Cordage Industry. Although rope-making constituted one of the most important branches of business from the earliest days of the American colonies, like almost all the local manufacturies, it was many years before it began to develop sufficient strength to entitle it to be regarded as an industry. The first rope-walk was constructed at Boston, by John Harrison, in 1642, just 12 years after the town had been founded, and, prior to this time, all such products that had been required in the making of rigging and tackle was either brought direct from England by the captains of the various vessels, or was imported into this country for sale. In fact, it was not until the Boston shipbuilders had commenced the construction of the 160-ton "Trial," that the several advantages to be derived from a local rope-walk were fully appreciated, and it was at their instigation that Harrison, a Salisbury rope-maker, was invited to come to Boston, where he set up his "ropefield," 10 feet 10 inches wide, on the land adjoining his house on Purchase Street, at the foot of Summer Street. At this time such work was done out of doors. Posts large enough to permit of the making of the largest sizes of rope then in use were firmly fixed in the ground in open fields, and upon these the cords were suspended and the ropes made.

Harrison's coming to Boston had been largely due to the fact that he was assured that he should have a monopoly of the business for a term of 21 years, and when, at the end of that time, the town officials gave permission to a John Heyman to "set up posts," the fact that the latter was restrained in business to the "libertie onely to make fishing lines," did not prevent the older rope-maker from protesting against what he considered the invasion of his rights. Accordingly Heyman's license was revoked, and Harrison had everything his own way up to the day of his death.

With the "original" rope-maker dead, however, the business began to extend its influence into other parts of the town. Rope-walks multiplied in number most rapidly in the West and North Ends, until there were finally no less than 14 of them. In 1793, an additional impetus was given to the business by the action of the general court in granting a bounty for American-made rope. On 30 July 1794, the date of the great fire, seven rope-walks were destroyed,

and the selectmen, who had been flooded with protests from citizens who objected to this business being carried on in the heart of the town, refused to grant further licenses except upon the low lands west of the Common. As the result, six large rope-walks were immediately constructed at that point. They ranged from 20 to 24 feet in width and were each about 900 feet in length. Destroyed by fire in 1806, five of them were rebuilt, only to be burned again in 1819. During the first year of the mayoralty of the elder Quincy, the walks were removed still further out of town for the purpose of improving the neighborhood around the Common, but by the latter part of the 18th century the industry had assumed such proportions that it was generally admitted that "the men employed in this work outnumbered any other class of mechanics in Boston." At this time the work in the rope-walks was performed by hand, the method having been described by Longfellow in his poem, 'The Ropewalk.' The twisting of the fibres was accomplished by a man who walked backward down the "walk," spinning from the hemp which was strung round his waist. The twist was imparted to the rope by a wheel, which was at first turned by a boy, although this purpose was afterward attained by the use of horse, or even water power.

It was not to Boston alone that the early industry of rope-making was confined, however. Nantucket, in the old days of her prosperity, had three large rope-walks, all of which long ago disappeared; there was one at Castine, Me., one at Portland, Me., and several in other parts of the country, including one on Broadway, New York.

The Portland, Me., "walk," one of the few of the ancient establishments with a modern history, was first constructed by Samuel Pearson. Later his two sons, Samuel and George C. Pearson, who had learned their trade at Portland, started the Suffolk Cordage Company, which, under the name of the Pearson Cordage Company, now has one of the largest mills in the country. Another son, Charles H. Pearson, at first became connected with the Boston Cordage Company, and, still later, with the Standard Cordage Company.

The large business which is now conducted on the Pacific coast was instituted by A. L. Tubbs, of California, sometime in the fifties. Recognizing the opportunities for the construction of such an industry in the far West, Mr. Tubbs purchased the machinery of one of the old Boston plants, and shipped it to California, where two or three large factories now stand as monuments to his enterprise.

Prior to about 1850, nearly all the spun yarns used in the making of cordage were imported by the American manufacturers. As such yarns were the product of Russian serf labor, they could be brought to this country and sold for less money than similar yarns could be produced in America, so it was not until the introduction of improved machinery reduced the cost of local manufacture that the importation of this raw material ceased.

The modern factory system began to take the place of the more crude and primitive methods of making rope soon after 1830, and from that time until 1850, the conflict between the two modes of manufacture was waged with considerable bitterness. By the new system it was possible to spin a rope several thousand feet long upon an upright apparatus that occupied but a few square feet, the necessary twist being imparted by a rapidly rotating machine which was not unlike that which is used in cotton and woolen mills. At the same time, while its cost was cheaper, the factory-made product was not an entire success. There were purposes for which the rope made by the rope-walk method was far superior, and the makers of the old-fashioned article used the words "patent cordage" to disparage the factory-made product. As time passed, however, the invention of improved machinery tended to put an end to such rivalry. The most important inventions are those of John Good, of New York. It was his spreaders and breakers that did away with the use of lappers, and his nipper and regulator on spinning-machines that gave such universal satisfaction until the perfection of the "preparation machinery" evolved methods that superseded his process.

It was the invention of the self-binding harvester that played an important part in furthering the interests of the industry, and, about 1878, the mills of the country began to increase their size and output to a noticeable degree. Among the most prominent factories started prior to or during that period, one may mention the establishments of Sewall, Day & Company, of Boston; the Pearson Cordage Company, of Boston; J. Nickerson & Company, of Boston; Weaver, Fitler & Company, of Philadelphia, afterward, as at the present time, Edwin H. Fitler & Company; the Plymouth Cordage Company, of Plymouth, Mass.; the Hingham Cordage Company, of Hingham, Mass.; the New Bedford Cordage Company, of New Bedford, Mass.; Baumgardner, Woodward & Company, of Philadelphia; J. T. Donnell & Company, of Bath, Me.; William Wall & Sons, of New York; Lawrence Waterbury & Company, of New York; Tucker, Carter & Company, of New York; the Elizabethport Steam Cordage Company, of New York; Thomas Jackson & Sons, of Easton, Pa.; J. Rinek's Sons, of Easton, Pa.; and John Bonte's Sons, of Cincinnati.

As may be seen from the above list, the cordage industry, even in those comparatively recent times, was largely confined to towns either on the coast or in close proximity to the seaports, for those were the days when the great demand for cordage was for export purposes, or for the direct use of ships temporarily located at the American ports. Later, such factors as the decline in American shipping; the substitution of wire for hemp standing rigging, and the increased demand for binder twine, so altered the conditions of the industry that the location of factories became a matter of secondary importance. Thus, they began to multiply in the interior, especially in the middle West, such cities as Akron, Peoria, Xenia, and Miamisburg, becoming a new centre for the industry.

In 1843, the total quantity of manila hemp that was manufactured in the United States amounted to only 27,820 bales, or 7,511,400 pounds. To realize the ridiculously small proportions of such a product, it is only necessary to remember that any one of several of the large mills in this country could now manufacture the same quantity of hemp in less than

50 days, by running day and night, or that a similar quantity of hemp could now be brought direct from Manila in about the same length of time, by the use of two steamers. So rapidly did the industry expand, however, that, by 1863, it had increased in size no less than five times, while the period of the Civil War created such a demand for cordage that the factories in the North were utterly unable to comply with it. The profits of one eastern factory alone, during that period, amounted to more than $500,000 a year, and this was no exceptional case, for everywhere manufacturers were fairly inundated with orders that they simply could not fill. It was about 1860 that the first sisal hemp was imported into the United States. Purely an experiment in the beginning, less than 200 tons having been used during the first year, the product was so favorably received by the trade that it soon became one of the great factors in the cordage industry, a fact which fully acounts for the rapid increase in importations from the paltry 200 tons to the amount of our present imports, a quantity that is greatly in excess of 80,000 tons.

During all this time, however, no action had ever been taken to regulate the price of cordage. Business had extended until the American product was now accounted a factor in almost every part of the world. To meet these ever-widening demands, factories had increased, both in number and in the importance of their output, but no effort had been made to fix the price of the product. As the result certain abuses had come to prevail among the firms engaged in the business, and it was to meet this situation and better, if possible, the condition of affairs, that the first meeting of the cordage manufacturers was held early in 1861. The result of this meeting was an agreement, which was perfected and signed, on 23 February. Thereafter weekly meetings were held by the manufacturers, at which trade conditions were not only discussed, but any complaints were considered, and regulations were effected respecting the standard of prices. From time to time the agreement of 1861 was amended, and, in July, 1874, a complete revision was adopted, the manufacturers pledging themselves, "as men of honor and integrity," to faithfully observe all its provisions. In April, 1875, a still stronger agreement was made, but as complaints about underselling were still made, and as, in the absence of any specified penalty, it was necessary to accept any reasonable excuses, the manufacturers finally decided to adopt what has since been known as the "pool system." According to this system, which went into operation 1 Jan. 1878, the business of the country was divided among the various manufacturers in what was deemed just proportions. When the business of either of these concerns in any one month exceeded the proportion which had been assigned to it, it was compelled to pay a certain amount per pound on the excess to the treasurer of the "pool," while the concern that fell behind the specified production received a gratuity to a corresponding extent. The novelty of the plan acted in its favor for a time, and, although it did not entirely put a stop to the custom of cutting prices, it worked so well that the scheme was continued from year to year. The percentages ranged from 11¼ to 1 per cent.

In January, 1880, the amount of the pool was reduced, by stages, from 2 to ¼ of a cent per pound, and, in January, 1881, it was abolished altogether. By 1882, conditions had become so unsatisfactory that it was found necessary to re-establish it and, on 28 June, new proportions were agreed upon. These remained in force for a period of three years, when the new concerns that had been formed were taken into the "pool," and, after much labor, a new adjustment of proportions was accepted in July, 1885, remaining in existence until April, 1887, when it was broken up.

The history of the National Cordage Company, the next attempt to associate the various cordage manufacturers, dates from 1 Aug. 1887, when four of the leading New York concerns formed themselves into a "trust." Their aim was to control the prices of manila and sisal hemp, but the effort was a failure. In January, 1890, an attempt was made to compel other manufacturers to join their organization. As none of those who complied with these demands knew the terms which had been made with his neighbor, a condition of distrust was engendered which finally, 4 May 1893, drove the corporation into the hands of a receiver, in spite of the fact that it had paid 8 per cent. dividends on its preferred stock since 1891, and from 9 to 10½ per cent. on its common, the last dividend being declared on both only three days before the failure.

As the result of the reorganization the United States Cordage Company was formed, but as this corporation was also unsuccessful in its schemes to monopolize the purchase of raw material, the factories which had been purchased by the National Cordage Company went back into the market. Some of them were repurchased by their former owners or their representatives, while some few have yet to find purchasers. There were at least two important reasons to account for the deterioration in the value of these manufacturing properties. One was the unsettled condition of affairs in the Philippine Islands, under which manila hemp advanced so materially as to prohibit its use for binder twine, and to lessen the demand for it in the making of cordage. The natural increase in the demand for sisal also had the effect of increasing its price.

Another factor in the cordage trade was represented by the binder twine situation. In the beginning, when there was considerable doubt

Years	Manilla		New Zealand	Sisal		
	Bales	Pounds	Pounds	Bales	Pounds	Total Pounds
1895	404,900	109,323,000	2,000,000	400,028	144,010,080	255,333,080
1896	404,006	109,081,620	2,000,000	359,110	129,279,600	240,361,220
1897	359,000	96,930,000	.....	474,591	170,852,760	267,782,760
1898	487,573	131,644,710	.....	389,125	136,193,750	277,838,460
1899	436,611	117,884,970	.....	490,699	176,651,640	294,536,610
1900	283,000	76,410,000	.....	470,000	169,200,000	245,610,000

as to the success of this twine, the cordage houses made it for the manufacturers of harvesting machinery at a profit of several cents a pound. When the market position of this product was established, the harvest-machine makers began to manufacture their own twine, and while this was done at a third of its original cost, the loss of these contracts was a serious setback to the cordage industry.

The preceeding table shows the annual consumption of hemp from 1895 to 1900 inclusive.