

proceeds clearly and uninterruptedly throughout the 12 years, is concerned with the use of power. In the analysis here given the aim is to show the position of power as a factor in general manufacturing production. Therefore the power installation of central electric stations has been excluded. Unfortunately this was not done for the earlier years shown in the 1926 Year Book. When this change is made it will be found that the total horse-power employed increased from 1,664,578 in 1917 to 3,592,184 in 1928 or by 116 p.c. in 11 years. In the same period the horse-power used per establishment increased from 75 to 161 and the horse-power per wage-earner from 3.04 to 6.45, indicating the rapidly increasing contribution of power to manufacturing production.

The increases from \$143,929 to \$204,469 in average capital per establishment between 1922 and 1928, and in average number of employees from 21.1 to 28.2 are very significant figures. It is also noteworthy that the percentage of salaried employees to total employees has declined between 1922 and 1928 from 16.0 to 13.9—or approximately from one-sixth to one-seventh. In other words, there were in 1928 six wage-earners employed to each salary earner, as compared with five wage-earners to each salary earner in 1922. This is probably due to the fact that in the depression of 1920-22, wage-earners, with a less secure tenure of their positions, were laid off to a proportionately much greater extent than salary earners, so that the proportion of salary earners on the 1922 staffs was abnormally large.

Value of Products.—The gross value of manufactured products in 1928 was reported as \$3,769,850,364; the cost of materials was \$1,950,804,339, leaving \$1,819,046,025 as the value added by manufacture. As the finished products of one branch or manufacture are constantly used as materials in other branches in the ascending scale of modern industry, it follows that they are counted over and over again, swelling in this manner the total gross value of products. The total value of manufactured products, strictly defined, would include:—(1) the value of all raw materials obtained from the extractive and primary production industries which have entered into the manufacturing output, and (2) the entire value added to these raw materials by manufacturing processes from the time they first entered any factory up to the close of the census year. This total value would be very much greater than the \$1,819,046,025 shown as having been added by manufacture, but not so great as the \$3,769,850,364 shown as the gross value of production.

Volume of Manufacturing Production in Recent Years.—An investigation of the greatest importance, especially in a period when values are rapidly changing, is that of the volume of manufacturing production as distinguished from its value. This is a difficult subject of research, particularly on account of the constant changes in the commodities manufactured and in their relative proportions. It is, however, a matter in which tentative conclusions are better than none, and accordingly an estimate of the volume of manufacturing production in recent years has been attempted in Table 4, on the following plan. First, the gross value of the manufactured commodities produced in 1917, the first year of the annual census of manufactures, is taken as 100, and later years given as a percentage of this. Gross values, although they include numerous duplications, are used since the purpose is to determine changes in the volume of manufactured commodities produced irrespective of the relative value of the raw materials used. A better figure than gross values would be the one outlined