

different from those which come from Jamaica and Trinidad. Although the quality of meat is in general the same, the yield, or what you may call rendement, varies considerably. It is practically impossible for us to weigh all the coconut meat which we produce. We, therefore, make test runs periodically, on each variety separately. If these figures check in general with the predetermined estimates which we have built up over a period of years, nothing further is done. If we find they are running above or below our standard, we engage in further check-up. This is very important, as the price, of course, fluctuates with each variety, whereas we are interested only in the cost per pound of finished meat.

The daily reports, of course, show a combination of the various types of coconuts which we have on hand. We substitute the theoretical raw-meat value of coconuts used on a percentage basis and compare this with the actual value. This is done daily. At the end of each month our cost figures are taken off and these figures are again carefully scrutinized to be sure that we are buying the varieties which will give the lowest cost in the finished merchandise. Bad coconuts are reported and very closely checked. This control has, of course, saved us a good deal of money.

The system we follow in packing dates is slightly different, due to the nature of the raw material. Here again we make certain preliminary tests, which in turn are followed up by monthly figures. If the results secured are in line with the original tests, nothing further is done. If they do not coincide, we investigate further.

In producing citron, lemon and orange peel we have a very much more complex problem, inasmuch as it takes several weeks to preserve with many syrups used in the process. However, we establish a certain standard and at the end of each month make comparisons. We have found, in this particular instance, that one of the guiding points is the inventory, not of raw material, as might be expected, but of the preserving syrups. This, as you can readily understand, is very difficult. These syrups change during the course of the process so that you cannot check daily to see how much 80, 70, 60 or 50 per cent syrup you have. You can do such work only periodically.

We have certain standards for our Dromedary grades. In addition to a check by each production unit to see that the grade is lived up to, samples are regularly taken from cars as they are being shipped and sent in to our main office for checking.

It is very difficult to lay down any set rules for quality control. It varies with every product and every company. It is, however, most essential, though more difficult in businesses such as the steel business than in ours. We, of course, have a laboratory that makes routine examinations for quality, but our products cannot be controlled entirely by laboratory analysis. Our control has to be right on the floor.

May I express my appreciation of the honor you have done our company in asking me to tell you the system which we employ for administrative control. Although relatively large in our field, we are a small company. We try, however, to be progressive and at the same time to keep our control records in as simple a form as the volume of our business necessitates.

Discussion

Alden C. Brett.² I am very glad to have this opportunity to discuss Mr. Davis' paper with you, not because I know anything about Mr. Davis' business, but because I believe that the *principles* of control are the same for The Hills Brothers Company, the Hood Rubber Company, or any other organization. It is, therefore, these principles I want to discuss with you for a few minutes because, if we are to take anything worth while away from this meeting, it will be a better understanding of principles and not a knowledge of routine.

I want to give you my definitions of these principles, to try them out on you and then test Mr. Davis' operations against them; or perhaps I might better say, test my principles against what Mr. Davis has found it advantageous to do.

These principles in my own thinking I summarize under five headings:

To control you must *first* know the facts about your business. This means:

1. You must know the facts concerning current operations, reports, balance sheets, profit-and-loss statements, ratio statements, statements of cash position, etc. These all tell you what you are doing or what your position is at any particular time.

2. You must know the facts about the field in which you operate. This involves commercial research, knowledge of the potential demand for your product, who your customers are, where they are located, and how they can best be reached.

²Comptroller, Hood Rubber Co., Inc., Watertown, Mass

3. You must know a good deal about the outside forces which affect your business: its status in general industry, whether in a growing or declining field; its relation to supplementary products, substitutes; its relation to the whims of fashion, the condition of the weather, and matters of a similar kind. Some of this knowledge is general, but most of it is special to your own business; and it is all of vital importance to you.

4. You must know the relation of your own business to competition, what proportion of the market you serve, the names and character of your competitors, where they are strong and where they are weak, whether they are co-operative or whether they are antagonistic. You must know a good deal about your industrial trade association, if you have one, and to what extent it can be used as a method of furthering your business aims.

5. You must know all there is to know about your product; not only about your own product but about allied products. And when I say "you," I do not mean that you as the administrative head must necessarily know all these things, but you must have this knowledge readily available to you in your own organization.

All this comes under the first major thought of knowing the facts about your business.

The *second* principle is this: To control you must have a plan; you must know where you want to go, when you want to go, and how you expect to get there. This means a budget. And I think Mr. Davis has brought out very clearly in his paper the need for a budget and the advantages and gains in his own organization through the use of it. In our own company the budget is one of our most valuable tools. I will speak of it in some detail later.

The *third* principle is this: You must develop standards. I differentiate between the budget and standards, although they are closely related to one another. In fact, standards are absolutely dependent on the budget. They are the parts which make up the whole. Standards are the operating tools of control. When we say standards we usually think of standard manufacturing costs, as these are the best known. We must have, however, many others; such as sales standards or quotas; standards for distribution expenses; standards for wage payment; financial standards, etc. As a general rule, standards must be realizable; standards must also be flexible so that all factors beyond a foreman's or executive's control are eliminated and his standard represents only those things which he can do something about. At Hood we operate largely

on a flexible budget for the principles of which we are indebted to John Williams. I look on him as the originator of the plan of flexible budgeting, and I know that any progress we have made in that direction has been on account of the ideas left with us in 1921 when he worked with us for a considerable time on the budgeting of our Distribution Department.

This is the *fourth* major principle: You must develop simplicity in your plan of control so that it will work. One of our greatest authorities on the science of management has said, "When you find it, it will be simple," and I believe we can test all our plans by this truth. After we have perfected our means of control, if it has not been boiled down to a series of comparatively simple and readily understandable operations it will not bear the test of time. If you will consider your own experience you will find that many of your plans, right in principle, and based, perhaps, on a considerable amount of research and investigation, have failed because you have not been able to make them simple in application.

The *fifth* consideration of major importance in administrative control is this: You must develop in your personnel the ability to understand the methods set up and to operate the systems you have devised. They must be able to develop the plan and keep it alive, and this involves a knowledge of the principles underlying it. In the final analysis, you control your business only through the individuals who do the work. All your thinking about your problems must be in terms of people. That is why our accounts are set up by responsibilities and reports are rendered showing the results of the operations controlled by a single person. This is another principle we learned from John Williams.

These, then, are my five principles of control and I will repeat them in a few words:

1. Know the facts.
2. Have a plan.
3. Set up standards.
4. Make it simple.
5. Find the right people.

Let us see whether or not we have the counterpart of each of these in Mr. Davis' plan of control. To start with Principle 1: Does he know the facts concerning his business?

In the first part of his talk he has shown us a set of very excellent charts. The first was a bar chart of stock on hand; the second, a line chart showing dollar value of supplies; the third, a sales curve