

fied as bonds, \$1,659,873,548, miscellaneous obligations, \$445,221,472, income bonds, \$246,103,966 and equipment trust obligations, \$55,915,827; the current liabilities amounted to \$616,830,156. Of the capital stock outstanding, \$1,169,071,178, or 23.57 per cent was owned by the railway corporations, as well as \$437,508,841, or 9.39 per cent of bond outstanding. These figures show an increase in the corporate ownership of securities, probably rather due to railway consolidation than to the strengthening of reserve funds. Stock to the amount of \$3,475,640,203, or 70.05 per cent of the total outstanding paid no dividend, and \$904,436,200, or 16.90 per cent of funded debt, exclusive of equipment trust obligations, paid no interest during the year covered by the report. In no other year since the organization of the Division of Statistics has so large a percentage of stock passed its dividends, or, except in 1894, has so large a percentage of funded debt defaulted its interests. Of the stock paying dividends, 5.89 per cent of the total stock outstanding paid from 4 to 5 per cent; 5.39 per cent of this stock paid from 5 to 6 per cent; 4.41 per cent paid from 6 to 7 per cent and 3.99 per cent paid from 7 to 8 per cent. The total amount of dividends was \$85,287,543, which would be produced by an average rate of 5.74 per cent on the amount of stock on which some dividend was declared. The amount of bonds paying no interest was \$624,702,293, or 13.41 per cent; of miscellaneous obligations, \$54,498,288, or 12.24 per cent; of income bonds, \$225,255,619, or 91.52 per cent.

THE PROGRESS OF SCIENCE.

The Scientific American has just issued a beautifully illustrated number as a souvenir of the 50th annual anniversary of its existence, in which it points out that the material world has advanced so rapidly during the last half century, and with a pace so accelerated, that mankind has almost lost one of its most important faculties, and one essential to happiness—that of surprise. The nil admirari faculty is attaining a wide spread. The most marvelous developments are taken as a matter of course—the condition of things fifty years ago is seldom pictured to the mind—and all the material blessings which we now enjoy are used as conveniences of daily life, and no more. Formerly there was an idea prevalent that surprise and astonishment were emotions of the ignorant. To-day they are rather emotions of the scientist. The educated engineer cannot without such emotions contemplate the insignificant feed wire of a trolley road carrying silently hundreds of horse power to points all along the line—he cannot without these feelings contemplate the electric motors, drawing power in proportion to the work they have to do, all regulated by the automatic government of counter-electromotive force—he cannot see the unstable though gigantic ocean liner filled with every refinement of electrical and mechanical art, all working perfectly on their never quiet, never level platforms

—he cannot follow the construction of a cantilever bridge with the enaming changes from compressive to tensile stress and the reverse, as the span is completed—these things all excite in him such emotions that he cannot observe them and know them without a feeling of true astonishment at the achievements of mankind.

PRODUCTION AND PRICE.

The relation of the commercial value of any article to the supply is illustrated in an interesting way in the product of the precious metals in the United States during the past twenty years. In 1873, when the coinage laws were last revised and codified, the production of gold in that country was 1,741,500 fine ounces, and of silver, 27,650,000 fine ounces. This was exactly in the proportion of 1 to 15.5, and the relative commercial value of the two metals at that time was as 1 to 15.92. Thus the production of the two metals in the United States was about in proportion to the general supply of the whole world, except that the country produced a little more than a proportionate share of gold.

In 1880 the production of gold was about the same, 1,714,500 ounces, but that of silver was 30,320,000 ounces, a proportion of 1 to 17.6, and the commercial ratio that year was as 1 to 18.05. By 1885 the product of silver had risen to 39,910,000 ounces, with a slight decline in gold, the proportion being 1 to 25.9. The purchase of 24,000,000 ounces per annum for the coinage of silver dollars under the act of 1878 had consumed a part of the surplus product, but not sufficient to maintain the price of the metal, there being still 16,000,000 ounces left for sale.

In 1890 the American product of silver was 54,500,000 ounces, to 1,588,880 ounces of gold, a proportion of 1 to 34, and the commercial ratio was then 1 to 29.76. Congress in that year directed the Secretary of the Treasury to purchase nearly the whole of this product of silver—4,500,000 ounces per month, or 54,000,000 ounces a year—at a maximum ratio of 16 to 1 in gold, but the effect of this was naturally to increase the output, which rose the next year to 58,330,000 ounces, and in 1892 to 63,500,000 ounces, nearly five times the amount produced in 1870. The product of gold had meantime but slightly increased, the proportion being 1 to 36 in 1891 and 1 to 40 in 1892, and the market ratio of silver continued to decline to 20.92 to 1 and 23.72 to 1 in the latter year.

This was the high water mark in the production of silver, which had been so greatly stimulated by the government purchases. The repeal of the Sherman act removed this stimulus and turned attention to gold, the production of which metal rose in 1893 to 1,739,323 ounces, with 60,000,000 ounces of silver, a proportion of 1 to 33.8, and in 1894 to 1,910,813 ounces of gold, with 49,500,000 ounces of silver, a proportion of 1 to 25.9, or the same as in 1885. The enormous accumulation of silver in the Treasury, however, prevented any recovery in the market price, which continued to fall to the ratio of 23.72 to 1 in gold in 1893 and 32.56 to 1 in 1894.

Comparing 1894 with 1875 it is found that the production of silver had doubled, but that the commercial value of the aggregate product had but slightly advanced, showing conclusively that the world has use for just about so much silver every year, and that cheapened and extended production has the same effect on the price as with wheat or cotton or anything else when there is a surplus beyond the demand.

THE WOOL MARKET.

Messrs. Williams & Overbury, wool brokers, in a circular referring to the series of wool auctions just closed say that during the first week of the sales there was a tendency towards improvement, which was chiefly due to home operation. Unfortunately the absence of response from the various centres depressed dealers, spinners and top makers and imparted a weaker tendency, which became more pronounced when an earlier closing of the series than that originally fixed was arranged. This arrangement led to the discovery that there were many requirements to be filled which caused a change in the tone and a rally in prices. A circular issued by Helmutz, Schwartz & Co., wool brokers, say that the quantity sold at the four series this year was 297,000 bales more than in 1895. These figures will be reduced at the next series, owing to the quantity that is held over, making the available quantity exceed that of 1895, and will be further reduced by an increase in the transit direct shipments. Nevertheless the deficit of the five series will amount 185,000 bales. Sydney, Buxton & Co., in their circulars refer to the upward turn of prices, which had its origin in America a year ago. They say this was a striking incident because it had been frustrated by the bear tactics of European speculators. The latter unfortunately recovered an influence which America was unable to challenge. A determined effort was made to lower prices, similar to that made prior to June, 1895. Despite misleading statistics, the mills are mostly busy, and the stocks in second hands moderate. The general aspect was not improved by the latest developments in the United States. The imports during the week were:—From New South Wales 5,441 bales; Victoria, 470; South Australia, 15; New Zealand, 19,303; Queensland, 790; Cape of Good Hope and Natal, 628, and from various other places, 1,269. The arrivals for the fifth series amount to 194,698 bales, of which 32,500 bales were forwarded direct. Low wool sales will take place on August 11 and 12.

CORDOVAN LEATHER.

The peculiarity of horsehide is a part known as the "Shell," a muscle in a flat sheet spread over the horse's rump, between the hips and tail, extending down to the legs, making a piece of oval form about two feet long and one and one-half feet wide in the widest part. This muscle grows firmly to the grain; below it is a flannel-like tissue. In combination with