line. A board of directors consisting of specialists of this kind is vastly more efficient and better able to manage the business, even although they may personally represent but a small part of the financial holdings, than the boards as usually constituted.

The president of the company, or the chairman of the board of directors—it is a matter of name merely—should virtually be the king of the whole business, and should lead his board of directors rather than be a tool to be guided by them in detail; and when it becomes impossible for the president to lead in carrying out the general policy of the board, another man should be selected for the head of the business who is in harmony with their wishes and competent to lead them.

Now let us consider the reports which the general manager should regularly receive as guides in the conduct of the business. These reports should show:

1. *A daily statement of cash and related transactions.* This should show:

a. The previous cash balance, receipts, disbursements and the remaining balance in each bank in which the company maintains an account.

b. Customers' orders, the previous balance, orders received, orders shipped and the remaining balance of unfilled orders. If necessary this may be shown for each of the major classes of product.

c. Accounts payable, the preceding balance, reductions by cash or other credits, additions and the remaining balance.

d. Notes payable (in the same manner as the foregoing).

e. Accounts receivable (in the same manner as the foregoing).

f. Notes receivable (in the same manner as the foregoing).

g. Purchases, the previous balance of unfilled purchase orders in dollar value, additional orders issued, reductions by goods received and invoiced and the remaining balance. If desirable this may be made to show goods in transit.

This group of reports should be on the general manager's desk at an early hour each morning in a form so devised as to be in the main self checking. It should also show such things as cash requirements to meet payrolls and other obligations for designated periods in advance.

2. *A weekly statement of plant operations.* This report should be so devised as to enable the general manager to see almost at a glance whether or not the plant is being operated at a rate compatible with the needs of the business. It should show in terms comparable with sales and shipments the balance of uncompleted production orders ahead in the plant, the production orders released for manufacture during the week and the remaining balance of work ahead of the plant. If orders are being put into the plant at a more rapid rate than sales are taking place, inventory inflation will in all probability result. If orders are being completed at a more rapid rate than sales it will mean one of two things. Either the plant will soon be out of work, if production orders are being put in at a rate corresponding to sales and completed at a more rapid rate, or, if they are both being put in and completed at a more rapid rate than sales, increased inventories will result. On the other hand, if the report shows that orders are being put into the plant at a lesser rate than sales and if customers' orders are being filled promptly, there must result a decrease in inventories. If the excess cannot be shipped out of surplus inventory, deliveries must suffer.

A simple report like this enables comparison of the rate of plant operation with sales and makes it possible for the general manager to foresee the need for speeding up or slowing down the tempo. Had these reports been a common practice many companies might have avoided the headache that accompanied their awakening to the fact that their inventories were far too large for their diminished volume of business. This might have meant an avoidance of the sudden drastic reductions in working forces which have made the depression more acute.

By the simple expedient of definitely fixing limits for productive labor payrolls in the proportion that they bear to the cost of sales, the general manager can control inventories of manufactured goods and cause them to rise or fall as the situation demands.

This report should also enable the general manager to see whether or not the working force is being adjusted from week to week in proportion to the amount of work ahead of the various departments concerned, either directly or indirectly, with the manufacturing of the company's products. For this purpose it should show, for each department or major producing unit:

a. The number of man- and apparatus-hours ahead.

b. The time that it would take with the existing force and facilities to complete the work ahead of each department.

c. The increase or decrease in the balance of work ahead of each department since the previous report.

d. The number of employes and the amount of the payroll in each department, compared with the previous report.

The preparation of such a report, presenting the facts accurately, is a comparatively simple matter in a plant operating under a complete application of scientific management, as I outlined it in my first article in this series. In the absence of such an application it is not so easy, except in the case of a very simple business.

Reports similar to those described may also be established to cover various other activities, if the information is not provided by the regular monthly reports of the accounting department or if for some reason it is desired in another form at intervals. In my next article the regular monthly accounting reports will be discussed. Reports covering sales and other activities will be discussed in the articles dealing with these activities. Functions of major executives other than the general manager will be taken up in due course.

This is the third of a series of articles which began in the October issue of the Bulletin of the Taylor Society.

Purchasing Power and Wages

A Critical Review of Mr. Welch's Article in the October Bulletin

By GEORGE E. ROBERTS

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SEVERAL months ago my attention was called to an article in the October BULLETIN OF THE TAYLOR SOCIETY, entitled "Purchasing Power and Wages," by Emmett H. Welch, Research Associate, Industrial Research Department, University of Pennsylvania. Observing a number of serious errors in the statistical statements I thought it worthwhile to write to a member of the editorial staff of the BULLETIN about them. In this letter I said that I had always held the Taylor Society in high esteem, as an organization devoted to the promotion of industrial research and the development of higher efficiency in the industries, and was prompted by the feeling that it should not lend the prestige of its name to the circulation of misrepresentations. In response I received a courteous letter from the Associate Editor stating that my comments had been submitted to the author and that the latter proposed a revision as per sheets enclosed. An examination of the proposed revision showed that it did

not meet the criticism, and a re-examination revealed further grounds for criticism. I then wrote and more fully stated my objections to the article and was asked to prepare an article for the next number of the BULLETIN. In the meantime I had observed in newspaper reports from Geneva that the Welch article had been the subject of an extended discussion in a meeting of the labor section of the League of Nations, and also that it had been the subject of a leading editorial in the *Christian Science Monitor* of December 29. In both instances the article evidently obtained consideration on account of its appearance in a publication of the Taylor Society. With my first reaction thus strengthened, I accepted the invitation to prepare this article.

Mr. Welch's article has a double thesis: (1) That wages should be maintained through a period of business depression with the object of maintaining the purchasing power of the wage earners, and (2) that excessive profits, or failure to pay higher wages during the years 1923-29, and their investment for increasing production had thrown production and consumption out of balance and brought on the depression.

Obviously these are important propositions and anything appearing on them in the BULLETIN OF THE TAYLOR SOCIETY would naturally receive respectful attention. Presumably it would be accepted, at least so far as the statistical statements were concerned.

The article is illustrated by several charts. Of these my criticism is directed against Chart V on page 175. Three lines on this chart represent the course of the aggregate dividend-and-interest payments by corporations, aggregate corporate-capital flotations and wage payments in the manufacturing industries from 1923 to the fore part of 1932. They are supposed to afford a ready means of comparison.

The index of capital returns, based on an average for the year 1926 as 100, shows a rise of 172.8 per cent for the average in 1929, or an increase of nearly 73 per cent in the period 1926-29. This index is based on the amount of dividend-and-interest payments compiled by the *New York Journal of Commerce*, and reported, without assuming any responsibility, by the Standard Statistics Company.

Inquiry of the *Journal of Commerce* reveals that it has simply compiled these figures from year to year as they were made public by several corporations without any representation that the figures from year to year were for the same companies or for the same number of companies. When the *Journal* began to compile these figures, about 150 companies were reporting; at present the figure is approximately 1500. My informant in the offices of the *Journal of Commerce* ventured the opinion that in the year 1926, the year chosen as 100 in the chart, the number of companies reporting was about 40 per cent of the number now reporting. No doubt the larger companies were included in the figures for the earlier years, but even their figures have been altered considerably as a result of mergers. It is evident that the *Journal of Commerce* never contemplated that the figures would be used as a basis of comparing the total dividend-and-interest payments of all corporations over a period of years. Their use for that purpose and the arguments based on their use in the text of the article are, therefore, unwarranted and misleading.

In the revision submitted by Mr. Welch in response to my first letter of criticism, he had changed these index numbers to correspond with the figures for corporation returns reported in "Statistics of Income," published by the United States Treasury, and the 73 per cent increase was reduced to 34. However, he rather naively called attention to the fact that the "only difference was in the magnitude rather than the direction of the movement." The official figures of net incomes of all manufacturing corporations, at least to 1929, were available before the original article was published and there is no excuse for not using these, or at least checking by them, instead of newspaper reports of interest-and-dividend payments. Moreover, interest payments are an item of expense, not significant of profits, and to use newspaper reports of dividend payments, which did not purport to be complete or comparable from year to year, is proof of careless methods.

However, that is not all there is to say about these index numbers and the chart line representing them. Although ostensibly offering a comparison of the trend of interest-and-dividend payments with wages, the wage line is for wages in manufacturing industry only, while the interest-and-dividend line represents such payments by corporations of every description, including public utilities, investment trusts, holding companies, etc. The organization and rapid expansion of these latter were among the outstanding features of the period, and their own payments of dividends and interest came largely from income received in the same form. A substantial duplication in the figures is the result. If these financial and other non-industrial groups are excluded, the combined interest-and-dividend payments of all manufacturing industry increased from $3,124,000,000 in 1926 to $3,862,000,000 in 1929, or 21 per cent. It is well known that this increase was by no means uniform but was largely concentrated in the steel, automobile and chemical industries.

Nor is this all that should be said about the alleged increase of dividend-and-interest payments. It resulted from an increase in the volume of business done by the corporations. While there was an increase in the aggregate of profits, there was practically no increase in the percentage of profits on the turnover, because selling prices to the public were falling. The following table shows the gross volume of sales, net income and percentage of net income to sales for all corporations engaged in manufacturing in each year from 1923-29, inclusive. The figures are taken from the official "Statistics of Income."

(In Millions of Dollars)

Calendar or Fiscal Year	Gross Income	Consolidated Net Income	Per Cent Net on Sales
1923	56,221	3,086	5.48
1924	53,911	2,334	4.33
1925	60,830	3,154	5.18
1926	62,495	3,124	5.01
1927	63,723	2,580	4.05
1928	67,273	3,366	5.00
1929	72,132	3,862	5.36

These figures refute the representation that in the years following 1926 the profits of corporations engaged in manufacturing represented an increasing and abnormal share of the proceeds of the industries and thereby restricted the purchasing power of consumers. The fact is that at that time the industries were commonly complaining of "profitless prosperity."

Furthermore, during this period the aggregate net worth of this group of corporations was increased from $46,273,000,000 to $52,695,000,000, through the investment of additional capital and the retention of earnings, and through the change of large numbers of enterprises to the corporate form of organization. The percentage rate of return of net income on net worth, represented by preferred and common-stock and surplus account, increased from 6.75 per cent in 1926 to 7.34 per cent in 1929, or by less than one-tenth. An increase in this percentage would naturally result from doing a large volume of business on a relatively smaller capital, and was without cost to the public.

Another thing: In comparing aggregate interest-and-dividend payments with aggregate wage disbursements it must be con-