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It would seem that communications would be fairly simple in a small company. But if the company has seven production plants scattered across the country? Here are some of the solutions found by one firm—

MANUFACTURING COMMUNICATIONS IN A SMALL, MULTI-PLANT COMPANY

by Fred D. Bauce

The Milford Rivet & Machine Co.

IT is widely assumed that, because fewer people are involved in a small multiple-plant company, it's relatively easier to communicate well than it is in a large, one-plant firm. This would seem to be particularly true if each plant makes essentially the same products.

We have found at The Milford Rivet & Machine Co. that this assumption just isn't true. Milford is a small firm (a fully independent subsidiary of Raybestos-Manhattan) with seven manufacturing plants at six different locations from Connecticut to California. Five plants, which we call divisions, make rivets and cold headed products, one plant makes rivet-setting machines and tools, and one plant produces tools for cold heading machines. We have had to work hard over many years to develop and then maintain what has now become, we believe, good commu-

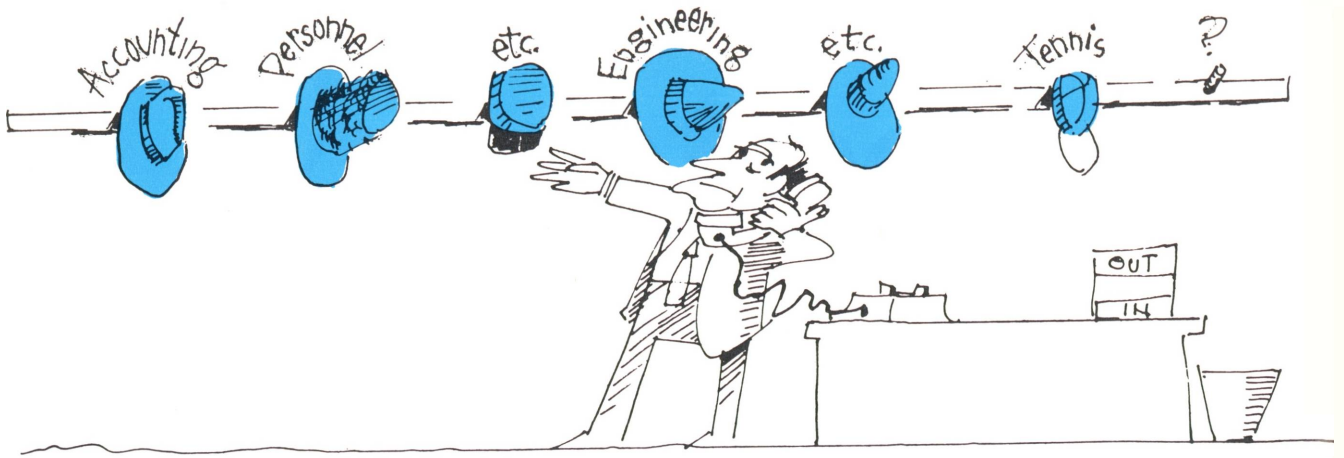
nications between and within all our manufacturing plants—and we know we must continue to work to maintain and improve it.

The division manager

The key people in communications among the seven divisional plants in Milford, which range from 45 to 100 employees each, are the division managers, who are primarily manufacturing executives. Communications must help the division manager in realizing the full benefits of operating an autonomous manufacturing plant as well as being an integral part of a larger corporation. As an independent plant, he is closer to his markets and has more opportunity for personal contact with suppliers and customers. His division is small enough to respond quickly to changes in the marketplace and to easily introduce changes in purchasing practices.

On the other hand, as part of a large corporation, he has ready access to capital, a research and development staff, and a marketing organization far larger than he could ever have as an independent firm.

With these advantages, however, the division manager of the individual plant in smaller companies faces some inherent drawbacks. The staff functions such as accounting, personnel, and plant engineering that may be available to the division manager on a corporate level cannot be expected to fulfill all the needs that develop on a divisional level. At the same time, with a multi-plant company, large or small, it is common practice to keep the staff organizations in individual plants very small so as to minimize the extra cost of the inevitable overlapping in function between corporate and division. Therefore, with a very thin staff,



Each division (plant) manager must assume many of the functions that would be taken on by others in a single-plant company.

a division manager finds himself performing many staff functions that would ordinarily be done by someone else in the organization.

Management's approach

To support the division manager, corporate management must establish operating policies—and revise them as the need arises—that will allow each manager to best achieve the full benefits of both the small plant and the larger corporation. Authority and responsibility must be allocated on corporate and divisional levels so as to maximize the overall effectiveness and profitability of each division. Certainly, each divisional plant must be considered as a profit center and adequate up-to-date financial information should regularly be supplied to the division manager. At the same time, to take advantage of the special knowledge and skills of individual managers, a means must be

provided to permit them to participate actively in corporate-wide planning and operations.

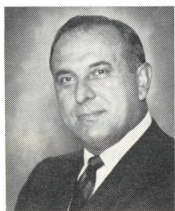
An important corporate function to us at Milford, for example, might be called “keeping the jars level,” that is, taking advantage of the multi-plant organization to maximize both production and customer service. Everyone benefits when corporate management minimizes fluctuations in production load at individual divisions, avoiding higher overtime rates at overloaded plants and minimizing the necessity for temporary layoffs at underloaded plants. Milford tries to maintain a consistent 45-hour week in each division by shifting production loads as necessary, but always within the limits of optimum service to the customers.

With regard to customer service, the plant vacation levels are staggered so that some production capacity is continuously available. A large New England customer, for example, wanted to ensure delivery of a component that, because of special tooling, was made only in the Milford Division. Arrangements were made to produce this part in the Penn Division and Ohio Division plants during the Milford Division's vacation.

To accomplish all this, corporate management must provide the means for regularly distributing accurate, up-to-date management information at all levels. In addition

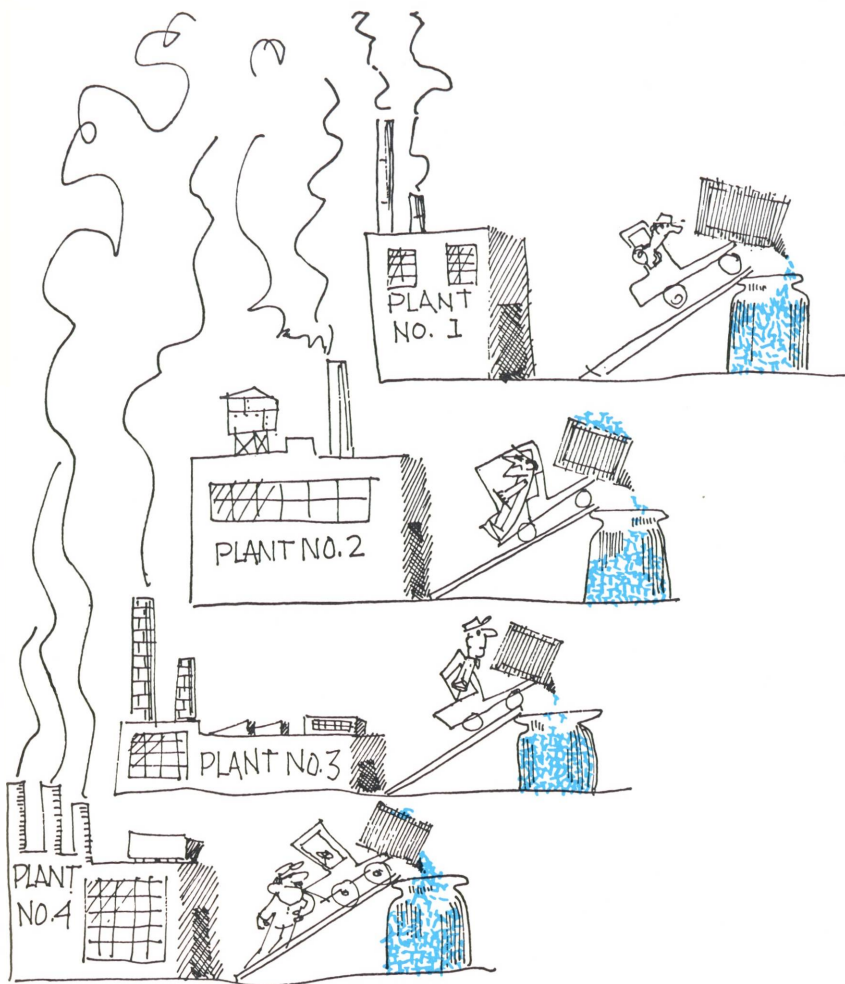
to such a formal information system, management must also encourage constant person-to-person contact in transacting the day's business. A corporate acquisition and its significance were announced to all division managers together on a conference call from the Milford headquarters. Conference calls are also used in discussing wage and price matters, in reviewing production backlog and inventory status, and in exchanging technical information on manufacturing methods, among many other subjects. Milford's top executives all have their offices adjacent to each other at one location, and spend a good deal of time in informal discussions in which immediate problems can be evaluated immediately, and decisions often made right on the spot. Similarly, we have always stressed the use of WATS (Wide Area Telephone Service)—at a cost of \$16,000 per year—in place of memos in plant-to-plant communication. Whenever possible, verbal communications between the plants and corporate headquarters are encouraged, rather than discouraged.

This may seem like heresy to firms that emphasize always “write it down.” Our philosophy is, “When speed is necessary, use the WATS line; if the situation's really critical make a direct call.” Our reason is simple. A fast turn-around time is vital in our business. Rivets, although necessary, are small; many of



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One important corporate function at Milford is "keeping the jars level": balancing the production loads at each of its seven plants.

our customers don't even carry them on their inventory. Yet when they're needed, they're needed in a hurry. As a result, each of our plants gets a large percentage of rush orders. In such a situation, when a customer needs a reply today as to whether he can have his order filled by the end of next week, it's almost essential that we use plant-to-plant telephone communication. If the first plant can't fill the order in time but Division B in another state can, the only way the customer can get his reply today is through a phone call to the Division B manager.

We don't dispense with the written word altogether. Providing Division B can fill the order in time the division originating it sends through a sales order. So there is a written record. But first there is a phone call.

And the customer gets his reply as to whether we can or cannot

meet his schedule the day he makes his request.

Formal communications

The main element of formal communications at Milford is the scheduled meeting of division managers. They meet with corporate staff people at Milford headquarters in January or February for review of the preceding year and planning for the current and future years. Subjects covered on both a plant and corporate basis include P & L experience, balance sheets, return on investment, inventory turnover, capital expenditures, and industrial relations. The company-wide participation by division managers has helped greatly in developing their personal capacity as managers and their interest in the overall corporation.

In late spring and in the fall, the

The main element of formal communications is the scheduled meeting of division managers at corporate headquarters in January or February of each year. There they review the year just past and make plans for the current and future years.

division managers alone meet at a division plant to discuss specific manufacturing problems, without involving the corporate staff. The corporate accounting staff then visits each division plant in the fall to help the division manager set up forecasts for the following fiscal year.

Committees aid managers

In addition, ad hoc subcommittees are formed to review particular problems and recommend solutions to the division managers and corporate staff. For example, a subcommittee was formed to review standardization of wire material specifications.

Milford recently introduced the MP-X Metal Piercing Riveting System for high-production machine riveting without prepunched holes. The MP-X System, which can be used on standard automatically fed Milford rivet-setting machines, includes a special alloy steel rivet of new design and a radically new rivet clinching tool.

Results in one year

In mid-1970, a divisional manager's subcommittee was formed specifically to develop the MP-X system. At that time Milford had been making an older-style metal-piercing rivet for years, mostly at its Penn Division, and a new market seemed to be developing on the West Coast, served by the Pacific Division. The Marketing Department felt that there could be a significant increase in the application of metal-piercing rivets if greater thicknesses of metal could be pierced and if a more consistently good clinch could be achieved. The metal-piercing subcommittee was formed under the direction of the Penn Division manager and included the Pacific Division manager, the head of Riveting Service, and a Milford specialist in machine application. The manager of the Machine Division also participated because it was recognized

that the new riveting system involved machine structure and tool design as well as the rivet itself. The subcommittee assigned various materials testing projects to division plants, received reports on progress, and ultimately established a standard line of metal-piercing rivets. The MP-X Riveting System was announced by the Marketing Department less than a year after the committee was formed.

Management information reports

The Financial Division of Milford's corporate staff is responsible for generating periodic financial reports for the division managers. See Exhibits 1 and 2 on pages 21 and 22. These reports to each division manager include:

A. *Weekly* — productivity, efficiency, equipment utilization, and production cost by man, machine, and shift.

B. *Monthly*—division P&L statement, covering the data on which the bonus is based, and a profitability analysis report itemized by product.

Our division profitability reports are a little unusual but they work well. If Division A, say, gets a rush order that it can't fill, it may find that Division B can. Division A orders the necessary products from Division B and pays the full list price for them. That goes on Division B's profitability reports, of course, as a regular sale. But then Division A gets credit for the sale of the original order to the original customer—and that sale goes on its profitability report. A memo goes on the record to keep the accounting straight and both Division A and Division B get credit for their sale—Division B to Division A, Division A to the original customer—on their profitability reports.

This costs more money in terms of bonuses but we feel it is more than worth it. Each division, rather than just one, gets a profitability report which is reflected in its

. . . ad hoc subcommittees are formed to review particular problems and recommend solutions to division and corporate staff.

EXHIBIT I

PROFITABILITY ANALYSIS 3RD QUARTER 1972

CUST NO.	PROD D	AVERAGE SELLING PRICE/M	TOTAL PCS SHIPPED	TOTAL \$ COST	TOTAL \$ SELLING PRICE	PROFIT AT STD	COST PLUS VARIANCE	ACTUAL PROF %
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HEADER MACHINE PRODUCTIVITY ANALYSIS BY OPERATOR W/F OCT. 10, 1971

C S NO.	NO.	SIZE	TYPE	MACHINE		NET PRD.		MAN		TOTAL GROSS M. PAY	MCH. HRS.		M. PCS.		MCH. PER MCH. HRS.	M. PER MCH. HRS.	PAYROL RIVETS	
				ASSIGN G R.	HRS. SU.	BK. RTE.	ACT. RTE.	HRS. WKD.	NO. SU.		UTIL. %	ACTUAL	PER	PER				
1	1	2	43	1875	HYPRO	40	12	28	5.4	5.4	40	4	219.0	.14	.19	.1	5.5	40.6
1	1	2	44	1875	HYPRO	40	6	34	23.9	23.9	2	2	378.9	.60	.70	.6	9.5	15.9
1	1	2	73	10	HYPROSDE	40	3	37	29.9	29.9	1	1	359.0	.75	.81	.7	9.0	12.0
1	1	2	74	10H8	PROSDE	40	3	37	35.8	35.8	1	1	430.3	.90	.97	.9	10.8	12.0
TOTAL						160	24	136	95.0	95.0	40	8	1387.2	.59	.70	2.4	34.7	14.6

PROFITABILITY ANALYSIS 4TH PERIOD 05/06/73

CONNECTICUT DIVISION

406 ACCOUNT

CUST NO.	INV NO.	M PART NO.	F	AVERAGE		TOTAL PCS SHIPPED	MATERIAL \$ COST	LABOR & OVERHEAD \$ COST	TOTAL MFG COST	DIVISION & CORP. S AND A	STD COST	TOTAL \$ SELLING PRICE	PROFIT AT STD	COST PLUS VARIANCE	ACTUAL PROFIT %
				SELLING PRICE/M	SELLING PRICE/M										

Some of the periodic reports generated by computer at corporate headquarters.

bonuses, so there is no hesitancy in A feeding its order to B and no reluctance on the part of B in handling the order.

C. *Bimonthly*—orders received, shipments, production output, backlogs and costs, both current and for the comparable period in the previous year.

D. *Quarterly*—division profitability analysis by individual customer and a corporate operations report covering sales, costs, and profitability by division and by product. Operating expenses are given in cost per pound or per 1000 units. All data are compared with both the previous quarter and year.

Staff economies

At both the plant and corporate levels, the ability of managers to plan and control has been very much enhanced by these reports.

The staff of the Financial Division has remained at 16 people for almost the last nine years (it is 18 today). Although the company sales volume has tripled in that time, introduction of improved management techniques and extended use of the computer have increased the efficiency of corporate accounting operations. At the same time book-

keeping and other clerical work at the plant level have been significantly reduced.

We don't have any hard or fast percentages by which we can gauge the effect of all this in clerical efficiency. Our seven divisions were all originally independent companies and each had its own office staff.

As the divisions were merged over the years into one organization, most of them cut office staffs as payroll and other routine duties were assumed by the corporate staff. As for the corporate staff itself, we had a staff of 15 people in 1963 before we centralized so many functions. Our sales volume in that year was approximately \$6,000,000. Today our volume is three times that; we have cut staffs by attrition in most of our divisions.

Our headquarters office staff today: 18.

Division managers frequently travel to other Milford plants, supplier plants, and, with sales representatives, customer plants; plant superintendents and foremen exchange visits. On corporate management's side, each division manager routinely receives at least several working visits by top management every year and is in telephone

contact nearly daily with corporate headquarters, individually or in conference calls.

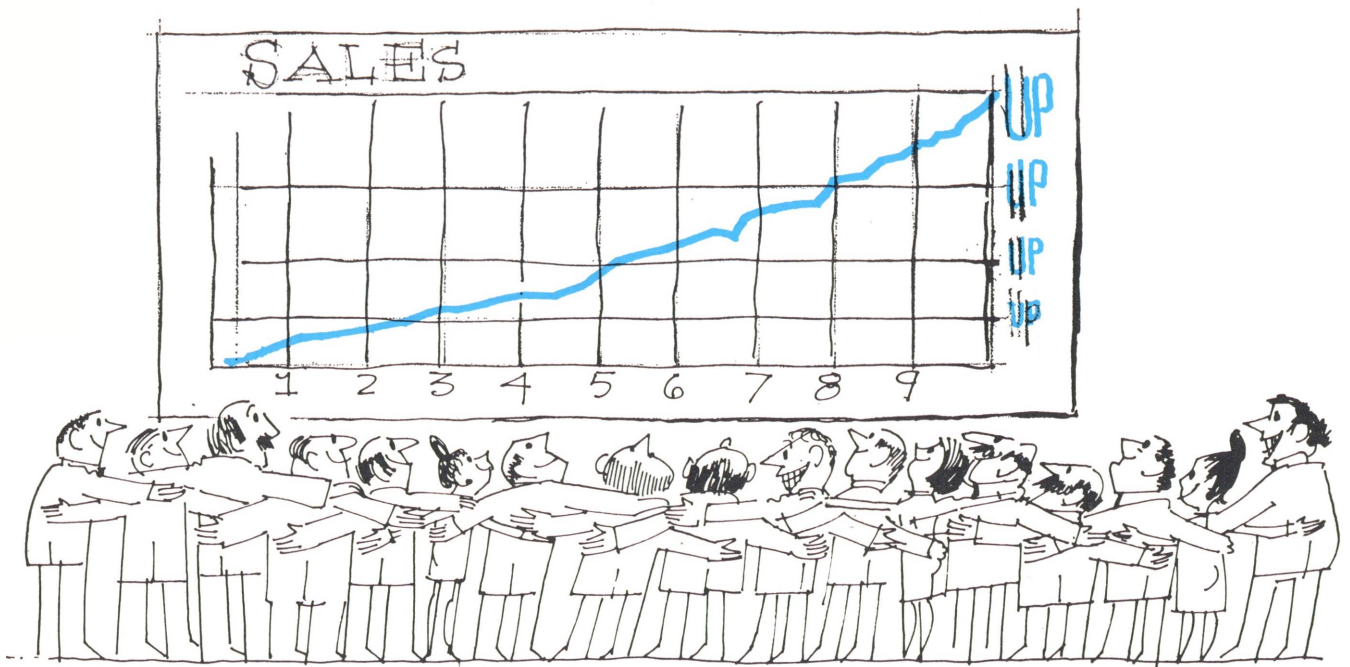
Our approach at Milford has been to centralize only when the individual plant and corporation as a whole both benefit. Tool design, machine rebuilding, and cold heading development, for example, are all consolidated. Perishable tools, materials, lubricants, shipping containers, and plating supplies are centrally purchased in larger quantities to reduce cost.

The principle of autonomy for each plant is preserved since the plant manager orders what he needs of these products but he orders them from a list of suppliers from whom we get a favorable price because of our overall volume purchases. These suppliers were chosen by headquarters and the plant managers acting as a team so we were assured that the suppliers' products were at least the equal of the best used in any given plant.

We get a price benefit without any absolute guarantee of how much of any one thing we will buy in any given year; we set maximum and minimum amounts and the supplier plans within these limits. So our plant managers, when they

EXHIBIT 2

PERIOD	THE MILFORD RIVET & MACHINE CO. _____ Division <u>STATEMENT OF INCOME & EXPENSES</u>		YEAR-TO-DATE
		SALES	
		Interdivisional Sales*	
		Rental Income	
		Leased Machine Sales	
		Less Returns	
		Less Discounts & Allowances	
		NET REVENUE	
		STANDARD COST OF SALES	
		Material	
		Direct Labor	
		Manufacturing Expense	
		GROSS PROFIT	
		Material Variance	
		Direct Labor Variance	
		Mfg. Overhead Variance	
		Outside Plating Costs	
		Outside Labor Purchased	
		Other Expenses	
		MANUFACTURING PROFIT	
		Division Administrative Expense	
		Division Shipping Expense	
		Commissions	
		DIVISION OPERATING PROFIT	
		Provision for Contingencies	
		Marketing Expense	
		General Administrative Expense	
		Other Income & Expenses (Net)	
		NET PROFIT BEFORE TAXES	
		Includes Interdivisional Sales @	
		Standard Cost + % Mark Up	
		Tools + % Mark Up	
		Net Profit Before Taxes--Cust. Sales	



Staff of the Financial Division has remained at 16 people for almost the last nine years while company sales volume has tripled.

write an order, have some of the advantages of drawing from stock.

Inventory control, too, seemed an outstanding candidate for centralization in 1969, when the Financial Division installed a more powerful computer system. In theory, the computer system would permit closer control of inventory on a corporate basis and do it at lower cost. But it was found that each division manager had frequently made good use of his knowledge of local companies, their qualities as suppliers and as people, and the special conditions involved in working with them effectively. Since much of this information could not practically be stored in a computer and, anyway, applied only to individual plants, it was decided to leave inventory control for such locally purchased items in the hands of the division managers. The Financial Division now provides the divisional manager every month with an inventory report, covering such items as material quantity status and turnover rate. The decisions involved in maintaining adequate inventory as production level changes in quantity and product mix are made by the individual division manager.

Similarly, all decisions on invest-

ments in capital equipment up to the mid-60s were made at corporate headquarters. It was decided a few years ago, however, that the division manager should have a responsibility in determining capital expenditures. He is certainly in a better position than the corporate office to anticipate the need for new equipment and project how it would affect his plant's profitability.

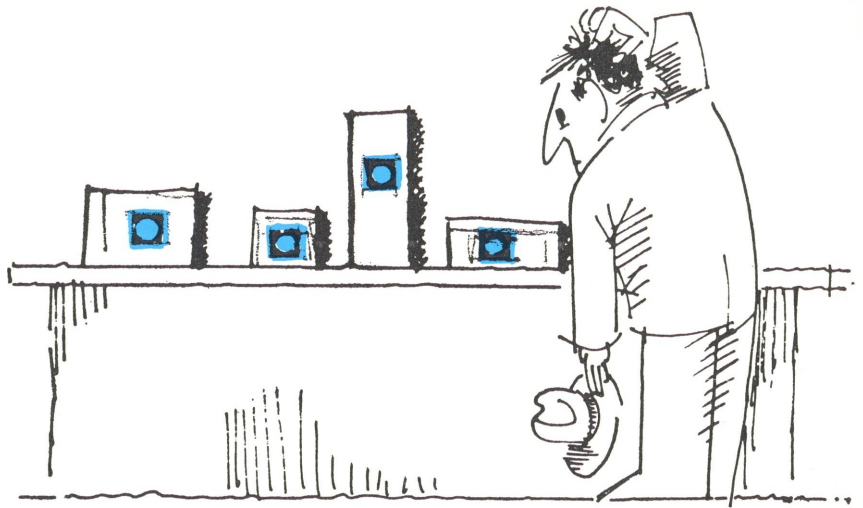
In justifying his capital expenditures, he is competing with the other division managers for a share of available funds. To implement this responsibility, a capital investment procedure was developed for division managers to use formally once a year and at any other time as their needs evolved.

It works like this: In the fall of each year each division manager makes up a schedule of the new capital equipment he would like for the following year and then works out the anticipated return on investment it would give. He arrives at this by using a standard formula which we have supplied him which takes into account the original price of the piece of equipment, its expected life, and the contribution it can make to his division's profitability. These reports are all sub-

mitted to headquarters. If we have, say, \$500,000 available for capital investments and all the requests come to \$499,000, there is no problem. Everyone gets whatever he wants provided the return on investment exceeds the purchase price in ten years or less. If the total of requests comes to a figure higher than we have available for capital investment, some balancing off is necessary and this is done at headquarters in consultation with the plant managers. If Division A wants a piece of equipment with a high ROI and Division B wants something else with a much lower ROI, the Division B manager will be called and told that money is tight this year and that Division A's proposed purchase promises a much quicker return than his.

So, to a degree, it might be said that our division managers initiate the capital expenditure budget and have a certain weight in discussions concerning it but overall responsibility, of course, has to remain at headquarters.

Joint action by divisions must also be justified in terms of the benefit to the individual manager and to the corporation as a whole. For example, each division manager at one time bought packaging



At one time each division manager purchased packaging from local sources so no two company cartons were alike. Marketing suggested standard packaging throughout the company, and the Financial Division proved that each plant would either break even or actually save money.

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from suppliers located near his plant. As a result, although each package displayed the company logotype and basic identifying information, there was substantial variation in carton styles. The Marketing Department at corporate headquarters requested that the packaging be standardized to better stress Milford as a company with five rivet manufacturing divisions rather than five separate entities grouped as a company. After an entirely new packaging series was designed and approved, the Financial Division made an analysis of how the change would affect the packaging costs of each division independently. The analysis showed that every division either broke even on packaging costs or actually saved money. Both the new packaging styles and cost analysis were presented at the same time—and what was a drastic change was introduced quickly and smoothly.

Local supplier

With the highly competitive nature of rivet manufacturing, it is important that Milford's having five rivet producing plants be as advantageous as possible to its customers. A system of interdivisional transfers has therefore been set up to combine the virtues of the relatively small local supplier and the

multi-plant company. The single plant that is closest to the customer, of course, can assure minimal freight cost and in-transit time and so is normally the preferred Milford supplier. If the local plant cannot meet the customer's specified delivery date on a particular order, another division may be called to produce the order. Since this arrangement also helps to keep the production jars level, both the customer and the corporation benefit (the profitability in producing the order may be lower, however, in that the corporation must absorb any extra freight cost).

Similarly, if a division plant gets an inquiry on a part that it can't produce because it does not have machines that are large enough or of the right types, the inquiry is sent to another plant that is capable of producing the part. A particular division plant may also have the machine capability to produce a new part but may not happen to have the necessary skills at the time. Operators, foremen, production superintendents, and even the division manager may then go for training to another Milford plant which knows how to make the part. With all this, the corporate marketing organization is able to assure customers of a multiple source of supply—two or more Milford divisions—with one set of paper work.