expenses as have not been absorbed in one year will be absorbed and the losses recouped in the years of exceptional production, for in the long run the depth of the depressions will very nearly equal the height of the peaks.

FOUND FEASIBLE IN PRACTICE

What has been stated is elementary and suggestive. Its aim is to stimulate interest and encourage such changes as are necessary to meet progressive competition. The subject has been brewing for some time. It is referred to in the pamphlet of the Federal Trade Commission, “Fundamentals of a Cost System for Manufacturers,” published in 1916, and to its development numerous well-known cost accountants and engineers have contributed. Upon inquiry of the Fabricated Production Department, establishments in such widely separated industries as paper, cutlery, envelopes, stove, and metal products are operating on the basis of a normal year and upon this basis distributing overhead.

It will be useful to quote from the practice of one producer.

“Our whole cost scheme consists in the first place, of a budget, made up the first of each year, for every department, machine and production center. This budget must naturally be based upon past experience plus an intelligent estimate of the possibilities for the year. The hours of operation, or the production units are arrived at by taking an assumed 80% of possible operating time as a basis. In all these industries the standard week consists of forty-eight hours, or an eight hour day. Deducting Sundays and holidays we assume that the year consists of three hundred work-
ing days of eight hours each, or 2,400 hours. We take 80% of this, or 1,920 hours, as our normal unit. This figure used in connection with our budget of expense and operation gives us our normal rate.

"We use this normal rate at all times in figuring both estimates and costs. Last year most manufacturers operated more than this normal, with a result that their actual costs were less than the normal cost, and this gain was taken as a sundry profit.

"At the present time the costs are running considerably higher than the normal, and for some time at least we must absorb this loss, maintaining at the same time a standard normal rate, but not subject to the violent fluctuations brought about by any increases or decreases in the volume of business handled.

But the number and percentage of establishments so operating is indeed inconsiderable and to many the mere idea of distributing overhead on a basis of a normal year is novel and daring.

CONCLUSION

The treatment of overhead in the way indicated is not a panacea for all our industrial ills. The control of overhead in a manner fair to the business man as well as the consumer is one step and only one step toward realizing more stable prices and eliminating those wild fluctuations that culminate in industrial depressions. Such a consideration also points out this moral,—that the hope of permanent reduction of costs rests only in the greater, more continuous and more regular use and operation of our industrial facilities.

Thousands of firms went through the recent years of full-blast operation upon a basis of overhead distribution essentially unfair to them. A start in the right direction must be made, and upon such firms is urged the consideration of adjusting overhead charges on the basis of a normal year, and it is so suggested, both as an advance in sound cost accounting and as a measure to facilitate that business revival we all desire, need and anticipate.

FABRICATED PRODUCTION DEPARTMENT,
E. W. McCULLOUGH,
Manager.