three months the spoilage had been considerably in excess of the limit set. When this was noted at the end of the first month, better training facilities were provided for workmen, which resulted in such rapid improvement that by the end of December the total spoilage was well within the schedule.

The service rendered by a company to its customers is difficult to measure, but at least an indication is secured by a statement of broken delivery promises. The chief executive wished to build up a reputation for making good on every promise, because he knew what a valuable asset such a reputation is. The chart indicates that the allowance of 50 broken promises per month had been bettered. The executive took advantage of this opportunity to congratulate his superintendent on his success in reducing the number of broken promises and they agreed that for the following year they would set a standard of 25 per month.

Work Ahead of Plant Definitely Known

In making his plans for the future one of the first things this executive wanted to know was the amount of work ahead of his plant. He had three shops, each turning out a varied product, so that a quantity of goods as an indication of work ahead was of no value. However, a per cent of the capacity of his plant which was covered by orders gave him definite information. The total capacity of his three shops was 12,000 machine hours per month. The chart shows that on the first of January 60 per cent of the capacity of the plant for that month was covered by orders, in February 50 per cent, and so on. These orders could be turned out only on certain types of machines and therefore could not be completed until May, but a comparison of the total work ahead with the total capacity was shown by a heavy line which indicated that there was less than two months' work ahead.

Sales Quotas Compared with Orders Received

At the beginning of the season the chief executive had set his quota of sales at $3,750,000. This total had been split up into monthly quotas in accordance with the seasonal variation of previous years. The chart indicates that at the end of six months the total orders received were almost a month behind the quota.

In working with quotas during previous years the chief executive had been confronted with one exasperating difficulty. When he asked his sales manager to explain why the volume of orders received was less than the quota, he usually received the reply that business conditions during the period were not so good as had been expected when the quotas were set. On the other hand, if sales had exceeded the quota, the sales manager had never attributed his success to good business conditions. The chief executive was irritated, not by the attitude of the sales manager, but by the uncertainty in his own mind as to what proportion of success or failure was due to business conditions and what was due to sales policies. He wanted the influence of general business conditions made clear so that the comparison of orders received with quotas would accurately reflect the efficacy of sales policies and their execution.

The chart shows that actual business conditions turned out to be close to the forecast during the first few months, but later had not come up to expectations, so that at the end of six months general business was almost half a month behind the quota. This made it clear to the chief executive that half of his shortage of sales might be ascribed to business conditions, but that some other reason would have to be found for the remainder of the falling off.

Costs and Other Operating Data Charted

Under operating data there were grouped six of the most important matters connected with the operation of his plant, with which the chief executive wished to keep in touch. The first was factory costs. The operations on the various products of the plant had been studied and standard costs developed. The chart indicated that at the end of December the cost of the work put through the plant had exceeded the standards by about 12 per cent. The light lines, however, showed that the costs had been lowered month by month and that in December they had been inside the standard.

In arriving at these standard costs the overhead expenses had necessarily been predetermined and obviously the executive wanted to know whether or not the actual expenses were kept in line with the budgeted amounts. The chart shows that the actual expenditures were within the budgets, which indicates that the machine rates in use were approximately correct; that is, the predetermined expenses which had been charged by means of machine rates into the cost of the product or into idleness accounts were close to the actual expenses. If the cumulative line had been shorter, it would have indicated that the machine rates had been too high and the value of the inventory inflated. If the line had been longer, it would have meant that the predetermined rates had been too low and that the cost figures in use did not cover the entire cost.

At the beginning of the season the chief executive knew that he would not be able to run his plant at full capacity, but he wanted to keep before him throughout the year a record showing what part of the plant's capacity had been used. The chart shows that during the first half of the year he had been able to make use of only two-thirds of its capacity.

In order to keep before him the actual cost of maintaining part of the plant in idleness the chief executive set a limit of $22,000 per month to cover this idleness cost, but the chart shows that he was not able to keep within this limit and had gone almost $20,000 beyond it during the first six months.

The inventories of raw materials, work in process and finished goods were in the opinion of the chief executive too high in proportion to the probable sales. He therefore aimed to turn over the investment in inventories twice a year, hoping that the following year it could be turned over three times. Instead of charting the total value of the inventory against a predetermined amount it was found better to chart the additions to inventories and the withdrawals in order to find out to what extent the additions should be speeded up or slowed down.

The chart indicates by means of a heavy broken line that at the beginning of the season the inventory had exceeded the six months' turnover by a little over two months. At the end of the half year the cumulative lines showed that the additions were a month and a half ahead of schedule and withdrawals a little more than a month behind, the net result being a larger inventory than at the beginning of the period.

The company's investments in land, buildings, machinery and equipment, which for the sake of brevity were referred to as capital accounts, were watched by the chief executive to see that they did not grow too large for the volume of business and, on the other hand, to see that enough money was spent to keep the buildings and equipment in first-class condition. During this season in which he did not expect capacity business, the executive planned to buy no more equipment, but merely to keep his present buildings and equipment in good condition. He therefore made the budget for additions equal to the depreciation to be charged off.

The chart shows that at the end of six months $20,000 less had been spent for additions than had been charged off. At a first glance this would appear to indicate poor judgment, for in spite of the fact that the inventory had been too high at the beginning of the period, it had been increased, while the buildings and equipment had not been properly kept up. However, this had been done by the chief executive deliberately and with full knowledge of the facts. In order to avoid laying off old employees, and possibly losing some of the most faithful and skillful workmen, he had decided to manufacture for stock during the first three months until the volume of orders should so far increase as to keep his working force busy. The result was, of course, a higher inventory, but it was considered wise to take some money out of capital accounts in order to avoid laying off old employees.

Information Relating to Employees Included

There were a few facts in regard to employees on which the chief executive was particularly anxious to keep informed. He did not regard industrial accidents as necessary evils and felt that he had no right to place his employees in dangerous positions even if they were willing to run risks for the sake of wages. He had initiated safety-first campaigns, had guards and safety devices attached to machines and had taken every possible precaution against accidents, but he knew that foremen and supervisors were likely to become discouraged when workmen did not take advantage of the accident prevention devices. Accordingly, he had reported to him each month the time lost due to accidents so that he could observe any tendency toward negligence. The chart shows that the limit of 400 hours lost per month has been exceeded, but the executive believes that the steps he has recently taken will considerably improve the situation.

The chief executive knows that one of the strong desires of employees is for steady jobs and he has therefore done much to reduce his labor turnover. He has smoothed out the peaks and valleys of production in order to provide steady work and has maintained a good training service in order to enable his workmen