INTRODUCTION.

MANUFACTURES IN THE UNITED STATES.

COTTON GOODS.

The growth of the culture and manufacture of cotton in the United States constitutes the most striking feature of the industrial history of the last fifty years.

Commencing properly with the erection of the first water frame for spinning, in Rhode Island, in 1790, it has attracted in a marked degree the enterprise and ingenuity of the American people, and is now an established industry in twenty-nine States of the Union. It exceeds all other branches of pure manufacture in value of product, and in the employment which it gives to capital and labor, to agriculture and the domestic arts, and to internal and foreign trade. Its annual product in 1860 was about one-sixteenth of the aggregate of all branches of industry, including the large items of flour and meal, sawed and planed lumber, the fisheries, and of coal and the baser metals. Its ratio of development has exceeded that of the population, and in the last twenty years has been 150 per cent.; population in the same time having augmented only 84.2 per cent.

The seventh census gave the number of cotton factories in twenty-five States in 1850 as 1,074. The number of spindles in use at that time has been estimated at 3,633,693. The aggregate capital invested was $76,032,578. The value of raw material consumed (including 641,240 bales of cotton, equal, at 425 pounds each, to 272,527,000 pounds) amounted to $37,778,014. The number of hands employed was 32,295 males and 62,661 females, or 94,956 persons. The total value of the manufactured product was $65,501,687, and included the value of 763,678,407 yards of cloth, and nearly 30,000,000 pounds of yarn and batting. This product was exclusive of mixed goods of cotton and wool, &c., which employed 103 manufactories, and amounted in value to $3,693,731.

The official returns of 1860, make the number of cotton manufacturing establishments in twenty-nine States of the Union, on the 30th of June, to have been 1,091. The aggregate amount of capital invested was $98,585,269, an increase of $22,552,691, or 29.6 per cent. upon the total capital of 1850. The quantity of cotton consumed, exclusive of 15,200,061 pounds wrought into mixed fabrics of cotton and wool, was 422,704,975 pounds, equivalent to 1,056,726 bales of 400 pounds each, which was 150,177,975 pounds, or 55.5 per cent. in excess of the consumption in 1850. The total cost of raw material was $57,285,534, and of labor $23,940,108, the increase in the former being in the ratio of 51.6 per cent., and in the latter of 38.6 per cent. The average number of male hands employed throughout the year was 46,859, and of females 75,169, an increase of 14.564 males, and 12,508 females, and of 28.5 per cent. on the aggregate number of operatives in 1850. The aggregate number of spindles in operation was 5,235,727, and the number of looms 126,313, in the proportion of 41.4 spindles per loom. The total value of all kinds of cotton goods manufactured was $115,681,774, which exceeded the product of 1850 by $50,180,087, or 76.6 per cent.

The product of cotton cloth, including 271,857,000 yards of printing cloths, amounted to 1,148,252,406 yards; the quantity of yarn and thread to 47,241,603 pounds; and of bats, wicking, and wadding to 12,967,956 pounds, being an increase over the product of 1850 of 384,573,990 yards, or upwards of 50.3 per cent. in the quantity of cloth, and of more than 30,000,000 pounds, or 100 per cent. in the quantity of yarn, batting, &c.

In addition to the foregoing, the product embraced a large aggregate of miscellaneous articles and fabrics, among which were the following: coverlets, 11,590; table-cloths and counterpanes, 11,600; quilts, 122,000; mosquito netting, 1,582,400 yards; cotton cordage, twines, lines, &c., 4,876,277 pounds;

webbing, 450,000 pounds; quilts, 195,391 pounds; seamless bags, 6,235,600. The consumption of cotton in unmixed goods was in the proportion of 13.4 pounds for each individual in the Union, and averaged 80.7 pounds for each spindle. The production of cotton goods of all kinds per capita in 1850 amounted in value to $2 82, and in 1860 to $3 60. The average value per spindle made in the latter year was $22 09, the cost of the same being, for material, $10 94, and for labor, $4 57; and for both together, $15 51 per spindle.

The number of yards of sheetings, shirtings, printing cloths, &c., amounted to about thirty-six and one-quarter yards per capita for the total population of the Union, or about three times the estimated annual consumption per head in 1830. It was an average of 219 yards per spindle, and of 9,090 yards for each loom per annum.

The average annual wages of each factory hand was $196, or twenty dollars more than the average earnings in 1850.

The average value per hand of the total product in 1850 was $668, and in 1860 it was $948 per annum.

The following are the ratios of increase in the several elements of this manufacture as compared with the aggregates in 1850, viz: increase of capital, 29.6 per cent.; in cost of material, 51.6 per cent. in cost of labor, 38.6 per cent; in consumption of cotton, 55.5 per cent.; in number of hands employed, 28.5 per cent.; in yards of cloth made, 50.3 per cent.; and in value of product, 76.6 per cent.

The augmentation of the value of cotton goods made, as compared with the product in 1850, took place principally in the New England and middle States. The aggregate manufacture of seven factories in the States of Illinois, Louisiana, Texas, and Utah, which made no returns in 1850, amounting in value to only $576,182, of which sum $466,500 was the product of two establishments in Louisiana.

The six New England States contained 570 establishments, representing an aggregate capital of $69,260,279; an annual expenditure for raw material of $37,670,782; and for labor of $16,720,920. They employed 29,886 male, and 51,517 female hands throughout the year, and contained 3,858,962 spindles, and 93,344 looms, which consumed 283,701,306 pounds of cotton, an average of 73 pounds per annum for each spindle. The total value of their manufacture was $79,359,900, an increase of $35,573,910 over the product of 1850. In this were included the values of 857,225,347 yards of cloth, of which 211,687,382 yards were printing cloths; of 12,409,527 pounds of yarn and thread; and of 5,648,240 pounds of bats, wicking, wadding, &c., besides quilts, bags, cordage, lines, &c.

The following figures represent the increments in the several aggregates and their ratios, as compared with the returns from the same section in 1850, viz: increase of capital, $16.308,914, or 30.8 per cent.; increased annual cost of labor, $4,425,352, or 35.9 per cent; of raw material, $12,906,742, or 52.1 per cent.; increased number of hands, 18,400, or 29.2 per cent.; increased value of product, $35,573,910, or 81.24 per cent. The increase of spindles in New England compared with returns for 1850 not made up, but collected and published semi-officially, appears to have been about 1,107,884, or 40.2 per cent.; of looms, 9,704, or 11.6 per cent.; and the increased production of cloth, about 260,357,840 yards, equivalent to 43.6 per cent. The average number of spindles to each loom in these States was 41.3. The production of cotton cloth amounted to 225 yards to each spindle, and 9,194 yards to the loom. The average cost per spindle of all kinds of goods (for labor and material) was $14 17, and the returned value per spindle $20 56. On the above data these results show an increase of nine yards per spindle, and 2,058 per loom over the product in 1850, and of six yards per spindle, and 104 yards per loom over the average production of the whole Union in 1860, the average cost being at the same time $1 34, and the returned value $1 53 per spindle less than the general average of the Union.

The average annual wages of each hand in New England was $205 15, and the average product per hand was $974 90, the wages being upward of $9, and the product $25 per hand greater than the average for the whole United States. The production in cloth alone was an average of 10,536 yards to each hand, or 1127 yards more than the general production per hand.

The total value of cotton goods was equivalent to $25 31 for each inhabitant of New England, and to $2 52 for each person in the Union.

Of the general aggregates of the cotton manufacture, upwards of seventy per cent. of the total capital, more than sixty-eight per cent. of the entire product, nearly seventy-eight per cent. of the printing cloths, and about seventy-five per cent. of the whole quantity of cloth made, as well as a principal part of the webbing, quilts, seamless bags, lines, twines, &c., were returned by the New England factories.

The ratios in which those States severally augmented their products were in the order of their productive values, respectively, as follows: Massachusetts, 77.10 per cent.; New Hampshire, 54.6; Rhode Island, 87.05; Connecticut, 116.14; Maine, 137.4; Vermont, 27.5.

Nearly forty-eight per cent. of the whole value of cotton goods made in New England was the product of Massachusetts, which returned 217 establishments, containing 1,673,498 spindles, and 42,779 looms, on which were made 415,291,438 yards of cotton cloth, an average of 248 yards to each spindle, 9,707 yards to each loom, 10,800 yards to each factory hand, and 337 yards to each person in the State. The total value of cotton goods of all kinds made in that State was $38,004,255, an increase, of $16,609,854, and equal to a product of $22 72 per spindle, $988 per factory hand, and $31 60 for each person in the State. The number of employés was 13,691 males, and 24,760 females, whose average annual earnings was $202. The consumption of cotton was 134,012,759lbs. an average of 80.7 pounds per spindle; and the average cost of production per spindle in labor and material was $14 95. Rhode Island produced the greatest amount of printing cloths and yarns; Connecticut the most cords, lines, and twines, and New Hampshire the greatest number of seamless bags.

The six middle States numbered 340 establishments, which was twelve less than in 1850. The invested capital was $18,789,069; the cost of raw material, $13,928,671; annual cost of labor, $5,462,900; and total value of the product, $26,531,700, an increase in the last item of 79.52 per cent. in ten years. The business in this section employed annually 12,212 male and 16,866 female hands, 1,042,480 spindles, and 25,185 looms, and consumed 87,113,715 pounds of cotton, which produced 228,702,748 yards of cotton cloth, of which 60,169,618 yards were printing cloths, 16,212,651 pounds of yarn and thread, and 5,699,016 pounds of bats, wadding, wicking, &c., besides cotton cordage and other miscellaneous products. The proportion of spindles to looms, and the number of yards of cloth made per spindle and loom, were about the same as for the United States at large, but the product was about five and one-half yards per spindle, and 105 yards per loom less than in New England, while the consumption of cotton per spindle (83 5 pounds) was nearly three and one-half pounds greater than the general average, and ten and one-half pounds more than that of New England. The average cost of production per spindle for material and labor was $18 60, which was $3 06 greater than the average for the whole country, and $4 43 per spindle greater than in New England. The value of the manufacture was $25 45 per spindle, or $3 36 greater than the average of the Union, and $4 89 greater than in New England. The excess in cost of production was principally for material, which amounted to $2 42 per spindle more than the general cost, and to $3 60 more than in the eastern States. These discrepancies are probably due to the less full and complete returns of the number of spindles in the middle States, and in part, perhaps, to the manufacture of a heavier and coarser description of goods in that section generally; the cost of labor being diminished, and the quantity and cost of material increased in proportion to the weight or coarseness of the fabric. The greater amount of yarn and thread made in New England, and, perhaps, the somewhat greater speed of machinery in that section, may have also influenced the results.

The annual wages of each operative in the Middle States averaged $187 86, being $8 26 less than the average wages of the Union, and $17 29 less than in New England. The product per hand amounted in value to $912 18, which was $35 82 less than the value produced generally, and $62 72 per annum less than each operative produced in New England. The value of cotton goods was in the

proportion of $3 18 per capita for each inhabitant of the middle States. It was equivalent to 22.9 per cent. of the total product of the Union, the number of spindles and looms, and the number of yards of cloth amounting each to about twenty per cent., and the quantity of yarns, &c., to upward of thirty-four per cent. of the entire product of the Union.

Of the aggregate product of the middle States, Pennsylvania, with 185 establishments, having a capital of $9,203,040, and employing 476,979 spindles, 12,994 looms, and 14,994 hands, manufactured 114,395,986 yards of cotton cloth, including 14,025,200 yards of printing cloth, 9,739,181 pounds of yarn and thread, 2,072,500 pounds of bats, wicking, wadding, &c., and 11,230 coverlets. The total value of these products was $13,650,114, the quantity of cloth and the entire value of the manufacture constituting upward of fifty per cent. of the whole product of these States. Pennsylvania, in the value of its cotton manufacture, fell only a little behind New Hampshire, which holds the second rank in this industry. It is probable that more accurate returns from the numerous small factories in the former State would have shown it to be next to Massachusetts, the largest producer of cotton goods. No other State north of Virginia, with the exception of Maine, showed so large a ratio of increase in this branch since 1850. The consumption of cotton in the State was 37,496,203 pounds, equal to 70.8 pounds per spindle. The number of spindles was in the proportion of 36.7 to each loom, and the quantity of cloth made averaged 239.8 yards per spindle, 8,803 yards to the loom, and 39.3 yards to each inhabitant of the State. The cost of the goods of all kinds averaged, for material $15 50, and for labor $5 80 per spindle, a total cost of $21 30 per spindle. The returned value of the goods averaged $28 61 per spindle, $910 per factory hand, and $4 70 for each man, woman, and child in the State. The employés received, one with another, $184 63 as annual wages.

The State of New York had seventy-nine factories, and produced annually in cotton goods a value of $6,676,878, or nearly one-half as much as Pennsylvania, and more than one-half of all the printing cloths made in the middle States. New Jersey and Maryland each fell a little short of $3,000,000 in the value of their manufacture, the former of the two making much the larger amount of yarns and netting, and the latter more yards of cloth.

The eleven southern States, including Texas, returned the same number of establishments (159) as in 1850. Their combined capitals aggregated $9,596,221; the expenditure for raw material, including 43,960,510 pounds of cotton, $4,739,371; cost of labor, $1,440,424; the product of manufacture, $8,145,067, the last sum being an increase of $2,479,705, or forty-three per cent. upon the returns of the previous census.

In these States there were 290,359 spindles and 6,713 looms, a proportion of 43.2 spindles to each loom. The male hands numbered 3,985, and the female 5,923, making in all 9,906 hands, whose average annual wages was $145 41, and the product of their labor $822,33.. The consumption of cotton was in the proportion of 151.4 pounds to each spindle annually. The average annual cost for material was $16 31, and for labor $4 96 per spindle, making the total cost of the goods for labor and material $21 27 per spindle, the returned value of the product being $27 10 per spindle. The product embraced 53,352,658 yards of cotton cloth, 15,369,825 pounds of yarn, &c., 39,400 pounds of bats, wicking, wadding, &c., and (by Tennessee) 90,000 pounds of cotton cordage.

In consequence of the more general prevalence of household manufactures and of family looms among the sparser population of those States, the proportion of spindles to looms in the regular factories, and the production of yarn, as well as the consumption of cotton, was relatively greater, and the production of cloth smaller than in the older manufacturing States. The quantity of yarn made in the southern establishments amounted to 32.5 per cent., or nearly one-third of the whole—considerably exceeding the product of New England, nearly equalling that of the middle States, and equivalent to 1.6 pounds for each individual of the entire population of the States represented. The quantity of woven goods returned only averaged 183.7 yards to the spindle, which was 35 yards less than the general average, and 41 yards less than in New England. The average product of each loom was 4,947 yards, or 1,143

yards less than the average of the United States, and 1,247 less than was made on each loom in New England. The value, per capita, of the total product of these States was 89 cents, and the quantity of cloth 5.8 yards.

The southern States produced 6.7 per cent. of the aggregate value of cotton goods made in the United States. The number of spindles and looms was upward of 5 per cent., the quantity of cloth 4.6 per cent., and of yarn 32.5 per cent. of the whole. Much of the yarn made in this section was sold in New York and Philadelphia.

Of the southern States, Georgia was the largest manufacturer of cotton goods, having thirty-three establishments, with a capital amounting to $2,126,103, and mounting 85,186 spindles and 2,041 looms. These concerns employed 2,813 hands, the product of whose labor was $2,371,207, an increase of 69.97 per cent. upon the returns of 1850. Only three other States, Virginia, North Carolina, and Alabama, exceeded one million in the value of cotton goods, the ratio of increase in the first two being small, (two or three per cent.,) and in the latter equal to 160.96 per cent. In Mississippi, Arkansas, and Tennessee the product, though small, was considerably greater than in 1850, and in South Carolina and Florida was somewhat less than in that year.

Of the western States, six, including Utah, made returns on the subject of cotton manufactures. They contained twenty-two establishments, having 43,926 spindles and 1,071 looms, in the proportion of 41 spindles to the loom, and employed 1,641 hands. Their aggregate capital was $939,700; the cost of material $946,710, and of wages, $313,992 per annum, the last averaging $191 57 for each hand. The consumption of cotton amounted to 7,929,444 pounds, an average of 180½ pounds to each spindle. The aggregate value of the cotton goods made was $1,642,107, which was an increase of upward of 30 per cent., and comprised the values of 8,971,653 yards of cloth, 3,249,600 pounds of yarn, and 1,581,300 pounds of batts, wicking, &c. Of cotton cloth alone, the manufacture was at the rate of 204 yards to the spindle, and 8,376 yards to the loom. The total cost, per spindle, of the entire product, was $28 69, of which $7 14 per spindle was for labor, and $21 55 for material. The returned value of all kinds of cotton goods made averaged $37 38 per spindle, and was equivalent to $1,002 per annum for each hand, and to 21 cents for each inhabitant of those States. These results show that the consumption of cotton, and the cost for material and labor per spindle, as well as the value of the product per spindle and factory hand, was relatively greater than in the United States at large, or any section of it; that the average annual wages of each hand was greater than in the middle and southern States, but less than in New England; and that the extent of the cotton manufacture, as compared with the population, was less than in the other divisions of the Union, as shown by the value per capita.

Of the aggregate value of cotton goods these States produced 1.4 per cent.; of the quantity of cloth only 0.78 per cent.; and of yarn 6.8 per cent.; the number of spindles and looms amounting, each, to about 0.84 per cent. of the whole number.

Among the western States the lead in the cotton manufacture was taken by Ohio, the product of which, though less than three-quarters of a million in value, was equal to 44 per cent. of the whole amount made in those States, and 21.7 per cent. greater than its return in 1850. Indiana, with three establishments less than in 1850, augmented its product from $86,660 in that year to $344,350, which was in the ratio of 297.6 per cent. Missouri showed an increase of nearly 61 per cent., and Kentucky, which is third in rank, reduced its factories from ten to six, and depreciated its product in the ratio of 29.2 per cent.

The average value of cotton goods manufactured, per spindle, in the New England States was $20 56; and in the several States of that section as follows: In Massachusetts, $22 70; Maine, $22 18; New Hampshire, $21 51; Connecticut, $20 46; Vermont, $20 31; and Rhode Island, $14 91. In the middle States the product per spindle averaged $25 45. In Maryland it was $57 37 per spindle; in Pennsylvania, $28 61; in Delaware, $24 16; in New Jersey, $17 95; and in New York, $19 15. The average value of the product for each spindle in the southern States was $27 10; and in the western States $37 38. The difference in the relative values of the product, per spindle, in the several States and sections of the Union was, in a great measure, due to the greater amount of yarn

made in some of them, either for household consumption, or for sale in other States, to be woven in regular factories. Thus the southern States, as already stated, produced nearly one-third of the whole quantity of yarn returned, and less than one-twentieth part of the cloth made in the Union. The consumption of cotton, per spindle, varied for the same reason, being relatively greater in those States which chiefly confined their operations to spinning, than in the manufacturing centres, where its ultimate elaboration into the finer fabrics took place. The average annual amount of cotton consumed by each spindle in New England was only 73 pounds, and in the middle States, which bought yarn of the south, it was 83 pounds. In the southern States, on the other hand, the average consumption was 151 pounds, and in the western, 180 pounds per spindle.

HISTORY AND STATISTICS.

The rapid development of the cotton husbandry and manufacture of the United States, and the still more extraordinary extension of the manufacture in Great Britain, are among the most remarkable correlated and concurrent events of the past century.

The first experimental planting of cotton-seed in this country was made in Virginia, under the auspices of the London Company, in 1621, twenty years previous to the first authentic mention in England of any textile fabrics containing cotton as a material. Cotton, from Smyrna and Cyprus, whence the first seed generally planted in this country was probably obtained, had been used in England for several centuries as a material for lamp-wicks, and had, it is supposed, been for some time coming gradually into use in Manchester in the manufacture of cloth previous to 1641, when fustians, dimities, &c., composed, in part, of cotton-yarn imported from the Levant, are mentioned in a tract by Lewis Roberts.

Although the raising of cotton was scarcely attempted in Carolina and Georgia until a century later, and throughout the south occupied little more than garden patches before the Revolution, the active colonial trade with the West India islands furnished small quantities of the indigenous cotton of those islands in exchange for the products of the continental colonies.

As early as May, 1640, the general court of Massachusetts made an order for the encouragement, by bounties, &c., of the manufacture of linen, woollen, and cotton cloth. In this it was followed, about nine months after, by the assembly of Connecticut, which took measures to encourage the importation of cotton-wool from Barbadoes. About the same time a company of Yorkshiremen who settled at Rowley, Massachusetts, in 1638, engaged in spinning and weaving cotton, flax, and wool, and in 1643 erected at that place the first fulling mill in America. From that time until about 1773, both the cotton manufacture of England and the very limited household industry of the American colonies was chiefly confined to the production of coarse, mixed fabrics, such as fustians, composed of linen warp and cotton weft, like the goods now called "Unions," which constituted much of the ordinary wear of both countries. The demand for cotton in England was consequently limited, the total importations in 1781 amounting to only 5,198,778 pounds. The manufacture of calicoes was first attempted in England in 1765, and more successfully by Arkwright & Co., in 1772, in which year the Messrs. Strutt, of Derby, also made the first cotton goods in England with a cotton warp, spun on the water-frame patented by Arkwright in 1769—neither the first spinning jenny invented by Highs, in 1763, nor the more efficient machine of Hargraves, introduced the next year, giving the thread sufficient twist to form a warp yarn. About this time, also, the bleaching and printing of cottons had become general in England. The introduction of the mule-spinner, by Crompton, in 1775; of steam-carding and spinning, by the Watt's engine, about 1783; of the power-loom, by Cartwright, a few years later; of cylinder-printing, by Bell, in 1785; and the use of chlorine in bleaching, near the same time, with a few minor agencies, completed a train of improvements in this branch which gave the first great impulse to the cotton manufacture in England, and opened up a market for the raw material to all countries.

In 1784, when the first importation of cotton from the plantation States into England was made, in the trifling amount of eight bags, weighing, altogether, 1,200 pounds, the total consumption of Great Britain amounted to about 11,250,000 pounds, or a little more than the average monthly consumption

of the cotton mills in Massachusetts in 1860. In 1812 the quantity of raw cotton imported for consumption from all countries was about 61,250,000 pounds; in 1830 it was 242,000,000; in 1840, upwards of 528,000,000; in 1850, 629,750,000; and in 1860 reached nearly 974,000,000 of pounds. Stimulated by the combined influences of the textile improvements just referred to, which created a demand and still more by the agency of the saw-gin for cleaning cotton, introduced by Whitney in 1793, by improvements in ship-building and navigation, and by the use of steam power for stationary and locomotive machinery, the United States has for many years past furnished a large proportion of the cotton consumed in this country and in Europe. In the first year of the present century the total cotton crop amounted to about 40,000,000 of pounds; in 1820 to 160,000,000; in 1830 to 350,000,000; in 1840 to 790,000,000; and in 1850 to 978,000,000 of pounds, or 2,445,793 bales. In 1860 the total crop of ginned cotton was 2,154,820,800 pounds, or 5,387,052 bales, of 400 pounds each, or more than double the product of 1850, and nearly 90 per cent. of the estimated product of all countries, which, exclusive of the domestic consumption of semi-barbarous nations, was placed at six million bales. Our total exports of cotton in that year were 4,419,215 bales, of which Great Britain took 3,037,762 bales, equivalent to 80 per cent. of her total imports of that material, and France more than one-half the remainder.

The quantity of cotton manufactured in the United States in 1791 was about 5,500,000 pounds; in 1801, 9,000,000; in 1811, 17,000,000; in 1821, 50,000,000; in 1831, 77,500,000; in 1841, 97,500,000; and in 1850, 245,250,000 pounds; those quantities being exclusive of the consumption of Virginia and the States south and west of it, except Richmond and vicinity. The consumption of cotton in regular factories of unmixed cotton goods in all the States amounted, in 1860, to 422,704,975 pounds, or 1,094,762 bales, of 400 pounds each.

The manufacture of cotton, which is now the predominant industry of this country as well as of Great Britain, properly dates from the introduction of the Arkwright machinery, in 1790. As early as 1775 a spinning jenny of twenty-four threads was put in operation by a joint-stock company at Philadelphia, where, in 1782, Samuel Wetherell, jr., one of the company, advertised for sale probably the first factory-made "jeans, fustians, everlastings," &c., in this country. Associations to manufacture by machinery were also formed in 1780, at Worcester, Massachusetts, where "jeans, corduroys, federal rib, and cottons" were advertised by S. Brazier in 1790; at East Bridgewater in 1786; at Beverly in 1787; and at Providence, Rhode Island, in the same year, and at Baltimore in 1789. Brass models of the Arkwright machines had also been procured in England in 1786, for a company in Philadelphia, but were seized and confiscated on the eve of their shipment, under the British laws prohibiting the exportation of machinery. During the same year, however, descriptions and models of an early and imperfect form of these machines were, with difficulty, brought from England by Thomas Somers, of Baltimore, where the cotton manufacture had also been proposed in 1785. The models became the property of the State of Massachusetts. That State, about the same time, paid two Scotchmen—Robert and Alexander Barr—£200 for the first spinning jenny and stock card probably ever made in this country. These last were built for the honorable Hugh Orr, at his iron-works, in East Bridgewater, and, with the Arkwright models, were deposited with him by the State for public benefit. In 1787 a company at Beverly, with machines made from these models, or imported, and with other costly machinery, attempted, with partial success, to manufacture cotton, in which they were aided by a grant of £500 from the State. A spinning-frame of thirty-two spindles was also made after the State model, for Daniel Anthony, of Providence, Rhode Island, and was operated at that place by hand-power, making, it is said, the first thread ever spun in this country by machinery. Proving too heavy for hand-power, it was soon after sold to Moses Brown, who endeavored, with little success, to run it by water-power at Pawtucket. With this and a second water-frame of twenty-four spindles from the same model, which had failed to work at East Greenwich, the spinning of cotton warp was for a while tried and abandoned. These two discarded water-frames, with two jennies, a doubling and twisting machine, and a calendering machine, constituted the principal machinery of Almy & Brown when Samuel Slater arrived from England, in the autumn of 1789.

That ingenious manufacturer had been a clerk, and afterward an overseer in the cotton establishment of the enterprising firm of Strutt & Arkwright, at Milford, in Derby, and was familiar with the most improved mechanism in use in England. Attracted hither by the liberal inducements held out to manufacturing enterprise in the United States immediately after the war of independence, he arrived opportunely, just as the first efforts to introduce the cotton manufacture here seemed to have entirely failed. He was invited to Rhode Island, and having at once rejected the old machinery as worthless, he entered into contract with the proprietors, and, without drawings or models, in January, 1790, set about constructing perpetual carding and spinning machinery, chiefly with his own hands. On the 20th of December of the same year he put in operation by water-power at Pawtucket three carding, one drawing and roving machine, and two Arkwright spinning-frames of seventy-two spindles, which was the first machinery of the kind successfully operated in the United States.

Up to this time no sheetings, shirtings, checks, or ginghams had been made in this country, and the warp for the first goods wholly of cotton was supplied by this water-frame cotton mill, the product of which, small as it was, during the first twenty months far exceeded the demand of the hand-weavers and buyers. In 1793 Almy, Brown & Slater erected at Pawtucket village, in North Providence, a small factory, afterward known as the "Old Factory," to contain seventy-two spindles. They added machinery from time to time, and subsequently enlarged the building and built another.

During the ensuing year the first cotton sewing-thread ever made is said to have been spun from sea-island cotton—the cultivation of which was just beginning in the south—by Mr. Slater, to whom is also attributed the first introduction of cotton stocking-yarn in America. The prices of cotton yarn at that date in Rhode Island were, for No. 12, 88 cents; for No. 16, $1 04; and for No. 20, $1 21.

In 1798, Mr. Slater, with several of his wife's relatives, under the name of Samuel Slater & Co., built on the east side of the Pawtucket river, in Massachusetts, a "new mill," in which he owned one-half the stock, and which was the first cotton factory on the Arkwright principle in that State.

These two small establishments, which were the initials of the great cotton industry, not only in the States of Massachusetts and Rhode Island, but of the whole Union, were, directly or indirectly, the sources whence the workmen who erected cotton mills in different parts of the country previous to 1809 drew their knowledge of the business. They were also so remunerative to their owners that, in 1806—in which year two cotton mills were also started at Cumberland, Rhode Island, and two more at North Providence—Almy, Brown & Slater were able to project a manufacturing village at Slatersville, in Smithfield, Rhode Island. It went into operation the following year with all the recent improvements brought from England by John Slater, a brother of Samuel, to whose management it was intrusted, and eventually became the sole property of himself and the heirs of Samuel, who died in 1835. The family were enriched by the profits of this factory, which, within twelve years, became the centre of nine cotton mills, containing 11,000 spindles, one-half of them in the original factory, at that time, and for many years after, the largest in the Union. In 1812 Pawtucket, Rhode Island, contained twenty-four cotton mills, and upward of 20,000 spindles.

Through the influence of Secretary Hamilton, a company was incorporated in 1791 with a capital of $1,000,000, with a view, primarily, to the manufacture of cotton. Having selected the Great Falls of the Passaic, now Paterson, New Jersey, as the site, they completed a cotton mill, ninety feet by forty, four stories high, in 1794, and the same year spun by water-power, as they had done the previous year by animal-power, the first yarn made by machinery in that State. They also printed calico, shawls, and cotton goods, buying the muslins in New York.

About 1795 the first small cotton mill in Delaware was put in operation by horse-power at Wilmington, by Jacob Broome, and calico printing was also attempted. The cotton machinery was afterward removed and run by the water-power of the Brandywine.

In 1803 the first cotton factory in New Hampshire was built at New Ipswich, and in 1804 the first regular factory in New York was erected at Union village, in Washington county, by W. Mowry, a former pupil of Slater. About the same time the business was commenced in Connecticut, at Vernon, in Hartford county, and was followed in 1806 by a larger one at Pomfret.

In that or the following year cotton machinery, clandestinely obtained from England, was introduced into a large factory, previously run as a woollen mill, at Byfield, Massachusetts, and for a time was employed upon warp yarn and wicking for household manufactures. A few years after, the manufacture of tickings, coarse ginghams, and sheetings, and similar heavy articles, was commenced there, being, it is said, the first of that class of goods made in this country. These were all woven in hand-looms, power-weaving not being in use at that date. The price of ginghams at that time was seventy-five cents, and of sheetings fifty cents a yard.

It was during this year (1804) that the first consignment for sale of American manufactures was made by Almy & Brown, of Providence, to Elijah Warren, of Philadelphia, who became their agent for selling American yarns and threads in great variety, to which were added, as business improved, stripes, plaids, checks, denims, tickings, &c.

In 1808 a company was incorporated in Maryland, with a capital of one million dollars, to manufacture coarse cotton goods on a large scale, which they carried into operation on the Patapsco, at Ellicott's mills, in 1810.

In an official report made to Congress by the Secretary of the Treasury early in 1810, the number of cotton mills erected up to the close of the previous year, including twenty-five then building to go into operation, was stated to be eighty-seven. Of these, sixty-two were in operation, and worked 31,000 spindles, requiring a capital of about $100 per spindle, of which $60 was actively employed. The average consumption of cotton per spindle was forty-five pounds, worth twenty cents per pound, and the product thirty-six pounds of yarn per spindle, worth, on an average, $1 12½ per pound. They employed, on an average, five men and thirty-five women to every 800 spindles. It was estimated that these eighty-seven mills would employ, in 1811, 80,000 spindles and 4,000 hands, and have a capital of $4,800,000; that they would consume 3,600,000 pounds of cotton, worth $720,000, and produce 2,880,000 pounds of yarn, worth $3,240,000. The increase in regular establishments in two years had been fourfold, and in three years would be tenfold. The mills were distributed as follows, the greater part of them being within thirty miles of Providence, the cradle of this industry: Rhode Island had in operation 18 mills, building 7; Massachusetts 10, building 5; Connecticut 4, building 2; Pennsylvania 4; New York 3, building 3; Maryland 3, building 2; New Hampshire 2, building 4; Vermont 2, building 2; New Jersey 2; Delaware 2; Maine and Virginia each one; and the following horse-mills: in South Carolina, Georgia, Tennessee, and Ohio, each 1; Kentucky 6. Of the foregoing, two in Pennsylvania, one in Delaware, and one in Maryland were also horse-mills.

Seventeen mills in the vicinity of Providence, where all the new ones were being built, contained 14,196 spindles, and were estimated to have consumed 640,000 pounds of cotton, producing 510,000 pounds of yarn for home consumption or exportation. They employed 1,100 looms in weaving, chiefly tickings, at 55 to 90 cents a yard; checks at 30 to 42 cents; ginghams at 40 to 50 cents; shirtings and sheetings at 35 to 75 cents a yard; and cotton counterpanes at $8 each.

The first census of manufactures, taken in that year by government, give no less than 269 cotton establishments, scattered throughout eighteen States and Territories, and running about 87,000 spindles. The returns furnished no reliable statement of the quantity or value of the articles produced, because of their incompleteness and want of discrimination between pure and mixed manufactures, and the machinery used in their production. The factories are known to have been small, producing chiefly yarns, and from one to eight thousand yards of cloth each per annum. The greater part of the domestic cotton then consumed was spun and woven in families, and the aggregate number of yards returned as so made was 16,581,299, an amount estimated to exceed in measurement all the cloths of flax, hemp, wool, and silk made in that year. The returns from Massachusetts include 200 pieces of cotton duck, valued at $6,000.

Cotton duck, which of late years has been so extensively made and consumed in our own country, and has entered so largely into our exports of domestic cotton fabrics, was then a new article, having been just introduced by Mr. Seth Bemis, a manufacturer of Watertown, Massachusetts, who, during the previous year, sold in Boston the first lot at 65 cents per yard for No. 1, and 58 cents for No. 2, the

material used being sea-island cotton. During the war it rose in price to $1 per yard, and in 1816 Mr. Bemis applied the power-loom to its manufacture, in which he was followed, in 1824, by Mr. Colt, of Paterson, New Jersey, who had begun its manufacture two years before, using double and twisted yarn. Its manufacture was attempted in Baltimore in 1825, and in 1840 the Lowell duck mill was started exclusively for the production of cotton duck.

It was also during the year 1810 that cotton goods were first printed in this country upon engraved copper rollers, at the bleach and print works of Thorp, Siddell & Co., near Philadelphia. Calico printing from wooden blocks had been carried on at that place since the year 1788, or earlier. About that time John Hewson, sr., a revolutionary officer, in consequence of premiums offered by a society of arts and manufactures in Pennsylvania, whose liberal offers are said also to have finally induced Samuel Slater to come to America, commenced calico printing at Dyottsville, in Philadelphia, encouraged by a loan of £200 from the province. In 1803, beside Hewson's, there were two other print works in that city, printing annually about 300,000 yards of Calcutta cloths. In 1790 this business was also undertaken at East Greenwich, Rhode Island, by H. Vandusen, who engraved his own blocks. In 1794 calico printing on a large scale was first commenced at Providence, by Schaub, Tissot & Dubosque. India cottons, of which the importations were large, were at first exclusively used in these establishments. The printing was done by wooden blocks, each color requiring a separate engraving. The cloth was spread on a table and the stamping done by hand.

The first cylinder machine was imported by Mr. Siddell from England, and in 1809 was put in operation by water-power about eight miles from Philadelphia, enabling one man and two boys to print daily 10,000 yards of cloth. In 1822 the engraving of metallic rollers for calico printers was commenced in Philadelphia by Mason & Baldwin, who took out letters patent in 1827 for biting figures on steel cylinders. Large print works were erected in 1823 at Lowell, and about the same time at Taunton, Massachusetts, and Dover, New Hampshire, and were followed soon after by others at Fall River, Massachusetts; at Columbiaville, New York; Belleville, New Jersey; Philadelphia, Pennsylvania; Baltimore, Maryland; and other places. In 1826 about 60,000 yards were printed weekly in New England; and in the year ending April 1, 1836, the quantity of calicoes printed in the United States was 120,000,000 yards. The Manchester Print Works, in New Hampshire, was incorporated in 1839. The manufacture of cotton was rapidly extended during the suspension of foreign trade, caused by the war of 1812. It was seriously checked on the return of peace by the competition of English manufacturers, among whom the use of the power-loom had, in the mean time, become general. The importation of foreign cottons in the first two years of peace amounted in value to $180,000,000. Our manufacturers sought relief in efforts to obtain the power-loom and in protective tariffs.

For the successful introduction of the power-loom we are indebted to the enterprise of the Boston Manufacturing Company, chartered in February, 1813, and to the talent and energy of Francis C. Lowell, its projector, assisted by Paul Moody, a skilful mechanician of Amesbury. They built a factory of about 1,700 spindles at Waltham, Mass., for the manufacture of cotton fabrics on a large scale by the aid of the power-loom, the first of which was constructed by Messrs. Lowell & Moody, with several improvements upon the English loom then in use. With its necessary accompaniment, a dressing machine, also rendered much more efficient than the patent machine of Horrock's, and, with like improvements in other parts of the machinery, it was put in operation in the autumn of 1814, in the first manufactory in which all the processes of manufacture were carried on in a single establishment. The first goods woven by the company were heavy unbleached sheetings of number fourteen yarn, thirty-seven inches wide, fourty-four picks to the inch, and in weight something less than three yards to the pound; a class of goods which, under the name of "domestics," have ever since formed the staple of American cotton manufactures. During the same year the Scotch loom engine and dressing machine were introduced at Providence, R. I., by William Gilmour, from Glasgow.

The success of the Waltham factory, which was the introduction of the cotton manufacture on a large scale, induced its principal owners, Messrs. P. T. Jackson, Nathan Appleton, with Kirk Boott and

others, to undertake largely the manufacture and printing of calicoes. With this view the Merrimac Manufacturing Company was incorporated in February, 1822, and in September of the following year the first wheel was started at East Chelmsford, which took the name of Lowell, and the capital stock (since more than doubled) was increased to $1,200,000. Print-works were erected the same year to print the company's calicoes in madder colors. In 1825 the Hamilton Manufacturing Company was organized at Lowell, and, under the superintendence of Mr. Samuel Batchelder, of New Ipswich, now treasurer of the York Manufacturing Company, at Saco, Maine, the power-loom was there first applied to the manufacture of twilled and fancy goods with great success. That was also the first establishment to make cotton drills, which have since entered so largely into the American export trade, especially to China. Its print-works went into operation in 1828. In 1860 Lowell contained twelve incorporated companies, having an aggregate capital of $13,900,000, and mounting 403,696 spindles, and 12,190 looms, which produced annually 2,481,000 yards of cotton, besides woollen cloths, carpets, &c., &c. The number of mills, including print-works, bleacheries, and dye-works, machine-shops, &c., was fifty-four.

With the introduction of power weaving and the numerous other mechanical improvements of domestic or foreign origin that followed, and encouraged by the protection given in 1816 by a duty of twenty-five per cent. ad valorem on foreign cottons, continued in later acts, and coupled with a rule of valuation which virtually excluded the low-priced India cottons, manufacturing establishments increased in size, number, and completeness of arrangement.

In 1820, according to the imperfect returns of the marshals, the number of spindles in cotton factories in fifteen States, including the two Carolinas, Ohio, and Kentucky, was upward of 250,000, and the amount of cotton used about 10,000,000 pounds, or forty pounds per spindle. This was an increase in ten years of 213 per cent. in the number of spindles, and of 176 per cent. in the consumption of cotton, as compared with Mr. Gallatin's report. It was, however, a large falling off from the consumption of cotton in 1815, which was reported to Congress in the following year at 27,000,000 pounds.

In 1826 New England was estimated to contain 400 distinct factory buildings devoted to the cotton manufacture, averaging 700 spindles each, or 280,000 in all. The new mills were very large, the old ones quite small. Each spindle was supposed to consume one-half pound of cotton daily, or 140 pounds per annum. About one-third of the buildings employed power-looms, one-third hand-looms, and the balance spun yarn and twist for the southern and western States. Of these Massachusetts contained about 135, Rhode Island 110, Connecticut 80, New Hampshire 50, Maine 15, and Vermont 10. A convention of the Friends of Domestic Industry, held in 1831, gathered statistics from 795 cotton factories in twelve eastern and middle States, including Virginia, and had a record of thirty establishments in the southern and western States which made no accurate returns. The former aggregated a capital (principally fixed) of $44,914,984, and operated 1,246,503 spindles and 33,506 looms. They employed 67,600 hands, besides 4,760 hand weavers, whose annual wages were $12,155,723, and consumed yearly 77,757,316 pounds of cotton. They sold 10,642,000 pounds of yarn, and 230,461,990 yards and 59,604,926 pounds of cloth. The total value of the annual product was stated at $32,036,760.

The official tables of the United States census for 1840 give the number of cotton factories in twenty-three States as 1,240, and the dyeing and printing establishments 129. The capital invested was $51,102,359, and the number of hands employed 72,119, the number of spindles amounting to 2,284,631. The aggregate value of the product was $46,350,453.

Within a quarter century after the introduction of the power-loom the cotton manufacture had attained the rank which it still holds as the first among the great branches of pure manufacture in respect to the value of the product, the amount of capital, and the number of persons employed in it. Its increase in the next ten years was in the ratio of upward of forty-two per cent., and in the twenty years preceding 1860 it was 150 per centum; population in the latter period having only increased 84 2 per centum.

Notwithstanding the great increase and present magnitude of the cotton manufacture of the United

States, amounting in value, as already stated, to $3 68 per capita for the entire population, and in woven fabrics to thirty-six and one-half yards per head, or more than double the estimated average consumption of Great Britain, so universal is the use of cotton goods, and the ability to purchase in the United States, that the domestic manufacture falls far short of the demand. The average annual value of foreign cotton manufactures of all kinds imported into the United States from 1821 to 1839, inclusive, amounted to $10,624,687, the highest amount having been nearly 18,000,000 in 1836, and the lowest about 6,500,000 in 1838. From 1840 to 1856, both inclusive, the average annual importation increased to $16,795,418, the yearly exportation of the same averaging $909,114. The average imports of the last three of those years was $28,811,966. These values, during the later periods, consisted largely of piece goods from Great Britain, which has enormously increased her exports of cottons. Of plain white British calicoes alone our importations increased from 10,000,000 of yards in 1846 to 85.000,000 in 1856, and of printed or dyed calicoes, from 13,500,000 in the former to 97,000,000 of yards in the latter year. In 1860 we received from that country altogether 226,776,939 yards of cottons of the declared real value of $3,849,915; but in the first two years of the war the quantity fell off to 74,680,537 yards in 1861, and 97,375,709 yards in 1862. The total value of cotton manufactures imported from all countries in the fiscal year ending June 30, 1862, was only $5,254,258.

The total value of domestic cotton manufactures exported from the United States in seventeen years, from 1826 to 1842, was $37,187,129, an average of $1,187,478 per annum. From 1840 to 1856 the average yearly exportation of domestic cottons was $5,008,772. The average annual home consumption of foreign cotton manufactures exceeded the average yearly value of domestic cotton goods exported by $10,877,532, and only fell below it in one year, (1843,) when our export of domestic cottons was greater than our consumption of foreign cottons by $578,794. The average annual exportation of American cotton manufactures and yarns in the five years from 1851 to 1855 was $7,014,989. During the four years ending June 30, 1861, these exports were as follows: in 1858, $6,333,833; 1859, $5,467,525; 1860, $7,539,532; and in 1861, $6,816,453. In these last values Cotton Duck was included to the average annual amount of $2,490,391, and Printed goods to the yearly average value of $935,543. The exports of cotton manufactures in 1862 amounted to $2,946,464. When it is remembered that the home consumption of cotton has never exceeded one-seventh of the entire crop of that material grown in the United States, and has generally been considerably less than that, and that its cheapness and excellent quality in times of peace give superior advantages to our manufacturers, we may hope that a branch of industry which employs so large a number of hands, and so much raw material, fuel, and machinery of American growth and production, which supplies annually many millions worth of cheap and comfortable clothing and furniture, and contributes so largely to the internal and foreign trade of the country, will show a large augmentation at the next national census, notwithstanding the unfortunate shock it has received during the war, now happily closed.

Statistics of cotton goods produced in the United States during the year ending June 1, 1860.

STATES.	Number of establishments.	Capital in real and personal estate.	Pounds of cotton.	Value of raw material.	Number of spindles.	Number of looms.	Average No. of hands.		Annual cost of labor.	Annual value of product, 1860.	Annual value of product, 1850.	Increase per cent.	Number of yards of sheetings, shirtings, printing cloths, &c.	Number of pounds of yarn and thread.	Number of pounds of batts, wicking, and wadding.
							Male.	Female.							
Maine	19	$6, 018, 325	23, 733, 165	$3, 319, 335	281, 056	6, 877	1, 828	4, 936	$1, 368, 888	$6, 235, 621	$2, 630, 616	137. 04	60, 377, 000	481, 823	200, 000
New Hampshire	44	12, 586, 880	51, 002, 324	7, 128, 196	636, 788	17, 336	3, 829	8, 901	2, 883, 804	13, 699, 994	8, 861, 749	54. 59	151, 713, 609	221, 000	290, 000
Vermont	8	271, 200	1, 447, 250	181, 030	17, 600	362	157	222	78, 468	357, 450	280, 300	27. 50	4, 030, 000	576, 000	95, 000
Massachusetts	217	33, 704, 674	134, 012, 759	17, 214, 592	1, 673, 498	42, 779	13, 691	24, 760	7, 798, 476	38, 004, 255	21, 394, 401	78. 10	415, 291, 428	3, 776, 340	3, 200, 000
Rhode Island	153	10, 052, 200	41, 614, 797	5, 799, 223	814, 554	17, 315	6, 353	7, 724	2, 847, 804	12, 151, 191	6, 495, 979	87. 05	147, 652, 300	5, 072, 114	306, 240
Connecticut	129	6, 627, 000	31, 891, 011	4, 028, 406	435, 466	8, 675	4, 028	4, 974	1, 743, 480	8, 911, 387	4, 122, 952	116. 14	78, 161, 000	2, 282, 250	1, 557, 000
Total in New England States	570	69, 260, 279	283, 701, 306	37, 670, 782	3, 858, 962	93, 344	29, 886	51, 517	16, 720, 920	79, 359, 900	43, 785, 990	81. 24	857, 225, 347	12, 409, 527	5, 648, 240
New York	79	5, 383, 479	23, 945, 627	3, 061, 105	348, 584	7, 885	3, 107	4, 552	1, 405, 292	6, 676, 878	5, 019, 323	33. 00	68, 157, 121	1, 715, 480	2, 466, 466
Pennsylvania	185	9, 203, 040	37, 496, 203	7, 386, 213	476, 979	12, 994	6, 412	8, 582	2, 768, 340	13, 650, 114	5, 812, 126	134. 80	114, 395, 986	9, 739, 181	2, 072, 500
New Jersey	44	1, 320, 550	9, 094, 649	1, 165, 435	123, 548	1, 567	1, 010	1, 524	468, 336	2, 217, 728	1, 289, 648	71. 90	12, 593, 610	4, 121, 742	678, 050
Delaware	11	582, 500	3, 403, 000	570, 102	38, 974	986	520	589	218, 352	941, 703	538, 439	74. 89	12, 220, 000	603, 128	300, 000
Maryland	20	2, 254, 500	12, 880, 119	1, 698, 413	51, 835	1, 670	1, 093	1, 594	582, 780	2, 973, 877	2, 021, 396	47. 00	20, 356, 031	33, 120	182, 000
District of Columbia	1	45, 000	294, 117	47, 403	2, 560	83	70	25	19, 800	74, 400	100, 000	*25. 60	980, 000	.....	.....
Total in Middle States	340	18, 789, 069	87, 113, 715	13, 928, 671	1, 042, 480	25, 185	12, 212	16, 866	5, 462, 900	26, 534, 700	14, 780, 932	79. 52	228, 702, 748	16, 212, 651	5, 699, 016
Ohio	8	265, 000	3, 192, 500	374, 100	19, 664	540	372	468	151, 164	723, 500	594, 204	21. 70	4, 100, 000	1, 300, 000	932, 000
Indiana	2	251, 000	1, 813, 944	229, 925	11, 000	375	177	190	84, 888	344, 350	86, 660	297. 67	3, 800, 303	.....	166, 600
Illinois	3	4, 700	95, 000	11, 930	.....	.....	10	1	2, 640	18, 987	.....	.....	.....	.....	94, 700
Utah	1	6, 000	12, 000	6, 000	70	.....	4	3	3, 420	10, 000	.....	.....	.....	10, 000	.....
Missouri	2	169, 000	990, 000	110, 000	5, 000	80	85	85	30, 600	230, 000	142, 900	61. 00	1, 000, 000	500, 000	90, 000
Kentucky	6	244, 000	1, 826, 000	214, 755	8, 192	76	130	116	41, 280	315, 270	445, 639	*29. 25	71, 350	1, 439, 600	298, 000
Total in Western States	22	939, 700	7, 929, 444	946, 710	43, 926	1, 071	778	863	313, 992	1, 642, 107	1, 269, 403	29. 00	8, 971, 653	3, 249, 600	1, 581, 300
Virginia	16	1, 367, 543	7, 544, 297	811, 187	49, 440	2, 160	694	747	260, 856	1, 489, 971	1, 446, 109	3. 00	11, 064, 557	908, 184	25, 000
North Carolina	39	1, 272, 750	5, 540, 738	622, 363	41, 884	761	449	1, 315	189, 744	1, 046, 047	985, 411	6. 15	4, 605, 072	3, 451, 485	.....
South Carolina	17	801, 825	3, 978, 061	431, 525	30, 890	525	342	549	123, 300	713, 050	842, 440	*15. 35	5, 866, 018	1, 000, 708	.....
Georgia	33	2, 126, 103	13, 907, 904	1, 466, 375	85, 186	2, 041	1, 131	1, 682	415, 332	2, 371, 207	1, 395, 056	69. 97	17, 850, 034	4, 594, 480	.....
Florida	1	30, 000	200, 000	23, 600	1, 600	20	40	25	7, 872	40, 000	49, 920	*20. 00	149, 000	120, 000	.....
Alabama	14	1, 316, 000	5, 246, 800	617, 633	35, 740	623	543	769	198, 408	1, 040, 147	398, 585	160. 96	7, 610, 668	1, 647, 000	.....
Louisiana	2	1, 000, 000	1, 995, 700	226, 600	6, 725	150	220	140	49, 440	466, 500	.....	.....	2, 376, 000	550, 000	.....
Texas	1	450, 000	588, 000	64, 140	2, 700	100	130	.....	15, 600	80, 695	.....	.....	719, 400	.....	.....
Mississippi	4	230, 000	698, 800	79, 800	6, 344	90	106	109	36, 264	176, 328	22, 000	700. 00	1, 130, 509	196, 000	.....
Arkansas	2	37, 000	187, 500	11, 600	.....	.....	14	11	4, 428	23, 000	17, 360	32. 48	.....	100, 000	.....
Tennessee	30	965, 000	4, 072, 710	384, 548	29, 850	243	323	576	139, 180	698, 122	508, 481	37. 29	1, 981, 400	2, 801, 968	14, 400
Total in Southern States	159	9, 596, 221	43, 960, 510	4, 739, 371	290, 359	6, 713	3, 983	5, 923	1, 440, 424	8, 145, 067	5, 665, 362	43. 70	53, 352, 658	15, 369, 825	39, 400
Total United States	1, 091	98, 585, 269	422, 704, 975	57, 285, 534	5, 235, 727	126, 313	46, 859	75, 169	23, 940, 108	115, 681, 774	65, 501, 687	76. 66	1, 148, 252, 406	47, 241, 603	12, 967, 956
Total in 1850	1, 074	76, 032, 578	.....	37, 778, 064	.....	.....	35, 295	62, 661	17, 267, 112	65, 501, 687	.....	.....	.....(†)	.....	.....
Increase	17	22, 552, 691	.....	19, 507, 470	.....	.....	11, 364	12, 508	6, 672, 996	50, 180, 087	.....	.....	.....	.....	.....

*Decrease.

†Included in the above are 271,857,000 yards of printing cloths

Number of seamless bags: Maine, 1,250,000; New Hampshire, 2,800,000; Massachusetts, 145,600; Connecticut, 730,000; New York, 1,310,000; Tennessee, 90,000 pounds cordage, &c.

Aggregates of miscellaneous: Cordage, &c., 4,876,277 pounds; quilts, 195,391 pounds; webbing, 450,000 pounds; table cloths, &c., 11,600; quilts, 170,080; mosquito netting, 1,582,400 yards; coverlets, 11,590.

WOOLLEN GOODS.

The woollen manufactures of the United States,* in 1850, employed 1,817 establishments, distributed throughout thirty-two States of the Union. The aggregate capital invested was $26,071,542; the cost of raw materials, $24,912,455, and of wages, $7,167,900. The hands employed were, 19,919 males, and 14,976 females. The value of woollen and mixed goods made in that year was $43,542,288, and included the values of 82,206,652 yards of cloth, and of 4,294,336 pounds of yarn, excluding blankets, &c. On the 1st of June, 1860, the number of establishments employed on woollen goods (exclusive of worsted dress goods included in 1850) was 1,260. They represented a capital of $30,862,654, and consumed 83,608,468 pounds of wool, and 15,200,061 pounds of cotton, employing 3,209 sets of machinery, costing, with all other materials, $36,586,887. They gave employment to 24,841 male and 16,519 female hands, or 41,360 persons, whose annual wages cost $9,808,254. The aggregate value of the product amounted to $61,895,217. The articles produced were 124,897,862 yards of cloth, 6,401,206 pounds of yarn, 296,874 pairs of blankets, 616,400 long and square shawls, 18,000 table covers, 155,000 yards of felted cloths, and 600 coverlets.

From the following States there were no returns of woollen manufactures in 1850, viz: South Carolina, Georgia, Florida, Louisiana, Mississippi, Tennessee, California, and Oregon. From Arkansas, which in that year reported two factories, with a product of $8,800, there was no return of woollens in 1860.

With a decrease of 557 in the number of establishments, as compared with the returns in 1850, doubtless in part occasioned by a more complete exclusion from the recent tables of such accessory and kindred branches as wool-carding and worsted mills, the aggregates show an increase of $4,791,112, or 18.3 per cent. in the capital invested; $11,674,432, or 46.8 per cent., in the expenditure for raw materials; 6,465, or 18.5 per cent., in the number of hands; and $2,640,354, or 36.8 per cent., in the annual cost of wages, while the aggregate value of the manufactured product appreciated $18,352,929, or 42.14 per cent., upon the returns of 1850. The gross proceeds of the manufacture, after deducting the cost of materials and labor, was $15,572,367, or upward of fifty per cent. upon the capital employed to cover the interest on capital, the wear and tear of machinery, and various incidental expenses.

The consumption of wool amounted to an average of 2.66 pounds per capita for the entire population of the Union. It was in the proportion of five and one-half pounds to every pound of cotton used in the business. The quantity of cloth manufactured exceeded the amount returned in 1850 by 42,691,210 yards, or fifty-two per cent., and the weight of yarn was 2,106,870 pounds, or nearly fifty per cent. greater than in that year.

The product in cloth was equivalent to nearly four yards to each inhabitant of the Union, and in value averaged nearly two dollars ($1 97) per capita. The average annual wages of each operative was $237, or $32 greater than in 1850; and the gross value of the product per hand was $1,496, an increase of $248 per hand. Each operative received on an average $41 in wages more than was paid in the cotton manufacture, and produced annually an average value of $542 greater than in the cotton branch. This disparity is mainly accounted for by the larger proportion of male hands employed in the woollen business. In this industry the male employés constituted sixty per cent. of the whole number, and in the cotton manufacture only thirty-eight per cent.

The principal seat of the woollen manufacture is in the New England States. Returns were made from 398 establishments in that section, many of them of large size. They reported an aggregate capital of $18,753,453, and 14,840 male and 10,743 female operatives, whose labor cost $6,144,847 per annum. They employed altogether 1,664 sets of machinery, or more than one-half of all in use in woollen mills in the Union. They carded and spun 57,819,930 pounds of wool, and 9,835,078 pounds of cotton, or nearly six pounds of wool to every pound of cotton. The total cost of raw materials was $24,912,617, and for materials and labor together $31,057,464. The value of woollens pro-

*Exclusive of wool-carding and cloth-dressing, carried on as a separate branch of business, of carpets, hats, and hosiery.

duced was $40,668,498, an increase of sixty-two per cent. upon the product of the same States in 1850, and only $2,873,790 less than the value returned by the whole Union in that year. The gross proceeds of the manufacture over the cost of labor and material was $9,611,034, or upward of fifty-one per cent. in the capital stock. This amount is materially reduced by the annual cost of repairs and other incidental expenses, by commissions, &c., and by no means represents the net profits of the business.

The New England factories produced the following articles, viz: 80,311,614 yards of cloth, 2,634,601 pounds of yarn, 198,287 pairs of blankets, 257,000 shawls, and 18,000 table covers.

The total value of the woollen manufactures of New England was about sixty-five per cent. of the aggregate for the whole country, and the several elements of the business, as the quantity and cost of material, number of hands, and cost of wages, &c., were nearly in the same proportion with the general aggregates. In value, the product was equivalent to nearly $13 per head for each inhabitant of New England. Of cloth alone, the quantity averaged twenty-five and one-half yards to each inhabitant of New England, and two and one-half yards to each one in the United States.

Massachusetts was by far the largest producer of woollen goods. Returns were made by 134 establishments in that State, equal to about one-third of the whole number in New England. These were generally of large size, employing an aggregate capital of $8,993,953, or nearly one-half the amount thus invested in that section of the Union, and an average of $67,118 to each mill.

The total value of manufactures returned by the Massachusetts mills was $19,655,787, an increase of $6,874,273, or 53.78 per cent., over the product in 1850. The manufactories in that State employed 821 sets of machinery and 12,969 hands. They consumed 33,516,797 pounds of wool and 4,855,370 pounds of cotton, or 40,824 pounds of wool and 5,914 pounds of cotton to each set of machinery, and nearly seven pounds of wool to each pound of cotton. Each set of cards produced a value of $23,941 on an average, and of cloth alone 42,508 yards. The product embraced 34,899,348 yards of cloth, 2,160,071 pounds of yarn, 57,207 pairs of blankets, and 157,000 shawls. The production of cloth was upwards of twenty yards per capita for the population of the State, and the total value of all descriptions of goods an average of nearly $16 to each inhabitant. The Massachusetts mills produced more cloth and nearly as many blankets as all those of the middle States together.

The manufactures of Rhode Island ranked next to those of Massachusetts in this branch of production. They employed 57 establishments and $3,168,500 in capital, which returned an annual product worth $6,915,205. The machinery consisted of 253 sets of cards, and the number of hands was 1,229. The weight of wool spun was 6,832,600 pounds, and of cotton 3,056,200, equivalent to 27,005 pounds of wool and 12,080 pounds of cotton to each set of machinery, and nearly two and a quarter pounds of wool to every pound of cotton. The Rhode Island mills used a larger proportion of cotton than those of any eastern State, and one-fifth of the whole quantity consumed in the woollen manufactures of the Union. Its manufactures consist largely of satinets, linseys, kerseys, jeans, and negro cloths of cotton and wool. The quantity of cloths made was large, amounting to 19,343,600 yards, or more than half as much as was made in Massachusetts. The average quantity produced by each set of machinery was 76,457 yards. The total value of the woollen manufacture showed an increase of 176 per cent. upon its value in 1850. It averaged $27,332 to each set of cards.

Eighty-four factories in Connecticut, with $2,491,000 in capital, 265 sets of machinery, and 1,767 hands, produced 14,301,043 yards of cloth, and a total value in woollens of $6,840,220. The increment on the product of 1850 was in the ratio of nearly 39 per cent.

In New Hampshire there were 51 woollen establishments and 146 sets of machinery; in Vermont 46 establishments and 99 sets; and in Maine 26 factories and 80 sets. In these three States were made upwards of 12,250,000 yards of cloth, besides other goods, valued altogether at upwards of $12,500,000. The value of woollen goods made in these States severally was augmented in the following ratios, as compared with the returns of 1850, viz: in New Hampshire 21.57 per cent.; in Vermont 61.39 per cent.; and in Maine 83.46 per cent. New Hampshire held the fourth rank among the New England States in this industry, and the value of its woollens was $5,782,641.

The woollen establishments of the middle States numbered 476, and ran 920 sets of machinery. The total capital invested in them was $8,473,610. The number of hands was 11,638, of whom 7,098 were males and 4,540 females. The raw materials included 16,952,605 pounds of wool, and 4,943,183 pounds of cotton, and cost $8,743,492. The cost of labor was $2,720,711. The value of woollens produced was $15,905,923, or 6.31 per cent. greater than in 1850, and upward of one-fourth the product of all the States in 1860. It exceeded the cost of materials and labor combined in the sum of $4,432,075, which was equal to 52 per cent. upon the capital invested. The consumption of wool was about one-half as great as in Massachusetts, and the weight of cotton about one-half that used in all New England. The manufactures embraced 34,692,780 yards of cloth, 3,219,850 pounds of yarn, 57,437 pairs of blankets, 359,400 shawls, and 155,000 yards of felted cloths. The weight of yarn and the number of shawls returned by the mills in these States were greater, but the quantity of cloth and the aggregate value of woollens reported were much less than in New England. Pennsylvania was the principal producer of woollen goods in this section of the country, and ranked next to Massachusetts in the amount of capital invested, and in the value of the product. This State contained 270 woollen establishments, having $4,339,310 in capital, 6,088 hands, and 483 sets of machinery. The weight of wool consumed was 7,128,529 pounds, and of cotton 4,337,000 pounds, which was in the proportion of one pound of cotton to 1.6 pounds of wool. This was a greater proportion of cotton than was used in any other State, and only about half a million pounds less than was consumed in Massachusetts. The value of the woollen manufactures of Pennsylvania was $8,191,675, an increase of 45.51 per cent. over that of 1850. This included the values of 23,405,469 yards of cloth, 2,988,650 pounds of yarn, 42,347 pairs of blankets, and 110,200 shawls. Of the woollen machinery in that State 136 sets belonged in the city of Philadelphia, in which are a large number of woollen mills.

In the State of New York there were 140 woollen establishments, running 324 sets of cards, and consuming 7,453,004 pounds of wool, and 193,683 pounds of cotton. The consumption of wool was to that of cotton about as 38½ pounds to one, a greater proportion than was found in any northern State except New Hampshire, where only one pound of cotton was used to every 43.2 pounds of wool. As indicated by the relative proportions of the materials, the product embraced fewer mixed goods, and amounted in value to $5,870,117, which was a depreciation of $1,750,000 from the value returned in 1850. The woollens made were 7,951,679 yards of cloths, 230,000 shawls, and 6,000 pairs of blankets.

New Jersey, with 35 establishments and 61 sets of cards, augmented its manufactures of woollens in the ratio of 6.28 per cent., and Maryland, which had 27 mills and 44 sets of machinery, increased its product 89.8 per cent. in ten years. Delaware, with 4 mills and 8 sets of cards, showed a declension in the value of its woollens. The manufactures of New Jersey included 155,000 yards of felted goods.

The woollen manufactures of the western States employed 306 establishments and 466 sets of machinery, and a capital of $2,129,991, employing 2,281 hands, whose annual wages cost $577,812. They consumed 4,695,751 pounds of wool, and 170,700 pounds of cotton, (a proportion of 27½ to one,) which cost, with other materials, $1,729,350. The value of the product was $3,090,472, an appreciation on its value in 1850 in the ratio of 10.4 per cent. The manufactures consisted of 5,114,865 yards of cloth, 525,755 pounds of yarn, and 15,500 pairs of blankets. The State of Ohio contained much the largest number of establishments, (115,) with 173 sets of cards; but those of Kentucky, 37 in number, with 83 sets of cards, were larger and more productive. The value of woollen goods made in the latter was $845,226, or $20,000 greater than that of Ohio, which exceeded it in the quantity of yarn and blankets made, but produced less than half as many yards of cloth. In Ohio, Michigan, and Illinois, there was a falling off since 1850 in the value of woollen goods, while in all the others the rates of increase, though based on small amounts, were large. In Kentucky the ratio of increase was 429; in Indiana, 144.81; in Wisconsin, 417 59; in Missouri, 155.40; and in Iowa, 13.50 per centum, respectively.

From the southern States returns were made of 78 woollen mills, having an aggregate capital of $1,3[illegible]5,600, and running 149 sets of machinery. They employed 1,079 male and 689 female hands, at an annual cost for wages of $315,084. They spun 3,590,182 pounds of wool, and 251,100 pounds of

cotton. The whole cost of materials was $1,123,828. The consumption of cotton was at the rate of one pound for every 14⅓ pounds of wool used. The total value of woollen goods made in these States was $1,995,324, or 143.5 per cent. in excess of their production in 1850. The manufactures included 4,726,103 yards of cloth, 21,000 pounds of yarn, and 1,650 pairs of blankets.

Virginia took the lead in this industry, having 45 establishments, of which one-third were in the counties now included in West Virginia. They had a capital of $463,600, and ran 50 sets of machinery, giving employment to 494 hands. The consumption of wool was 1,131,000 pounds, and of cotton 10,000 pounds, a proportion of 113 pounds of wool to one of cotton. Its woollen products were of the aggregate value of $717,827, and included upwards of 1,000,000 yards of cloth. Georgia, which ranked next to Virginia, had 11 mills and 30 sets of cards. Its product was valued at $464,420, and consisted chiefly of cloths, of which it made more yards than Virginia. North Carolina came next, and had 7 factories and 23 sets of machinery. Alabama, the fourth in rank among southern States, had 6 mills and 14 sets of machinery, and showed the largest relative increase in its product of any southern State. It was followed by Mississippi and Texas, both of which added largely to the value of their woollen manufactures in the ten years preceding the eighth census.

Two woollen establishments, having 10 sets of machinery and 90 hands, and representing a capital of $170,000, were reported from the Pacific States. Together they consumed 550,000 pounds of unwashed wool, costing $77,600, which produced woollens to the value of $235,000. The larger of these factories was in California, and, with 6 sets of cards, spun 400,000 pounds of unwashed wool, worth $50,000. Its product was 18,000 pairs of blankets, worth $150,000. The other mill was in Oregon, and, with 4 sets of cards, manufactured 52,500 yards of cloth, worth $46,000, and 6,000 pairs of blankets, valued at $39,000. These establishments have both come into existence since 1850.

HISTORY AND STATISTICS.

Our British ancestors are believed to have learned the use and manufacture of woollen clothing from their Roman conquerors, who, in common with several nations of antiquity, were well acquainted with it. The latter are said to have established a manufactory of woollen cloths at Winchester for the benefit of their imperial masters. Aided by the possession of a superior quality of native wool—that of England being regarded in early times as the best in the world, and down to the days of Elizabeth far superior to the Spanish—the woollen manufactures of England were by far the most valuable branch of the national industry, until surpassed by the extraordinary growth of the cotton interest towards the end of the last century and the beginning of this. It was encouraged by early and continued legislative measures. The exportation of wool and the wearing of foreign woollens was prohibited as early as the year 1261, and more effectually in 1660 by laws remaining in force down to 1824. The importation of wool was allowed free of duty in 1802.

The manufacture received its first impulse in the reign of Edward III, who, about the year 1331, wisely invited into England a number of Flemish weavers, dyers, and fullers of cloth, that people being among the most skilled in the art in Europe. A number of these, under John Kempe, established a manufactory in England. The article made was known as Kendal cloth or Halifax cloth. Blankets began to be made there in 1340, and in 1608 the art of dyeing was attempted. But half a century later much of the white cloth made in England was still sent to the continent to be dyed and dressed. A great improvement had been made in 1614 by the introduction of mixed or medley broadcloths made of colored yarns dyed in the wool. The encouragement of the woollen industry was deemed so important, that in 1678 a statute was made that all persons should be buried in woollen shrouds, which act remained in force 130 years. Ten years later the manufactures of wool were still further improved by fresh colonies of Flemings. About the close of that century Davenant estimated the value of woollen articles made in England of native and foreign wool at £8,000,000, the wool crop of the country being set down at one-fourth that value, or two millions sterling, and the value of woollens annually exported at a like sum. In the mean time the fine cloth manufacture had been successfully commenced, in 1646,

at Sedan, in France, followed in 1677 by the exclusion of British and Irish woollens from the French markets. Great Britain had also, in a measure, lost the sale of her woollens in Holland and Flanders, as the result of the restrictions and retaliations prompted by rivalries in trade, then so rife among commercial states. In this emergency England began to perceive the growing importance of her East Indian and American possessions, continental and insular, as a market for her manufactures. The production of woollen cloths in Ireland was restrained in 1698, and three years later their exportation from the island, except to certain ports in England, was wholly prohibited. In pursuance of the same policy, and to secure to herself the plantation trade in America, Great Britain, in 1699, prohibited, under heavy penalties, the exportation of wool or its manufactures in any shape from the English colonies in America. This act, which was among the earliest of those restrictive measures which afterward became a settled policy in regard to colonial industry, compelled the people to employ their wool in coarse but substantial household fabrics, but kept them wholly dependent upon the parent state for the finer products of the loom. This dependence has not yet ceased. Notwithstanding the unparalleled activity of our general industry, the United States is still the largest foreign consumer of British woollens, which for many years have constituted one-half or upward of our total importations of such goods. So great have been the improvements, and so extensive has become the manufacture of woollens in that country, that it gives her almost the control of the markets of the world. Soon after the close of the first war with America the woollen manufactures of Yorkshire alone were said to be greater than those of all England at the Revolution. The value of the woollen manufactures of the kingdom were stated by McCulloch, in 1844, to be about twenty-four millions sterling. The value of the same exported in the following year was £8,760,042. In 1859 the declared value of such manufactures, including worsted stuffs exported, was £12,053,708, and of woollen and worsted yarn £3,104,061. The annual consumption of wool is computed to be in the neighborhood of 360,000,000 pounds, of which amount about 250,000,000 pounds is the estimated product of 50,000,000 sheep in the United Kingdom in 1860, and the remainder of foreign and colonial growth. The importation of foreign and colonial wool in 1859 amounted to 133,284,634 pounds, of which upward of 53,500,000 pounds were from Australia. The exportation of sheep's, lamb's, and alpaca wool in the same year was upward of 29,000,000 pounds.

The first colonists of America naturally sought to shape their industrial system by that of the parent state, with such modifications as were suited to their altered circumstances. Such branches of husbandry and handicraft as were adapted to communities established remote from the source of supply became indispensable. Among these, sheep-raising and the production of woollen clothing and household stuffs were appropriate, on account of the characters of the soil and climate, which favored sheep husbandry, and rendered woollen fabrics necessary the greater part of the year.

Sheep were first introduced into these colonies at Jamestown, in Virginia, in 1609, at its first settlement. Forty years later they had increased to about 3,000 head. In 1640 there were about an equal number in Massachusetts, whither they were first sent seven years before. In 1676 it was written, "New England abounds in sheep." The Dutch also introduced sheep from Holland into New Netherlands in 1625, and again in 1630, but were not very successful with them. The Swedish colony on the Delaware had eighty sheep in 1663. The accidents to which flocks are liable in a new country were of course numerous, and prevented a rapid increase, notwithstanding that many local regulations and bounties were directed to that end. The breeds to which these early importations belonged are now unknown, but they were doubtless of different races. They became the progenitors of the present stock of common sheep, known as "native sheep," which, by continued admixture, probably contains the blended characteristics of the several originals, perhaps still further modified by crosses with the later importations of known and improved breeds. The wool of colonial flocks was certainly only adapted to the coarser purposes to which it was applied in the household manufacture of strong, plain fabrics for common wear. No attempts were made to improve the wool of the country by the introduction of fine-wooled sheep until the revival of industry after the war of the Revolution, when the "Society for the Promotion of Agriculture" in South Carolina, the first incorporated society of the kind in the United

States, chartered in 1785, at once offered, among other premiums, a medal for the first flock of sheep of the true Merino breed kept within the State. We have no account, however, of any importation until 1793, in which year the Honorable William Foster, of Massachusetts, smuggled from Spain, whose jealousy prohibited their exportation, three Spanish merino sheep as a present to a friend in Boston, who, in ignorance of their real value, duly converted them into mutton for his table. He was contented a few years later to pay $1,500 each for such animals.

The first full-blooded stock ram actually kept in the country was probably one of four lambs sent in 1801 by M. Dupont de Nemours and M. Delessert, the latter a banker of Paris, at whose farms on the Hudson river the ram Don Pedro was successively kept until 1805, when he was purchased by Mr. Dupont and became the founder of some fine grade flocks near Wilmington, Delaware. E. J. Dupont & Co., in 1810, erected cloth works on the Brandywine, employing the merino wool of their own and neighboring flocks.

In 1802 the Honorable R. R. Livingston, the American minister at Paris, sent home to his farm in New York several pairs of French merinos from the government stock at Rambouillet, which he crossed with the progeny of Don Pedro. Later in the same year Colonel David Humphreys, of Connecticut, the minister to Spain, shipped to the United States a flock of 100 Spanish merinos, the greater part of which arrived safely, and a few years later furnished wool for an essay in the cloth manufacture by their proprietor. Two pairs of black Spanish merinos were also received the next year by Dr. James Mease, of Philadelphia, who had sent out orders several years before. Mr. Muller, of New York, imported several from Hesse Cassel in 1807.

The early importations of these gentlemen, to whom the country is much indebted for awakening interest in the subject, and the high price to which wool rose soon after, during the embargo and other commercial restrictions, turned public attention strongly towards wool-growing and the manufacture of wool. In 1809 and the two following years, William Jarvis, esq., of Vermont, then consul at Lisbon, purchased and sent to the United States upwards of 3,000 sheep of the choice breeds of Spain. These, with importations by other parties, amounting in all to about 5,000 head of merinos introduced up to this time, disseminated the breeds widely through Vermont and other New England and middle States, and even as far west as the Ohio. The price of merino wool rose from $1 a pound, in 1807, to $2, and even $2 50, during the war.

Other fine-wooled sheep had also been brought to the country previous to the war, of which the "Merino Society of the Middle States," instituted in 1811, exhibited at its first show, in October of that year, specimens of the Irish, the Tunisian, or Barbary, the New Leicester, Bakewell, or Dishley, and the South Down breeds. Many of these have been skilfully bred, and other approved families, as the Saxon, (introduced in 1823,) French and Silesian merinos, &c., have been since introduced and distributed throughout the country. At present as fine sheep as any in the world are produced, especially in Vermont. Four prize medals were awarded to American exhibitors of wool at the London exhibition in 1851, and at the International exhibition in Hamburg in June, 1863. Vermont merino sheep took two first-class prizes, as having the heaviest fleeces and the longest wool of any of that class exhibited, although the choicest flocks of Europe were represented.

But, notwithstanding the attention given to wool-growing in several States, the large areas adapted to it in all, and its undoubted profitableness, our annual demand for home consumption is double the yearly product of our flocks, which in 1860 amounted to 59,673,952 pounds. In the twenty years preceding the war (1840 to 1861 inclusive) our total importations of foreign wool exceeded in value the exports, both of the home and foreign-grown article, in the sum of $42,963,743, or nearly two millions annually. Much of this was the cheaper qualities of wool, especially from South America, and the tendency still is toward the manufacture of the coarser kinds, rather than fine wools. As a consequence, in part, of this deficiency of raw material, we imported, on an average, during each year of that period, upwards of nineteen millions' worth of manufactured wool, the aggregate amounting to $429,422,951; and the exports in the same time to $9,131,408. For the fiscal year ending June 30, 1862, our imports

of foreign wool amounted to 41,958,946 pounds, and in value to $6,480,306, more than one-half of it from Great Britain and British possessions. The demand has been increased by the diminished supply of cotton and the large supplies of all-wool goods for the army and navy during the war. The manufacture of wool in America properly commenced with the first erection of fulling mills, in which woollen webs undergo a process which gives them body and thickness, and adapts them to receive a better finish, at the same time that it increases their durability. The first of these mills was erected in Massachusetts about the year 1648 by a society of Yorkshire people, who were among the first settlers in several of the States, and, being from the woollen districts of England, generally brought their looms and implements of trade with them, and thus introduced the arts of weaving and cloth-dressing where they settled. In 1645 laws were enacted in Massachusetts to encourage the propagation and preservation of sheep. In 1656 spinning was systematically enforced upon all classes by requiring every family, during thirty weeks of each year, to spin weekly three pounds of wool, cotton, or flax. The first weaver in Chelmsford, now a part of Lowell, was the same year granted thirty acres of land as an inducement to set up weaving in the place. Before the close of the seventeenth century the spinning, carding, and weaving of wool, and cloth-dressing had been introduced into each of the old colonies by successive emigrations of English and German artisans, and were encouraged or enjoined by various local statutes. Virginia, in 1662, offered five pounds of tobacco, which was its early currency, for every yard of woollen cloth made in the colony, and at the same time prohibited the exportation of wool. The transportation of sheep from that colony had been still earlier forbidden. In 1664 looms and weavers were established in each county by order of the general assembly, but we do not find mention of any fulling mills until 1692. A law to encourage textile manufactures in that province, enacted some eight years previous, was annulled in England as a contravention of the navigation act.

This last and other acts of Parliament which sought by bounties, &c., to induce the colonists to export naval stores and raw materials to England, and thus to dissuade from manufactures, showed the vigilance with which Great Britain fostered her hereditary industry, and, perhaps, at the same time, a well-grounded fear of the quick expedients by which her distant dependencies might supply their own growing necessities. The first suggestion to prohibit cloth-making in the colonies appears to have been in 1698, by Governor Nicholson, of Virginia, and was probably the occasion of the extraordinary act before referred to respecting the exportation of wool and its manufactures. Other royal governors gave similar counsels on the subject of this and other industries, and watched the development of the arts with a vigilance which showed the national jealousy of colonial manufactures.

Lord Cornbury, of New York, in 1705, mentioned a woollen manufacture then being set up in Connecticut and Long Island, and said it had produced serges that any man might wear. His successor, Governor Heathcote, in 1708, reported that three-fourths of the linen and woollen cloth worn were made in the country, and that he had felt it his duty to discourage a fine-cloth manufactory which had been talked of. A letter from New England to the Lords of Trade and Plantations, in 1715, declared that a considerable manufactory, still in existence, of stuffs, kerseys, linsey woolseys, flannels, &c., had diminished the importations of the provinces £50,000 per annum.

In answer to inquiries instituted in 1731 respecting the cloth manufacture in the several colonies, it was stated that they consisted principally of linen and woollen cloths of a coarse kind made in families for their own use; that none were exported, and that in New England, where the greatest quantity was made, the manufacture had declined.

This household industry received a new and strong impulse through the non-importation agreements entered into just before the outbreak of the Revolution, when great efforts were made to increase the product of wool and other materials, and to promote household economy. In October, 1764, it was said that a company had established a woollen factory at Hempstead, Long Island, where broadcloths of any color could be supplied equal in quality and cheaper than any imported. A fulling and dyeing establishment was nearly completed also, at Jamaica. This attempt of some Yorkshire weavers to manufacture broadcloth did not succeed, probably for other reasons than the want of patronage, as it

was deemed patriotic to use articles of domestic product almost exclusively. In 1770 the graduating class at Harvard attended commencement exercises dressed in black cloth of New England manufacture. This was probably nothing else than the common domestic cloth made in nearly every family, and which formed the staple product of the country for ordinary wear. The woollens made consisted of two kinds: one a strong, coarse, all-wool cloth, three-quarters wide, which was sometimes fulled, but was often worn undyed and undressed; the other a kind called linsey-woolsey, made of linen warp and woollen woof.

Although the textile inventions of Arkwright and others were early adapted to the spinning and weaving of woollen fabrics in England, the British statute of 1750, prohibiting the exportation of tools and utensils used in the silk and woollen manufactures, under severe penalties, rendered it nearly impossible to obtain them. Few improvements were made, therefore, in the manufacture of wool, although an occasional attempt was made to produce fine cloth. Even the dressing of the common cloth in fulling mills of that day was performed imperfectly and with great labor. Gig-mills for teazles were scarcely used here up to the end of the last century. The price to farmers for fulling and dressing homespun cloth was forty to fifty cents a yard.

About the year 1788 a woollen manufactory was put in operation at Hartford, Connecticut, by Jeremiah Wadsworth and others, which in the course of a year made 5,000 yards of broadcloth, cassimeres, serges, &c., some of which sold at five dollars a yard. General Washington, who visited the factory in the following year, made his address to Congress in a suit of broadcloth presented by the owners; and many prominent gentlemen wore the gray-mixed cloths from that factory. A woollen manufactory set up at Stockbridge, Massachusetts, about this time, also made between five and six thousand yards of fulled cloth annually. In 1790 there was also a woollen mill at Watertown, and twenty-four fulling mills in the county.

In his report to Congress in 1791, Secretary Hamilton alluded to the extent of the household manufacture of woollens, and to the quality of the goods made at Hartford, surpassing anything that could have been looked for under the disadvantages. He speaks of the hat manufacture as the only branch of the woollen business which had reached anything like perfection, and of the importance of encouraging improvements in the breeds of sheep, as it was doubtful whether our wool was fit for the finer fabrics. In 1794, the first incorporated woollen company in Massachusetts established a woollen factory at Byfield, in Newbury, which was run by Arthur Schofield, and other English operatives, who had recently emigrated in company with Samuel Slater, the founder of the cotton manufacture in New England, to which use the factory was afterward converted. In 1804, Mr. Schofield, who had engaged in the construction of carding machines at Pittsfield, made the first fine broadcloth from merino wool probably made in the country. In 1807 Elkanah Watson introduced into Berkshire county, which has since become noted for its excellent cloth manufactures, the first pair of merino sheep from the Livingston stock, from the fleeces of which, in the following year, Mr. Schofield made a piece of blue cloth, superior to any yet made in the country. Samples were sent to the different cities, and accounts of it were published, with the cost of manufacture, and excited much interest throughout the country. He received at this time fifty to sixty cents a yard for weaving broadcloth.

In 1809 a company was formed at Pittsfield for the manufacture of fine cloth; and in 1812 Mr. Watson, founder and President of the Berkshire Agricultural Society, and a zealous promoter of improved manufactures, was awarded by the Society a prize of fifty dollars for a piece of broadcloth, deemed superior to any ever made in America, if not to any imported. During the same year the first cloth mill of any size in the country was erected at Pittsfield by L. Pomeroy, Esq. It employed only hand-looms, the first broadcloth power-loom not having been introduced there until 1825 or 1826, about which time the Pontoosuc Manufacturing Company commenced the manufacture of superior all-wool and cotton-warp drab and fancy broadcloths. That county at this time contains about twenty-four woollen mills, with 148 sets of cards.

The excitement on the subject of merino sheep, which carried the price of such sheep up to $500,

and even $1,500 each, extended also to the manufacture of merino wool, which rose from about $1 a pound in 1807 to $2, $2 50, and even $4 per pound in 1814, and cloth to $18 a yard. It amounted to a mania with many, and led to injudicious investments, both in sheep-raising and the woollen manufacture, resulting in subsequent ruin to the parties. The New York legislature, in 1809, offered large premiums for the best narrow cloths made, both in families and in regular factories.

Secretary Gallatin's report, made in April of the next year, refers to fourteen establishments for the manufacture of wool, making each on an average annually 10,000 yards of cloth, worth from one to ten dollars a yard, all of it superior in quality, though inferior in appearance, to imported cloths of the same price. There were other establishments, from which no particulars were obtained, and some of the cotton factories also spun wool to a small extent. The principal part of the wool of the country which was deficient in quantity and quality was still made in families.

The official census of manufactures taken in 1810 made the number of yards of woollen cloth woven in families to be 9,528,266 yards, and the number of woollen factories twenty-four. The returns, however, were very incomplete, both as to product and machinery. The fulling mills numbered 1,682, of which 427 were in New York, and upward of 200 each in Massachusetts, Connecticut, and Pennsylvania. The number of yards of cloth fulled was 5,452,960, valued at $4,117,308. A few wool blankets were made in Pennsylvania.

In Rhode Island there were twelve establishments for making cotton and woollen machinery. The principal woollen mills at this time were at Byfield, Massachusetts; New Ipswich, New Hampshire; Warwick and Portsmouth, Rhode Island; Derby, Connecticut; Poughkeepsie, New York; Philadelphia, Pennsylvania; Wilmington, Delaware; and Baltimore, Elkton, and Frederick, Maryland. Those at Derby, (the Humphreysville, incorporated this year with a capital of $500,000,) Poughkeepsie, and Wilmington, (Dupont's,) used merino wool, and made broadcloth, some of which was also made at Baltimore and probably elsewhere. Cassinet (of cotton and wool) was made at Philadelphia.

In 1812 steam was employed by the Middletown Woollen Manufacturing Company, in Connecticut, and the Providence Woollen Manufacturing Company, in Rhode Island, the former of which was the largest manufactory of fine cloths and cassimeres in the country, making thirty to forty yards daily, worth nine or ten dollars a yard. Many patents had already been issued in the United States for shearing cloth by steam and water-power, and for other woollen machinery. Among these was one to Mr. E. Cobb, of Vermont, for a machine which enabled a workman to make twelve wool blankets in a day. Hand-cards had been long manufactured to a large amount, and had even been exported to England. Portable spinning-jennies, of ten to twenty threads, were becoming quite common in families.

The production of wool, estimated in 1810 on the basis of official returns at thirteen or fourteen million pounds, was computed in 1812 to be equal to twenty or twenty-two million pounds. Few countries had exhibited so rapid an improvement either in the quantity or quality of its wool in so short a time.

Factories for making army and navy cloths, blankets, and negro cloths, and especially fine cloths, sprung up everywhere, notwithstanding the high cost of material. Among these were establishments at Harmony, Pennsylvania; at Wolcottville and Goshen, Connecticut; and at Salem, Massachusetts, all of which used merino wool, and made broadcloths which sold readily at eight to twelve dollars the yard, but which thirty years later would not have been worth more than one dollar. Heavy importations followed the peace in 1815, amounting in the first three quarters of that year to upward of $83,000,000, and for the next fiscal year to $155,500,000, about $70,000,000 of which was in woollens and cottons, paying under the act of 1789 an ad valorem duty of only five per cent.

To avert the destruction which threatened them, the woollen manufacturers appealed to Congress, representing that this branch employed a fixed capital of $12,000,000 and 100,000 hands, (one-half of them constantly,) producing goods to the value of $19,000,000. The business in Connecticut alone was stated to employ 25 establishments, which made annually 75,000 yards of narrow and 25,000 yards of broadcloth.

A duty of 25 per cent. ad valorem was accordingly laid, in 1816, on all woollens except blankets, rugs, and worsted or stuff goods. This was the rate until June 30, 1819, after which it was to continue at 20 per cent. The raw material was admitted duty free.

The manufacturers were also aided about this time by the introduction of the Power-loom, Messrs. F. C. Lowell, of Waltham, E. Savage, of Boston, and Messrs. Sheperd & Thorpe, of Taunton, Massachusetts, having severally brought forward loom engines near the same time, the last two particularly adapted to woollen fabrics. Such, however, was the strength of foreign competition that many factories, during the next six or eight years, were compelled to abandon the business, and others continued operations with heavy losses. Among the former was one started at Lexington, Kentucky, in 1814, for the manufacture of cloth, flannels, and blankets, which employed 200 hands, and was one of the largest and best supplied with machinery in the United States.

The census of 1820 furnished little available information respecting the woollen manufactures beyond the fact of its general depression.

Capital still continued to be invested in this business in the hope of a favorable change. In the State of New York sixteen manufacturing companies had been incorporated previous to 1823 for the manufacture of woollens exclusively, in addition to numerous private and unincorporated factories. Wool had fallen in price in 1824 to from 60 to 70 cents for fine, 42 to 45 for medium, and 31 to 33 cents for coarse. The deficiency of the domestic article was made up by considerable importations of Spanish, Saxon, and other wools. In May of that year Congress again raised the duty on imported woollens to 25 per cent. ad valorem on all (except flannels and baizes) which cost one-third of a dollar and under per square yard; and after June, 1825, a permanent rate of 33⅓ per cent. on all (except blankets and stuff goods) which cost over that price. Wool-growing was at the same time protected by a duty of 20 per cent. on unmanufactured wool, costing at the place whence imported over ten cents a pound, with a permanent rate after June, 1826, of 30 per cent., and on lower-priced wools, of 15 per cent.

The benefits of the latter act were in a great measure counteracted soon after by a reduction in England of the duty on foreign wool imported from SIXPENCE STERLING TO ONE PENNY, and afterward to a halfpenny a pound, avowedly for the purpose of placing British woollens in American markets at a cheaper rate. In 1827 the tariff was again revised with special reference to the relief of this industry, in which the manufacturers reported heavy losses. They claimed to represent a capital of $50,000,000, or ten times the amount so invested at the close of the war in 1815. The Woollens Bill, as it was called, was, however, lost in Congress, which in the following year raised the duty on woollens to 45 per cent. on such as cost $4 or less per square yard, and 50 per cent. on such as cost over that price. The high duty at the same time laid on the raw material was equivalent to 100 per cent. on low-priced wool costing eight cents a pound, which was largely imported, but not grown in the United States. The minimum valuation then first applied to woollens made the duties equal to specific rates of from 14 to 180 cents per yard on the five several grades enumerated. But it opened the door to fraudulent entries, and, together with the duty on wool, tended to neutralize the benefits of the act to the woollen interests. In July, 1832, low-priced wool was placed on the free list, and the ad valorem duty on other kinds was reduced ten per cent. The duty on low-priced woollen goods was also reduced to five per cent., but was raised again to fifty per cent. the next year, when provision was made by the compromise act for a gradual reduction of duties to a revenue standard of twenty per cent. after June, 1842. In the latter year the rate on woollens was readjusted at 40 per cent., to be again reduced in 1846 to 30 per cent., and in 1857 to 24 per cent. ad valorem. Under the act of June 30, 1864, cloths, shawls, and manufactures of wool pay 24 cents per pound, and 40 per cent. ad valorem, with an additional 5 per cent. on such as cost more than $2 per square yard. Woollen and worsted yarns costing less than 50 cents per pound pay 16 cents a pound, and 25 per cent. ad valorem; if more than 50 cents, and not over $1, 20 cents, and 25 per cent. ad valorem; and when above $1, 24 cents, and 30 per cent. ad valorem.

A convention of the principal manufacturers of the United States, held in October, 1831, estimated the number of sheep in the United States to be 20,000,000, and their product in wool at 50,000,000

pounds. Its value, on an average of the three years preceding, was 40 cents a pound, or $20,000,000, and when manufactured was worth $40,000,000. The quantity imported in that year was 5,662,962 pounds. New York, which in 1825 had 3,500,000 sheep, was at this time supposed to have about 5,000,000, and to produce one-fourth of the total wool product of the country, while Massachusetts manufactured one-fourth of the same.

The sixth census returned the number of woollen factories in the United States on the first day of June, 1840, at 1,420, and the fulling mills at 2,585. The capital invested was $15,765,124, the number of hands 21,342, and the aggregate value of the manufactures $20,696,999. The largest producers in this branch were Massachusetts, New York, Connecticut, Pennsylvania, and Vermont, which together produced woollens worth $16,750,000.

The value of woollens made in Massachusetts in 1832 was officially reported at $6,500,000, those of Worcester county alone being nearly $2,500,000. In 1837 the secretary of the commonwealth reported the value of woollen goods of all kinds made in Massachusetts to be $10,399,807. They employed 192 mills, with a capital of $5,770,750, and 501 sets of machinery, and 7,097 hands. The wool consumed was 10,858,988 pounds, and the quantity of cloth made 11,313,426 yards.

In 1845 the State census of Massachusetts made the woollen manufactures of the State to be of the value of $8,877,478, the capital invested $5,604,002, and the number of hands 7,372. This was exclusive of carpetings, worsted goods, hosiery, and yarns. The largest woollen establishment in the State, and the largest in the United States, was that of the Middlesex Manufacturing Company at Lowell, incorporated in 1830. It employed a capital of $750,000, since increased to $1,000,000, and about 1,500 operatives, and had two mills and two dye-houses. It ran 7,200 spindles, 37 broadcloth, and 122 cassimere looms, and used 1,000,000 pounds of wool and 3,000,000 teazles yearly, the product, being 119,000 yards of broadcloth and 624,000 yards of cassimeres annually. The next in extent in the country was that of the Messrs. Farnum, at Waterford, in Worcester county, who were among the earliest manufacturers of fancy and plaid cassimeres, and used upward of 1,000,000 pounds of the finest wool in their production and that of broadcloths.

In 1855 the product of Massachusetts in woollens had increased to $12,105,514, the capital to $7,305,500, and the number of operatives to 10,090. The number of woollen mills was 146, the sets of machinery 695, and the consumption of wool 18,786,298 pounds. Included in the product were 759,627 yards of broadcloth, valued at $837,650; cassimeres, 6,444,585 yards, worth $5,015,441; satinetts, 6,736,082 yards, value $2,708,935; Kentucky jeans, 1,948,609 yards, value $31,000; flannels and blanketings, 10,279,227 yards, value $3,125,949; and woollen yarn not made into cloth, 689,957 pounds, valued at $386,537. Of the total value Worcester county produced $3,994,697, or nearly one-third; Berkshire, Essex, and Middlesex being next in order. In 1860 Worcester county had 42 mills, and made woollen goods to the value of $5,195,542, besides yarn.

Previous to 1855 the Bay State Mills, at Lawrence, Massachusetts, had become the largest in the world for the manufacture of cassimeres, shawls, and other fancy woollen goods, having the capacity to work up 2,000,000 pounds of wool annually. In 1850 they employed 2,200 operatives, 98 sets of carding engines, and 700 looms, with dye and print works for flannels and carpets. The products were plain and twilled flannels, dyed in fancy colors or printed, and in extensive demand, fancy casimeres and satinetts, broadcloths, beaver cloths, all wool, long and square shaws, and felted goods, including beavers, linings, and carpets, made by a process peculiar to the establishment. The manufactory in extent and in the completeness and order of all its appointments was a type of the large woollen factories of New England. New York in 1855 contained 184 woollen factories for cloth and yarn, of which 161 used water and nine steam power, and the value of the product was $3,392,207. There were in addition five shawl and blanket factories, two of them of large size, and five shoddy mills. The total consumption of wool was 10,877,783 pounds, and produced 4,836,834 yards of cloth, 506,178 pounds of yarn, besides shawls and blankets to the value of $610,500, and shoddy goods worth $41,640.

Pennsylvania, in 1850, had 258 woollen establishments, and the value of her woollen manufactures was $5,629,550. In 1860 the mills numbered 270, the wool consumed was 7,128,529 pounds, and the cotton 4,337,000, which produced 23,405,469 yards of cloth and 2,988,650 pounds of yarn, valued with other articles at $8,191,675. She produced more yarn than any other State, which is consumed by the hand-loom weavers and families of that and western States. Philadelphia has long been engaged in this industry, which was commenced by the English settlers on the banks of the Schuylkill, and, like the cotton manufacture of that city, still retains many of its early features. The business is characterized by the number of small independent factories, and the extent of hand-loom weaving, of which it is the principal seat in the United States. The products embrace all-wool and mixed cassimeres, in fineness and finish little inferior to the French, and often sold as such, satinetts in large quantity, Kentucky jeans, twills and tweeds of a great variety of patterns and colors, which are in great demand at the west, all-wool and other shawls, and flannels, including an article called Welsh flannel, used by glass-blowers, miners, foundrymen, and kerseys or woollen plaids of various qualities.

The manufacture of superfine cloths has never obtained a permanent footing in the United States, although upwards of fifty mills, in 1845, made more or less broadcloth, some of it of fair quality. Recently its manufacture has been nearly or quite abandoned, except the production of army and navy cloths; although one factory in Hampshire and one in Worcester counties, Massachusetts, returned some broadcloth in 1860. This result is due in part to the quality of American wool, which, though equal in fineness to any in the world, is better adapted by its length of fibre for making soft woollen and worsted goods than fine cloths, which are improved in appearance by a shorter nap than can readily be imparted with native wool. The great and deserved popularity of the west of England superfine cloths, and the cheapness of all English broadcloths, produced by the cheap labor and perfect machinery now in use, the elegant finish of the French, and the lightness of French and German cloths, which adapt them to our summer use, have also prevented our manufacturers from obtaining possession of the home market under the low tariffs which have generally prevailed. American cloths have nevertheless been often sold in our cities as imported goods, to which in durability they are generally superior. Specimens of black cloth made from American fleece wool by S. Slater & Sons, of Webster, Massachusetts, were awarded prize medals at the world's fair in London in 1851.

The staple of our woollen manufactures at this time are plain and fancy, all wool and silk-warp cassimeres, doeskins, tweeds, habit cloths, beavers, flannels, blankets, balmoral skirts, shawls, satinetts, negro cloths, and jeans, &c. In New England and New York the manufacture of cassimeres employs about 677 sets of machinery, that of satinetts 364 sets, of blankets and flannels 369, of cotton warp cloths and carpets 113, of negro cloths and jeans 53, of feltings 44, and of shawls 43 sets.

American Shawls and Blankets from the Bay State Mills at Lawrence were adjudged prizes and medals at the exhibition of 1851, and specimens of shawls sent from the Watervliet Mills, New York, were considered not inferior to the best Paisley's. The Bay State Mill is the largest, and one of the earliest producers of these articles, particularly of shawls. A company was incorporated at Tariffville, Connecticut, in 1827, to manufacture carpets and shawls, but has chiefly produced carpets. In 1844 merino shawls were made in Philadelphia, and plaid or Rob Roy shawls at Washington, New York, and also good shawls at Skaneateles, in the same State. Good printed Terkeri shawls were made at Lexington, Kentucky, in 1849, at which date the Bay State Company employed in the business 1,000 hands, making daily as many long shawls, entirely of American wool. In 1860 shawls were made in five States to the number of 616,400, but chiefly in New York and Massachusetts. The Peace Dale Manufacturing Company in Rhode Island made 100,000 shawls in that year. Encouraging attempts have been made within a few years to acclimate the Cashmere and Angora goat in the United States, and machinery is said to be in course of erection at Lowell to manufacture fine fabrics from the fleeces of these animals, which supply the material for the costly Cashmere shawls. We still import shawls to a large amount annually.

Blankets and Flannels have been made for many years. Samples of white flannel from New York sold in Charleston, South Carolina, in 1822 for $1 a yard, and was considered equal to the best Welch. Two years later, 30,000 pieces were made in and near Boston. In 1827 three mills in the vicinity of Newburyport made flannel to the estimated value of $684,000. The first manufactory of the article in Vermont was established in 1829, at Barnet, by Henry Stevens. It was run by water-power, and was capable of making 3,000 yards weekly. In 1849 there were two flannel Mills at Dover, New Hampshire. The Bay State and Ballard Vale mills, and those of Gilbert & Stevens, at Ware, in Massachusetts, have produced flannels equal in softness and whiteness to any imported. The shawls, balmorals, fancy-made flannels and shirtings, opera cloakings, &c., made at Waterloo, New York, and Laconia, New Hampshire, are of acknowledged excellence. A manufactory of Mackinac or Indian blankets was established at Clintonville, near Buffalo, New York, in 1831, and one of cotton warp blankets for negro use about the same time in Pendleton district, South Carolina. The blankets made at Lawrence, Massachusetts, at Rochester, New Hampshire, and at Bridgeton, Maine, and elsewhere in the United States, have rivalled in beauty of texture and finish the best of foreign make. In 1860 blankets were manufactured to the number of 616,400, and to a greater or less extent in nineteen States; Maine, Massachusetts, New Hampshire, Pennsylvania, and California being the principal producers. Many blankets have been made by the Willamette Manufacturing Company, at Salem, in Oregon, the first established on the Pacific coast, the blanket factory in California being the next in those States. The late war created a large demand for coarse blankets and flannel for the army, as well as for other woollens, which was in part supplied by importations. Contracts were made in 1861 by a single manufacturer, near Philadelphia, to furnish the government with 431,000 yards of white and 271,000 yards of Indigo blue flannel. A few large factories have chiefly supplied army goods in the last year or two. The consumption of wool for military goods, purchased during the year ending June 30, 1862, was estimated by the Boston Board of Trade at 50,000,000 of pounds. Of that amount 30,000,000 of pounds were used for army cloths, (24,000,000 yards,) 13,000,000 for blankets, and 7,000,000 for miscellaneous purposes. The purchases included 1,281,522 overcoats, 1,446,811 uniform coats, 3,039,286 pantaloons, and 1,458,808 blankets. The purchase of blankets for the succeeding quarter year was 894,077. During the fiscal year named, we imported, in addition to woollen and worsted yarn, carpets, delaines, &c., 6,930,196 pounds of blankets, valued at $1,945,707; woollen cloths, 4,432,392 pounds, value $5,441,719; flannels, 92,642 yards, worth $30,798; shawls, 49,882, valued at $105,925.

Among the imports were 6,291,077 pounds of wool flocks, waste, or "shoddy," which has been much used in the manufacture of army and navy cloths and blankets in the United States, as it is in England. This article, which is the basis of an extensive trade centring in Batley and Dewsbury, in Yorkshire, is principally used in the manufactures of that neighborhood. It consists of cast-off woollen clothes, rags, stockings, carpets, and all soft woollen and worsted articles, reduced by powerful machinery to their original flocculent state, to be re-spun and woven, either alone or mixed with new wool, into a variety of fabrics. Hard, or superfine cloths, mechanically reduced to filament in the same way, produce what is called "mungo," which makes a better class of goods. Shoddy was originally only used for padding; but for some years past has been used for the manufacture of pilot and petersham overcoats, table and piano covers, army cloths, &c. White shoddy enters into light-colored goods, blankets, &c., and the dark-colored into carpets and coarse cloths of all kinds, which are dyed to cover the original colors. Mungo is extensively used in the production of the cheap Yorkshire broadcloths, which, in finish and appearance when new, are little distinguishable from the best west of England cloths. These shoddy cloths, on account of their cheapness and deceptive appearance, have been very much used in the United States, to the injury of our cloth manufactures. Being, in some respects, better adapted to produce a close, short nap than American wool, this material has also entered into our domestic manufactures of late years. The machines for reducing rags to shoddy are also in use here. About the beginning of the current century a machine was patented by a Philadelphia manufacturer for that purpose, and about four years later an essay was made in that city to manufacture the material

from rags and refuse woollens. A shoddy mill was projected in 1842 at Woodstock, Vermont, by a Mr Stearns, who proposed to manufacture satinets from the filament of soft woollen rags. There are shoddy mills in several States at this time. Five mills in New York in 1855 employed 58 hands, and materials valued at $13,900—their product $41,640. They were at Newburgh, Watervliet, Troy, and Marlborough.

Statistics of woollen goods produced in the United States during the year ending June 1, 1860.

STATES.	Number of establishments.	Capital invested.	RAW MATERIAL USED. Pounds wool.	Pounds cotton.	Cost of raw material.	Sets of cards.	Average number of male hands employed.	Average number of female hands employed.	Annual cost of labor.	VALUE OF ANNUAL PRODUCT. In 1850.	In 1860.	Increase per cent.	*QUANTITIES OF ANNUAL PRODUCT. Number of yards of cloth.	Number of lbs. of yarn.	Number of shawls.	Number of pairs of blankets.
EASTERN STATES.																
Maine	26	$932,400	2,414,300	82,500	$1,003,366	80	539	488	$263,216	$935,883	$1,717,007	83.46	2,509,100	17,100	.....	96,680
New Hampshire	51	1,421,300	3,829,404	89,000	1,612,578	146	846	672	418,142	2,139,967	2,601,653	21.57	5,782,641	341,630	.....	44,400
Vermont	46	1,746,300	4,047,010	279,500	1,662,650	99	895	1,178	412,572	1,820,769	2,938,626	61.39	3,975,882	3,000	.....	.....
Massachusetts	134	8,993,953	33,516,797	4,855,370	12,520,675	821	7,659	5,310	3,032,721	12,781,514	19,655,787	53.78	34,899,348	2,160,071	157,000	57,207
Rhode Island	57	3,168,500	6,832,600	3,056,200	4,070,224	253	2,593	1,636	1,069,176	2,504,700	6,915,205	176.08	19,343,600	112,800	100,000	.....
Connecticut	84	2,491,000	7,179,819	1,472,508	4,043,124	265	2,308	1,459	949,020	4,321,152	6,840,220	38.99	14,301,043	.....	.....	.....
Total	398	18,753,453	57,819,930	9,835,078	24,912,617	1,664	14,840	10,743	6,144,847	25,103,985	40,668,498	62.00	80,311,614	2,634,601	257,000	198,287
MIDDLE STATES.																
New York	140	3,115,700	7,453,004	193,683	3,424,614	324	2,504	1,716	992,975	7,605,774	5,870,117	Dec.	7,951,679	.....	230,000	6,000
Pennsylvania	270	4,339,310	7,128,529	4,337,000	4,427,138	483	3,738	2,350	1,410,324	5,629,550	8,191,675	45.51	23,405,469	2,988,650	110,200	42,347
New Jersey	35	583,400	1,175,800	239,500	548,578	61	532	303	203,136	1,020,941	1,085,104	6.28	1,754,575	179,600	19,200	8,325
Delaware	4	117,000	140,000	100,000	75,807	8	76	38	27,564	244,510	153,035	Dec.	427,200	35,000	.....	250
Maryland	27	318,200	1,055,272	73,000	267,355	44	248	133	86,712	319,240	605,992	89.82	1,153,857	16,600	.....	515
Total	476	8,473,610	16,952,605	4,943,183	8,743,492	920	7,098	4,540	2,720,711	14,820,015	15,905,923	7.3	34,692,780	3,219,850	359,400	57,437
WESTERN STATES.																
Ohio	115	658,750	1,190,751	.....	476,833	173	543	185	179,160	1,513,978	825,231	Dec.	1,078,266	234,805	.....	5,760
Indiana	79	464,341	940,000	.....	352,362	112	436	97	150,276	265,412	649,771	144.81	680,355	153,525	.....	5,910
Michigan	16	103,950	163,100	.....	69,010	14	77	49	30,672	192,043	139,246	Dec.	172,723	16,100	.....	140
Illinois	21	207,600	324,300	.....	110,462	37	128	34	44,004	200,845	187,613	Dec.	176,960	71,200	.....	1,525
Wisconsin	15	100,600	265,000	.....	85,743	19	74	31	27,036	33,370	172,720	417.59	285,000	12,500	.....	.....
Iowa	12	82,500	168,700	.....	67,293	13	96	24	23,652	112,454	127,640	13.50	133,315	25,400	.....	910
Missouri	11	103,750	191,400	.....	56,745	15	53	17	19,728	56,000	143,025	155.40	358,000	4,300	.....	370
Kentucky	37	408,500	1,452,500	170,700	510,902	83	350	87	103,284	424,944	845,226	429.74	2,230,246	7,925	.....	885
Total	306	2,129,991	4,695,751	170,700	1,729,350	466	1,757	524	577,812	2,799,046	3,090,472	10.4	5,114,865	525,755	.....	15,500
SOUTHERN STATES.																
Virginia	45	463,600	1,131,000	10,000	389,204	50	381	113	106,692	690,802	717,827	3.91	1,007,714	21,000	.....	1,500
North Carolina	7	223,000	504,500	.....	151,005	23	113	140	60,036	71,470	291,000	307.16	639,000	.....	.....	.....
South Carolina	1	50,000	250,000	.....	60,000	10	37	55	11,400	.....	80,000	.....	300,000	.....	.....	.....
Georgia	11	242,500	1,003,600	142,500	260,475	30	167	216	63,348	.....	464,420	.....	1,435,000	.....	.....	.....
Alabama	6	140,000	264,435	5,000	80,790	14	95	103	34,116	7,470	191,474	2461.88	613,410	.....	.....	.....
Texas	2	60,000	81,900	18,000	25,980	4	36	7	7,680	22,000	38,796	76.34	94,976	.....	.....	.....
Mississippi	4	75,500	270,597	75,600	119,849	13	202	33	22,620	18,700	158,507	.....	509,203	.....	.....	150
Louisiana	1	75,000	69,150	.....	31,300	4	40	20	6,720	.....	45,200	.....	48,800	.....	.....	.....
Arkansas	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,800	.....	.....	.....	.....	.....	.....
Tennessee	1	6,000	10,000	.....	5,225	1	8	2	2,472	.....	8,100	.....	18,000	.....	.....	.....
Total	78	1,335,600	3,590,182	251,100	1,123,828	149	1,079	689	315,084	819,242	1,995,324	143.55	4,726,103	21,000	.....	1,650
PACIFIC STATES.																
California	1	100,000	400,000	.....	50,000	6	40	20	33,600	.....	150,000	.....	.....	.....	.....	18,000
Oregon	1	70,000	150,000	.....	27,000	4	27	3	16,200	.....	85,000	.....	52,500	.....	.....	6,000
Total	2	170,000	550,000	.....	77,000	10	67	23	49,800	.....	235,000	.....	52,500	.....	.....	24,000
Total in U. States	1,260	30,862,654	83,608,468	15,200,061	36,586,887	3,209	24,841	16,519	9,808,254	43,542,288	61,895,217	42.14	124,897,862	6,401,206	616,400	296,874

* New Hampshire—table covers, 18,000; New Jersey—yards felt, 155,000; Ohio—coverlets, 600.

WORSTED GOODS.

The manufacture of worsted goods, consisting chiefly of all-wool and cotton warp, mousseline de laine, bareges, Cashmeres, &c., for ladies' dresses, is mainly carried on in three establishments in the United States. These are the Manchester Print Works in New Hampshire, the Pacific Mills at Lawrence, and the Hamilton Woollen Company's Works at Southbridge, in Massachusetts.

These manufactories had invested in this branch in 1860 a capital of $3,230,000. They employed 110 sets of cards, and 1,101 male and 1,277 female hands, whose aggregate yearly wages amounted to $543,684. The raw materials were 3,000,000 pounds of wool, worth $1,554,000; 1,653,000 pounds of cotton, costing $196,640; besides madder and other dyestuffs, coal, oil, &c., costing altogether $2,442,775. The cost of wool was 51 cents, and of cotton 11.8 a pound, on an average of the whole quantities. The aggregate product was 22,750,000 yards of de laines, &c., valued at $3,701,378.

The average annual wages of operatives was $228. The product was in the proportion of 206,818 yards of cloth, and $33,648 in value, for each set of cards employed. The average value per yard of the goods was 16.20 cents, the cost for labor and material being 13.12 cents a yard. The largest of these establishments was that of the Manchester Print Works Company, which employed a capital of $1,200,000, and ran 58 sets of cards. It expended for the wages of 395 male hands $118,500, and for that of 675 females $133,500, an average of $300 per annum for each male, and $197 for each female operative, and a total of $252,000 for the yearly labor of 1,070 persons. It consumed 1,560,000 pounds of wool, valued at $780,000; and (by estimation) 772,000 pounds of cotton, worth $92,640; and for other raw materials paid $254,335, making the total cost of materials $1,126,975, and of labor and materials together $1,378,975. The manufactured goods amounted to 9,500,000 yards, of which the value was $1,700,000. Each set of cards required on an average 26,896 pounds of wool and 13,310 pounds of cotton annually, and produced 163,793 yards of cloth, at a value of $29,310. The average cost of wool was 50 cents, and of cotton 12 cents a pound, and the value of the goods made was 17.99 cents a yard.

The Pacific Mills at Lawrence, incorporated in 1853, apart from their production of cotton goods, employed one mill in the manufacture of worsted fabrics, with a capital of $1,430,000. Its machinery consisted of 30 sets of cards, 31,000 spindles, and 800 looms, driven by water-power. It gave employment to 435 men and 365 women, the annual wages of the former amounting to $120,000, or $275 each, and of the latter to $54,000, or $148 each, making the total cost for the labor of 800 persons $174,000 per annum.

The raw material consumed was as follows: wool, 850,000 pounds, worth $450,000; cotton, 576,000 pounds, valued at $64,000; madder, 2,000,000 pounds, costing, with other dyestuffs $300,000; anthracite coal, 4,500 tons, cost $25,000; and oil to the value of $8,000; total value of raw materials $847,000. The mill produced 8,250,000 yards of cotton and worsted de laines, and dress goods valued at $1,250,000, which was $229,000 more than the combined cost of labor and materials. The average consumption of wool for each set of cards was 283,333 pounds, and of cotton 192,000 pounds. The total product averaged 275,000 yards of cloth, and a value of $41,666 to each set of cards. The consumption per spindle averaged 27½ pounds of wool and 18½ pounds of cotton, and the manufactured product 266 yards of cloth to each spindle, and 10,312½ yards to each loom. Wool cost the company on an average nearly 53 cents a pound, and cotton 11.1 cents. The manufactured goods cost for labor and material 12.37 cents a yard, the value when made being 15.15 cents per yard.

The Hamilton Company's mill at Southbridge employed in the textile branch of its business a

capital of $450,000, and in printing, $150,000. It ran 22 sets of cards, 18,000 spindles, and 432 looms by water-power, steam and water being used in the printing. The male hands employed numbered 271, and the female 237, of whom 136 males and 222 females belonged to the spinning and weaving, and the balance to the printing departments. The total annual wages of these operatives cost $117,684, the male hands averaging $300, and the females $153 each per annum. The materials wrought were 590,000 pounds of wool, costing $324,000, an average of nearly 55 cents a pound; 305,000 pounds of cotton, worth $40,000, or 12.3 cents a pound; and 4,800 gallons of oil, worth $4,800, in addition to dyestuffs, valued at $100,000, making the total cost of raw material $468,800, and of labor and material together $586,484. The product was 5,000,000 yards of de laines, &c., valued at $500,000, to which was added in the printing a value of $251,378, making the total value $751,378. The value of the manufacture over the cost of labor and material was $164,894, or 3.7 cents a yard on goods which averaged, when finished, 15.02 cents a yard.

The consumption of wool in their manufacture was at the rate of 26,818 pounds to each set of cards, and 32.8 pounds to each spindle, and that of cotton averaged 13,854 pounds to the card, and 17 pounds to the spindle. Each set of cards produced 227,272 yards of worsted goods, and an average value of $34,153. Each spindle averaged 277 yards of cloth, and each loom 11,574 yards.

The capital of the two mills in the State of Massachusetts was $2,030,000; the number of hands, 1,308; the sets of cards, 52; spindles, 49,000; looms, 1,232; consumption of wool, 1,440,000 pounds worth $774,000; cotton, 881,000 pounds, worth $104,000; total value of all materials, $1,315,800; total cost of labor, $291,684; yards of cloth made, 13,250,000; value of the same, $2,001,378.

The goods manufactured in these establishments are chiefly all-wool and cotton-warp de laines, challies, bareges, imitation bareges, all-wool and part-wool reps and worsted yarns for carpets and hosiery. They are good fabrics, woven by power, and of different qualities; the gray mousseline de laines of the Manchester Company were formerly made with No. 37 cotton warp and No. 40 wool filling for the coarser kinds, and the finer qualities were made with No. 70 cotton warp spun on the Potter mule, and No. 50 woollen weft made on the Smith mule. Many improvements have been made in this interesting branch of our manufacture, particularly in the printing department.

The wholesale prices of American de laines in New York, on February 1, 1865, were, for those of Pacific Mills, 42 cents; Hamilton, 32 cents; and Manchester, 33 cents a yard, which was a decline from the previous quotations.

The largest establishment is the Manchester mill, owned by the Merrimac Mills Corporation, which also manufactures cotton print goods extensively. This mill in 1849 contained 22,000 spindles and 600 looms, and employed 1,000 hands, making 5,200,000 yards of de laines and print cloths. These were printed in tasteful patterns and brilliant colors. In a single week, ending June 4, 1853, the company made 422,389 yards of plain gray de laines, 7.44 yards to the pound.

The manufacture of worsted goods, or goods of which worsted was a component part, employed ten establishments and 846 hands in Massachusetts in 1845. These produced 2,321,338 yards of woven goods, worth $382,858, and 617,360 pounds of yarn, valued at $271,708—total value, $654,566.

Very good styles of mousseline de laines, alpacas, and Orleans cloths were at that time made by the Ballardvale Manufacturing Company, at Andover, and 350,000 pounds of worsted yarns and 3,000 pieces of bunting, in addition to other woollens, by the New England Worsted Company, at Saxonville, in that State. The last-mentioned article was first made in the United States a short time previous to this at Framingham, where, in 1844, about 500 yards were made daily, of a quality thought equal to the foreign. The manufacture of bunting, however, has never been successfully established in this country heretofore. Quite recently, we believe, during the late rebellion, it has been resumed at Lowell, and there is every probability we shall be no longer dependent on foreign looms for that article.

The Massachusetts State census of 1855 gives the number of mills employed on worsted and mixed goods as seven, and the number of hands 1,062. Their united capitals amounted to $1,236,000,

and the value of their manufactures to $1,448,740. The quantity of cloth made was 8,189,930 yards, valued at $1,029,284, and of yarn not woven into cloth, 1,023,900 pounds, worth $419,456 The Hamilton Company at that time made a return of 4,500,000 yards of de laines printed, of which the value was $675,000. They employed 18 sets of cards and 9,000 spindles, and consumed 540,000 pounds of wool, which made 4,400,000 yards of cloth, worth $440,000. The Pacific Mills then ran 13 sets of woollen machinery in connexion with their print works, and made 3,216,998 yards of de laines, valued at $536,000. These consumed 475,000 pounds of wool and 200,000 pounds of cotton. There were small factories at Canton, Chelmsford, Framingham, and Lowell, and one at Sudbury, which made no return. Fancy worsted goods to the value of $20,000 were made at Canton, cashmerets at Chelmsford, and a small quantity of silk and worsted coach lace by one mill in Worcester county. The others chiefly produced yarns.

Worsted felt beavers, and other worsted felt goods, made without spinning or weaving, by incorporating together successive layers or thin sheets of worsted, are made by the Union Manufacturing Company, at Norwalk, Connecticut. The process is altogether an American one, we believe.

The printing of worsted goods was commenced in Rhode Island nearly on the first introduction of this class of goods. On the first of February, 1840, it is said *a new pattern of French mousseline de laines was opened in New York by an importer, who offered the goods at 14 cents a yard by the case. On the following day the agent of a Rhode Island calico print works forwarded to Providence a sample of the new style, and in sixteen days had the same style of goods, and of equal fabric, in New York, selling at ten cents a yard. In twelve days the new pattern had been engraved on a copper cylinder, transferred in relief to a steel cylinder, hardened, and ready for use; the proper coloring ingredients discovered by chemical experiments, and the goods printed, dried, and cased for market.

The Dunnell Manufacturing Company, at Pawtucket, probably the oldest and one of the largest print works in the country, have, in addition to calicoes, printed large quantities of de laines, bareges, &c., both in steam and madder colors, their establishment being arranged to effect greater economy than European establishments generally. Beautiful styles of cashmere de laines were printed at Lodi, New York, in 1850, by Robert Rennie. Many de laines, merinos, and other French cloths are imported in an unfinished state and printed in colors and patterns to suit the market at the Philadelphia Print Works. Handsome de laine prints have also been produced by the American Print Works and Bay State Mills, at Fall River, Massachusetts. But the large New England companies, who print chiefly their own manufactured goods, have produced every variety, and in styles and colors unsurpassed by any imported.

The Hamilton Company, and others, have produced, with great success, cashmeres, de laines, &c., printed by machinery with copper "shells," in handsome landscape patterns, in which birds, castles, trees, flowers, &c., are brought out with great distinctness and beauty. The large and more showy patterns, with many and vivid tints, are chiefly sold at the south and west. The madder color prints, which are in demand in the New England and northern States, are admired for the sobriety and harmony of their colors and the beauty of the designs. The Pacific Mills have recently introduced printing machinery—said to be used only in one other place in the world—which prints sixteen different shades and colors in passing the fabric once through it.

The duty on worsted goods was laid, in 1842, at 30 per centum ad valorem. In 1846 it was reduced, except on shawls of worsted and silk, to 25 per cent., and in 1857 to 19 per cent., shawls of worsted and silk paying 24 per cent. Under the present tariff gray or uncolored dress goods for women and children, composed wholly or in part of wool, worsted, alpaca, or goat's hair, &c., pay, when costing not over 30 cents the square yard, 4 cents per square yard, and 25 per cent. ad valorem. When exceeding in value 30 cents per square yard, the duty is 6 cents a yard and 30 per cent. additional, with an additional 5 per cent. ad valorem on stained, colored, or printed goods. Balmorals and like goods pay 24 cents a pound, and 35 per cent. ad valorem, and bunting and all other manufactures of worsted, alpaca,

* Hunt's Merchants' Magazine.

mohair, &c., 50 per cent. ad valorem. Worsted yarn costing over $1 per pound pays 24 cents a pound, and 30 per cent. ad valorem, and cheaper kinds 16 and 20 cents per pound, and 25 per cent. ad valorem

Statistics of worsted goods produced during the year ending June 1, 1860.

STATES.	No. of establishments.	Capital invested.	RAW MATERIAL USED.		Cost of all raw materials.	Sets of cards.	NO. OF HANDS EMPLOYED.		Annual cost of labor.	Annual value of product.	Yards of de laines, cashmeres, &c.
			Pounds of wool.	Pounds of cotton.			Male.	Female.			
New Hampshire	1	$1,200,000	1,560,000	772,000	$1,126,975	58	395	675	$252,000	$1,700,000	9,500,000
Massachusetts	2	2,030,000	1,440,000	881,000	1,315,800	52	706	602	291,684	2,001,378	13,250,000
Total	3	3,230,000	3,000,000	1,653,000	2,442,775	110	1,101	1,277	543,684	3,701,378	22,750,000

HOSIERY.

The manufacture of hosiery includes the production of a variety of articles, such as stockings, socks, gloves, mittens, drawers, under-waistcoats or shirts, jackets, opera hoods, shawls, scarfs, comforters, night-caps, and other plain and fancy and knit goods, of whatever color, whether made of wool, cotton, silk, or flax, or of those materials combined, and either knitted by hand or woven on the stocking loom. Though not heretofore a business of much extent in the United States as compared with its magnitude in Great Britain and Germany, it is one of growing importance, and was largely augmented in the ten years preceding the last census.

In 1850 three New England, four middle, and three western States made returns of this industry which showed an aggregate of eighty-five manufactories, having a capital of $544,735, an expenditure for raw material of $415,113, and 835 male and 1,490 female hands, the cost of whose labor was $360,336, and the annual product $1,028,102. Upwards of one-half the product, or $561,577, was returned by Pennsylvania, which had fifty-nine establishments, employing altogether 1,237 hands. Probably the largest manufactory was in Connecticut, which reported only one, the capital of which was $200,000, and the yearly product $222,000.

The statistics of this branch of industry in 1860 embraced returns from four eastern, four middle, and three western States. The total number of hosiery establishments in these was 193. Their united capitals amounted to $4,035,510; the value of raw material to $3,202,317; number of hands employed, 2,780 males and 6,323 females; cost of labor $1,661,972; and the value of manufactures $7,280,606. They consumed 2,927,626 pounds of wool and 3,892,342 pounds of cotton. The value of the product exceeded that of 1850 by 608 per cent. In the eastern States the product was increased in ten years from $408,000 to $2,374,242, or 481 per cent.; in the middle States from $609,402 to $4,847,984, equal to 695.5 per cent.; and in the west from $10,700 to $58,380, equivalent to 445 per cent.

The middle States manufactured hosiery to more than double the value made in New England, the largest producer being Pennsylvania, in which it amounted to $2,114,315, or nearly as much as that of all New England, and an increase of 276 per cent. upon the production of that State in 1850. The ratio of increase was large in all the States which made returns. Wisconsin, which in 1850 made $500 worth, made no return in 1860. It was greatest in New Jersey and New York, the former of which returned the value of $783,456 against $9,100 in 1850, and the latter $1,944,090, a very large increase on the product of 1850, when it was only $37,000. Connecticut was the largest manufacturer of hosiery in New England, and returned a value of $1,383,528, an increase of 523 per cent., while Vermont, which reported none in 1850, made to the value of $102,800. The increase in the other States was at the following rates, viz: New Hampshire, in which the production exceeded half a million dollars, 379 per cent., Massachusetts 373, Maryland 255, Ohio 278, and Missouri 726 per cent. Connecticut made a return of 159,610 dozens of shirts and drawers, 64,500 dozens of hose, and 112,000 yards of stockinet. Maryland reported 4,060 dozens of hose, valued at $6,123.

HISTORY AND STATISTICS.

The present extended manufacture and use throughout the world of knit fabrics and of lace illustrate the far-reaching influences of a single useful invention. The use of *hose* or leggins, comprising in one piece all the covering below the waist, probably originated in the middle ages of Europe. The hose was afterward separated into breeches and stockings, which last, in the early part of the sixteenth century, was chiefly made of milled cloth even for the use of royalty itself. It is not known precisely when or where the art of knitting stockings originated; but a company, or guild, of stocking weavers is said to have been established in Paris in 1527. Knit worsted stockings are also said to have been made in the Pyrenees for centuries; and stocking-frames a few years ago were not allowed by the French government to be erected there lest they should interfere with the ancient industry. Henry II, in 1559, is believed to have been the first French sovereign who wore silk stockings. Knit hose were in use and probably were made in England in 1533, although the King, ordinarily, wore cloth hose, unless, by great chance, a pair of silk stockings came from Spain, whence the use and perhaps the art of making knit hosiery appears to have been brought. The presentation of "a pair of long Spanish silk stockings" to Edward VI by the eminent merchant, Sir Thomas Gresham, is noticed as a "great present." In 1560 a pair of black silk stockings knit in England was presented to Queen Elizabeth by her silk woman, Mrs. Montague, from which time the Queen refused to wear cloth hose. The first pair of worsted stockings known to have been knit in England were soon after made in imitation of a pair from Mantua, and presented to the Earl of Pembroke. Knitting, therefore, became a common occupation of the rural and humble classes, and Shakspeare speaks of

"The knitters in the sun,
And the free maids who weave their thread with bones."

Knitting became also a fashionable employment with ladies of rank. The Shetland Isles, which were famous for their fine wool, became celebrated for the beauty and excellence of their knit fabrics, and it is said that a lady of these islands, at a later period, knit a pair of stockings of such fineness as to be drawn through her finger-ring. They were presented to George IV, and displayed by him with pride at his levees.

The common broad stocking-frame, or loom, for knitting plain hosiery, which, throughout Europe, soon superseded knitting by hand, and became the groundwork of all subsequent improvements, was invented by the Rev. William Lee, of Woodborough, near Nottingham, about the year 1589. This remarkably ingenious but complex and cumbersome machine was the result of several years of intense toil and study. It was first set up at Culverton, near Nottingham, where the inventor, in 1697, had nine machines in successful operation. It was afterward carried to London and operated before the court, but failed to secure the patronage of the aged queen, or of her narrow-minded successor, James I, who either did not perceive its future importance to his subjects, or feared the innovation would be dangerous to the poor hand-knitters. Henry IV of France, or his enlightened minister, Sully, was more sagacious, and by his invitation Lee transferred his machines to that country and established his manufactory at Rouen with success. After the assassination of his royal patron in 1610, Lee was forced, by religious persecution, prompted by jealousy, to abandon his new field and go into concealment in Paris, where he afterward died in poverty and disappointment. One of his apprentices named Aston, escaping to England, remounted the stocking-frame and once more established the hosiery manufacture in Leicester and the neighboring counties of Nottingham and Derby, where it has ever since flourished. In 1663 the Frame Work Knitters' Company, of London, was granted a charter by Charles II, which had been refused them by Cromwell; and in 1696–7 the exportation of stocking-frames from the kingdom was prohibited on pain of forfeiture and a fine of £40. In 1781 the penalty for exporting machinery was made much more severe, which rendered it difficult for Americans to obtain it.

Though little improved during the first century after its invention, the stocking-loom, which required two men to work it, yet enabled English manufacturers to export large quantities of silk hosiery even to Italy, and as late as 1730, silk stockings at Naples were sufficiently recommended if they were called English. In 1758 Mr. Jedediah Strutt, of Derby, the manufacturer with whom Samuel

Slater acquired a knowledge of the cotton business, which he afterward introduced into the United States, succeeded in adapting the stocking-frame to the manufacture of ribbed or striped hosiery, similar to that knit by hand. This was effected by a slight addition to the mechanism, whereby the plain and ribbed courses were wrought separately by reversing the loops of a single thread, as tweeling is effected in cloth weaving by reversing the two kinds of yarn to make dimity, kerseymere, and other striped or tweeled fabrics. About the same time the cotton spun on the water-frame of Sir Richard Arkwright, at Nottingham, afterward the partner of Strutt, was found to be admirably adapted to the stocking manufacture on account of its evenness, being made of two roves instead of one, and hence called double-spun twist. The first product of the water-frames was, therefore, all devoted to stocking-making, and twist supplied the place of hand-spun thread for that purpose. About the year 1768 the stocking frame was applied by Hammond, a frame-work knitter of Nottingham, to the manufacture of lace, which, like hosiery, had long been made exclusively by hand. Lace-making has since developed a series of valuable inventions appropriate to itself; but the stocking-frame of Lee was the basis of them all.

Upwards of thirty years ago the number of different machines—some of them in use, others disused, and all of them improvements or modifications of previous inventions—applied in England to the manufacture of hosiery and lace, amounted to about one hundred. The whole number of knitting-frames employed in the hosiery trade in Great Britain in 1835 was 33,000, and the number of persons 73,000. The product was 3,500,000 dozens, the value of which was £1,991,000. This was independent of the value of hosiery wrought by wires, and was considered by Mr. McCulloch an understatement of the real value, being only equivalent to 2*s.* 5*d.* a year to each inhabitant in Great Britain. The value of cotton hosiery was £880,000; that of worsted, £870,000; and that of silk, £241,000. The number of frames in use at this time is estimated at not less than 50,000, of which more than one-third are in Nottingham, giving employment to 40,000 persons. In Leicestershire about 35,000 persons are employed, in addition to those in Derby, and several parts of Scotland, where a single town—Hawick on the Teviot—produces one and a half to two million pairs annually.

The quantity of woollen and worsted hosiery and stockings exported from the United Kingdom in 1820 was 59,960 dozen pairs; in 1830 it was 111,136 dozen; and in 1835, 207,014 dozen, chiefly made in Leicester. Of the last-named quantity, 141,246 dozen were shipped to the United States. Silk hosiery is principally made in Derby and Nottingham, and cotton hosiery in Nottingham and Derbyshire, and at Hinckley and Tewkesbury. Of the latter description of goods, including lace and small wares, the exports to all countries in 1835 were valued at £1,240,284, and to the United States at £327,910.

The date of English colonization in this country was nearly coincident with the first use of knit hosiery, at least in the parent country. It would scarcely have surprised us to find no mention in our earliest annals of an article of clothing which, though now worn by the very poorest, was at that date certainly not possessed by one in a thousand, and which, probably, within the lifetime of the first colonists, was only worn by the nobility when they appeared at court. Yet, among the articles of outfit provided in 1629 to be shipped to New England we find mention of 800 pairs of stockings, 200 of which were to be Irish, at 13*d.* a pair in Dublin, and 100 pairs of *knit*, at 2*s.* 4*d.* a pair; also "500 pair of redd knit capps, milled, about 5*d.* apiece." These articles are included in the same invoice with "sutes of dublett and hose of leather lyned with oyled-skin leather, ye hose and dubletts with hooks and eyes," and with "breeches" or "leather drawers," &c.,* which at that time, and for many years subsequently, were a much more common article of apparel than knit hosiery.

Though mainly dependent upon importations from England, the early colonists encouraged the household manufacture of their own wool into stockings with such effect as to produce large quantities of coarse woollen hosiery. Much of the wool in colonial times was spun as worsted—that is, with a double thread—and was used for knitting. In 1662 the assembly of Virginia decreed a premium of ten pounds of tobacco for every dozen pairs of woollen or worsted stockings. In 1775, when schemes for independence were rife, the same province offered £50 for every 500 pairs of men's and women's stockings produced, and worth from 1*s.* to 3*s.* a pair, with the privilege of buying them at an advance

* Felt's Annals of Salem, vol. 1, p. 49.

of 75 per cent. on those prices. The Dutch and German settlers of New York and Pennsylvania excelled in this branch of household industry. Stockings of red, blue, or green worsted were among the articles which a thrifty Dutch matron was proud to display beside her stores of bleached homespun linen. We are told that knitters of coarse yarn stockings in Pennsylvania, in 1698, received half a crown a pair. The German Palatines who about that time settled at Germantown, in that State, established the hosiery manufacture at that place, which has ever since taken the lead in the manufacture, particularly of frame-knit goods of cotton, thread, and worsted. Germantown hosiery became an attractive feature of the semi-annual fairs established by William Penn in Philadelphia, which drew visitors from neighboring States, and it was always to be found on sale in the market-house in the city. Previous to the Revolution the manufacture was essentially a household one, and embraced only coarse articles of ordinary wear. Occasionally, indeed, silk stockings were knit in families from imported or domestic silk. Governor Law, of Connecticut, in 1747, is said to have worn the first coat and stockings of New England silk, which was so successfully cultivated at Mansfield, in that State, that a company was incorporated in 1788 to make silk cloth, and stockings, handkerchiefs, ribbons, buttons, sewings, &c., were made at a good profit.

Frame-work knitting appears to have been introduced into this country before the Revolution, either by the Germans of Pennsylvania or by English artisans from Nottingham and Leicester, many of whom settled in New York and other eastern and middle States. The earliest mention we find of stocking-weaving is in 1723, when one Matthew Burne, of Chester county, Pennsylvania, is mentioned as having served John Camm one or two years at stocking-weaving, during which time Camm's stockings obtained some repute.* Mention is also made of a stocking manufactory at Annapolis, Maryland, about the year 1747, which was regarded as a great curiosity, but did not succeed. In 1776 the committee of safety in that State appropriated £300 to enable M. Coxenderfer, of Frederick county, to establish a stocking manufactory. A society of arts established in New York in 1764 offered, among other premiums, £16 and £12 for the two largest quantities of three-thread wove stockings made in the province during the ensuing year. In March, 1766, the same society proposed a premium of £10 for the first three stocking-looms of iron set up during the year, and £5 for the next three, and £15 for the first stocking-loom made in the province. It also continued the premium of £10 for the largest quantity, not less than one hundred pairs, of thread or worsted stockings made. In 1777 it was stated that there were one hundred stocking weavers with their looms at Lancaster, Pennsylvania, then the largest inland town in the country, and that they were all out of work. The stockings made at the House of Employment, erected in that town in 1751 for the benefit of the poor, were afterwards quite noted for their excellence. There were only three stocking weavers there in 1786. In 1777 James Wallace, a foreign stocking weaver, petitioned the general court of Connecticut for a loan of £100 to aid him in erecting stocking-looms, and a machine to spin the yarn, professing to have a thorough knowledge of the hosiery manufacture in all its branches of cotton, silk, worsted, and thread. The grant was refused. In the following year Benjamin Hanks, of Windham, also asked of the assembly a premium for making stockings on looms. In 1789 two citizens of Norwich, Thomas Hubbard and Christopher Leffingwell, had eight stocking-looms in operation, and asked exemption from poll-taxes for themselves and their apprentices, which was refused by the lower house of legislature. The Rev. Dr. Stiles, of Yale, was soon after shown a pair of white silk stockings, weighing four ounces, woven on a loom made in Norwich. About the same time John Fullem, an Irish stocking weaver, set up a stocking-frame at East Greenwich, Rhode Island, which was afterwards purchased by Moses Brown, of Providence. In the last named place and vicinity 4,093 pairs of stockings, 859 pairs of gloves, and 260 yards of fringe, all household products, were made in 1790. Martha's Vineyard, at the same date, exported annually 9,000 pairs of stockings. In March, 1794, Michael Trappal, of Newark, New Jersey, petitioned Congress for an additional duty on hosiery, or other encouragement of the stocking manufacture in the United States. A duty of five per cent. was all it was deemed proper to impose at that date.

* Bradford's American Weekly Mercury for 1723.

The census of 1810 returned as the aggregate manufacture of ten States and Territories 481,399 pairs of stockings, valued at $572,742. Nearly one-half the quantity, or 227,578 pairs, probably nearly all hand-knit, and worth as many dollars, were returned by Virginia, and 107,508 pairs, worth $134,406, by Pennsylvania. Connecticut ranked next in the value of its product, which was $111,027, but it made no return of the quantity. Pennsylvania and Maryland were the only States which made returns of stocking-looms and establishments, of which the former had 136, and the latter 12.

The census of 1820 furnished little information in relation to this industry beyond the fact that stockings for the United States service employed 14 looms in Philadelphia, producing to the value of only $4,950, and that stockings, pantaloons, and drawers were made in New York and vicinity upon four looms to a small amount.

The only stocking factory of any extent in the United States in 1831 was that of the Newburyport Hose Manufacturing Company, in Massachusetts. It employed a number of looms, operated by females, on each of which about twenty stockings of superior quality were made per diem, of cotton, wool, lamb's wool, worsted, and occasionally of silk. Domestic cotton and worsted hose and drawers from that factory, shown at the annual fair of the Franklin Institute in Philadelphia, in October, 1830, were the first of the kind ever exhibited there. The company also manufactured bagging extensively for the southern market.

About the same time an American artisan succeeded in converting the old stocking-frame of Lee into a power-loom, a result which had long been sought in England and on the continent, but appeared to have been abandoned as impracticable. As early as 1813, and the three following years, several patents were recorded by citizens of Massachusetts and New York for stocking-looms and knitting-machines. But invention appeared to have slumbered until 1831, when Timothy Bailey, of Albany, New York, at the suggestion of Egbert Egberts, and assisted by him and several other persons, applied himself to the problem, and in October, 1832, put in operation at Cohoes, near that city, the first power-loom for weaving stockings or stockinet ever invented. This machine, with which Bailey and Egberts commenced the manufacture at Cohoes, where it has since become extensive by the aid of improved machines, was simply the square stocking-frame of Lee adapted to power, and produced a stocking web 28 inches wide at the rate of one inch per minute, which was cut off at proper lengths and shaped or seamed to form the stocking. By the hand-loom it was a day's work to knit two pairs of drawers, while by the power-loom a girl could weave twenty pairs in the same time, thus reducing the cost to nearly one-tenth its former rate. In 1843, when the value of stockings, wove shirts, and drawers, &c, made in the United States was estimated to be $500,000, and the total consumption about $2,500,000, the power-loom, which had not yet been introduced into England, was still far from being a completely automatic machine. The process of casting off and adding on stitches, in order to widen or narrow the fabric, was still performed by hand, as in the hand-frame, leaving scope for further improvements.

In the mean time our manufacturers had become possessed of the valuable circular knitting machine, which is supposed to be of French origin, and which forms the stocking leg without a seam. The first of these is believed to have been introduced into Connecticut by a German about the year 1835. Many improvements have been made both in the broad and circular stocking-looms, particularly the latter, as well by our own countrymen as by Jouve and by Jacquin, of Belgium, and more recently by Claussen, of France, who received a medal at the London Exhibition in 1851 for his seamless hosiery-loom operated by power. Most of the machines have been designed for factory use. In 1839 a rotary power stocking-loom was patented by Richard Walker, of Portsmouth, New Hampshire, at which place, during the same year, the largest stocking factory in New England was put in operation. It employed 220 hands, and made 3,000 pairs of woollen hose per week. Ten years later the Portsmouth Steam Hosiery Factory worked 60 stocking-frames by hand and seven by steam power. A small steam factory for knitting shirts and drawers was in operation also at Dover. In 1855 Mr. Jonas B Aikin, of Franklin, in that State, patented an improvement in knitting machines, which, with subsequent improvements, including a new needle known as the *latch* needle, has come into extensive use. Unlike the

greater number of previous machines, it is well adapted to family use either by foot or hand power, and can also be readily converted into a power-loom for factory use. It is claimed that the hand or crank machine for the family will knit 4,200 loops per minute, the treadle or foot machine 5,000 loops, and either of them converted into power-looms will make from 10,000 to 60,000 stitches per minute. A boy can readily attend three or four machines in the factory. By bringing into play a set of vertical needles ribbed work can be made on the same machine. A machine for making both plain and ribbed hosiery was also patented in 1860 by Mr. Tiffany, of Thompsonville, Connecticut. A rotary round knitting machine was patented in 1859 by A. Jared D. Goffe, of Seneca Falls, New York, which is used in one or more of the extensive factories at that place and elsewhere in the United States. Improvements in making seamless hosiery were patented in 1856 by William Godard, of New York city, and by W. H. McNary, of Brooklyn, the latter being for a stocking made throughout without seam, followed in 1860 and 1861 by patents for the machine itself and improvements thereon. An improved circular machine for knitting stockings without seam was also brought forward in 1862 by J. G. Wilson, of New York. An important improvement has also been recently made by Mr. Leslie, of Brooklyn, New York, on whose machine the fabric is narrowed at pleasure, which could never before be done on rotary round machines. In addition to these and other improvements in making tubular goods of different sizes and shapes, improvements have been made in the burrs or wheels of circular machines which are valuable. A knitted cassimere is now produced on the knitting-frame, the web, as it leaves the machine, undergoing the same process as woven goods, whereby it takes on the appearance of woven cassimere, while it retains the elasticity peculiar to knitted fabrics. The whole number of knitting machines patented in the United States up to December 31, 1863, was 126, of which 5 were granted from 1813 to 1837; 13 from 1839 to 1851; and 108 from 1851 to 1863, inclusive. The highest number granted in any one year was eleven, and during the first three years of the present war the numbers were in 1861 and 1863 ten each, and in 1862, nine.

Many large establishments throughout the country, as the American Hosiery Company at Waterbury, Connecticut, the Waterbury Knitting Company, the Newark Patent Hosiery Company, and others, are the proprietors of patent rights to machines for various use, employed exclusively in their several factories or by their licenses. Many of these are American inventions, several of them patented about ten years ago. Others use the circular machine of Jouve, or the French loom invented by Gillet, of Troyes, as in the Enfield Manufacturing Company at Thompsonville, Connecticut, chartered in 1845, which holds the American patent to the first-named machine, and employs a considerable number of both in the manufacture of cotton drawers, cotton, cotton and wool, and all-wool undershirts, &c.

Recent improvements in the mechanism have given a vast impulse to the stocking manufacture by greatly reducing the cost and proportionately extending the demand, introducing the articles where they were before unknown. Twenty-five years ago a workman in England, with one of the old hand-power frames, could make in a week only about one dozen cotton hose, weighing two pounds. The same labor now applied to a set of the best rotary round power-frames easily produces in the same time, from 300 pounds of cotton, two hundred dozen hose, which have heretofore sold for 2*s.* 6*d.* sterling per dozen.

The principal seats of the hosiery manufacture in the United States are at New Britain and Waterbury, Connecticut; at Cohoes and Watervliet, near Albany; at Seneca Falls and at Brooklyn, New York; at Newark, New Jersey; and at Philadelphia and its vicinity, in Pennsylvania.

Hosiery and knit goods are also made to a greater or less amount at Bennington, Vermont; at Portsmouth, Franklin, Laconia, Dover, Hanover, Enfield, and Holderness, New Hampshire; at Canton, Fitchburg, Stoughton, and Worcester, Massachusetts; at Providence, Rhode Island; at Bristol, West Meriden, Derby, Farmington, Franklin, South Manchester, and Norwich, Connecticut; at Troy and Lockport, New York; at Paterson and Trenton, New Jersey; and at Cincinnati, Ohio.

Philadelphia is the largest producer in this branch; and, including the districts of Kensington, Germantown, and Manayunk, in 1860, had 71 establishments engaged on woollen knit goods and hosiery, which was made to the value of $1,738,395; and 31 establishments making cotton hosiery, worth

$104,450. Within about the same limits were nine or ten steam-power factories, one of the largest of which employed nearly 500 hands, about fifteen different kinds of looms, adapted to different kinds of goods, including a new loom, invented by the proprietor, for knitting neck-comforters. This factory produced about 800 different styles of goods of all sizes. A peculiarity of the business in Philadelphia and Germantown is the number of hand-looms used by the German and English frame-work knitters, long established there, who still carry it on as a household industry. Within the city proper in 1858 were about 700 hand-frames, of which 500 were employed on woollen hosiery, making to the value of about $1,657 each, and 200 on cotton goods, the average product of which was $897 each. Outside the city proper in 1862 were about 25 small factories, containing 5 to to 25 hand-looms each, on fancy woollen work and hosiery. The product of these looms is of superior quality, and has largely excluded foreign goods from the American market.

At Albany, New York, including Cohoes and Watervliet, the product of hosiery in 1860 was $1,099,905; and Hartford, Connecticut, inclusive of New Britain, produced the value of $907,850.

Many of these establishments have been greatly extended since the present war began, and others have been called into existence in order to meet the large demands of the army for woollen half hose, jackets, &c. The hosiery mills at Laconia, New Hampshire, have filled large orders for government, and have given employment to many persons in making up the stocking-web after it is woven.

A silk factory in Ohio, in 1843, made annually between 600 and 700 pairs of silk gloves and stockings, averaging a little over $1 per pair, and between 50 and 60 pairs of shirts and drawers, worth upwards of $4 50 per pair.

The duty on foreign stockings of wool or cotton was laid, in 1816, at 20 per cent. ad valorem. In 1828 it was raised to 35 per cent. on woollen hosiery, mitts, and gloves, &c., but in 1832 was reduced to 25 per cent. In 1842 the customs tariff on cotton and woollen hosiery was fixed at 30 per cent., but in 1846 was again reduced to 20 per cent. on cotton. In 1857 the duty on both was laid at 24 per cent., but in 1862 it was raised on both kinds to 35 per cent. ad valorem.

Statistics of Hosiery produced in the United States during the year ending June 1, 1860.

STATES.	Number of establishments.	Capital invested.	QUANTITIES OF RAW MATERIAL USED.		Cost of all raw materials.	Number of male hands employed.	Number of female hands employed.	Annual cost of labor.	ANNUAL VALUE OF PRODUCTS.		Per cent. increase.	QUANTITIES PRODUCED.‡		
			Pounds of wool.	Pounds of cotton.					In 1860.	In 1850.		Dozen pairs of hose and half hose.	Dozens of drawers, shirts, and jackets.	Dozens of opera hoods, scarfs, &c.
New Hampshire	12	$133,000	362,120	308,280	$338,075	138	350	$76,188	$573,794	$119,656	379	245,160	.....	.....
Vermont	2	21,500	130,000	50,000	61,840	30	63	15,792	102,800	.....	.....	3,700	12,000	.....
Massachusetts	15	155,200	196,000	148,000	132,075	166	222	94,692	314,120	66,344	374	52,250	20,030	.....
Connecticut	18	1,225,000	769,140	1,186,721	560,368	481	715	300,768	1,383,528	222,000	523	64,500	159,650	8,000
Total in New England States	47	1,534,700	1,457,260	1,693,001	1,092,358	815	1,350	487,440	2,374,242	408,000	481	365,610	191,680	8,000
New York	22	1,102,500	689,066	1,348,941	870,479	597	2,104	392,924	1,944,090	37,000	5,154	680,000	256,566	.....
Pennsylvania	103	895,460	354,000	80,000	928,915	998	1,694	541,116	2,114,315	561,577	276	449,400	46,000	220,000
New Jersey	7	477,200	419,800	766,400	279,952	329	1,162	225,060	783,456	9,100	8,509	388,830	55,120	.....
Maryland	2	1,050	*	*	2,998	4	.....	1,524	6,123	1,725	255	4,060	.....	.....
Total in Middle States	134	2,476,210	1,462,866	2,195,341	2,082,344	1,928	4,960	1,160,624	4,847,984	609,402	695	1,522,290	357,686	220,000
Ohio	11	10,900	6,500	4,000	13,515	23	13	9,264	31,800	8,400	279	12,600	150	.....
Missouri	2	11,000	*	*	8,200	10	.....	2,964	14,880	1,800	725	3,000	700	.....
Kentucky	3	2,700	1,000	.....	5,900	4	.....	1,680	11,700	.....	.....	2,500	.....	.....
Wisconsin	.....	.....	.....	.....	.....	.....	.....	.....	.....	500	.....	.....	.....	.....
Total in Western States	16	24,600	7,500	4,000	27,615	37	13	13,908	58,380	10,700	445	18,100	850	.....
Total in United States	197	4,035,510	†2,927,626	3,982,342	3,202,317	2,780	6,323	1,661,972	7,280,606	1,028,102	608	1,906,000	550,216	‡228,000

* In these States yarn spun elsewhere is used. This is the case in Pennsylvania and some other States.

† 280 sets machinery used.

‡ Also, 112,000 yards of stockinet produced in Connecticut.

WOOL CARDING AND CLOTH FULLING.

The manufactures of wool consist of two principal branches—the woollen manufacture proper, and the worsted manufacture. These are based upon the qualities and character of the wool employed, and more particularly upon its length of fibre or staple. The worsted manufacture requires a wool of long staple and firm fibre, little disposed to shrink, curl, or felt in the process of weaving or finishing. The process by which the wool is prepared for spinning is called *combing*, which is either manual or mechanical, and its object is to disentangle the fibres and tufts and dispose them as nearly as possible in parallel form.

The ordinary cloth manufacture, on the other hand, employs a short, fine wool, the filaments of which are capable of being fulled or felted together without loss of elasticity in the fabric. This wool, previous to being spun, undergoes the operation of *carding*, like cotton, whereby the fibres are disentangled and arranged in a light, orderly lap or roll, ready to be drawn out into regular threads. The beauty of the woven fabric depends upon the fineness and smoothness of the yarn, and this upon the regularity and perfection of the carding, which again is mainly influenced by the quality of the cards and of the wool.

The first thing, therefore, is to separate the wool into long and short. The latter is afterward "sorted" with the greatest care into several kinds or qualities known to the trade by specific names, and with minute reference not only to its character as pulled or shorn, but to its degrees of fineness, softness, strength, color, &c. Upon the elaborate precision and skill with which this sorting is done depends in no small degree the superior quality of the fine West-of-England cloths. Having been well scoured or washed in a mixture of wine and water or other liquor to free it from the natural grease or yolk of the fleece, and subsequently oiled, it is ready for the carding.

In regular woollen factories, many of which in the United States are very large and complete establishments, conducted with the same system that prevails in those of cotton, all the operations of assorting, scouring, carding, spinning, weaving, dyeing, and fulling are conducted on the premises. But in early times, and in some States and most rural parts at this day, where much of the domestic wool is spun and woven in families, sometimes all, and at others a part, of these processes were carried on in the household, the wool being carded by hand cards, spun, woven, and dyed in the family, and worn without fulling or dressing. In other cases the wool, after being sorted, picked, and oiled, was sent to the carding mill and returned in rolls to be spun and woven, after which it was again sent to the mill to be fulled, dyed, if not dyed in the wool, and finished. Hand cards have long been nearly obsolete, having been superseded by the automatic carding engine, which performs the work with greater perfection and economy. By passing the wool over and between a series of revolving cylinders and drums covered with card cloth of different degrees of coarseness, according to the size of the wire used in making the bent teeth with which it is studded, and to the number of the latter, the material is delivered in light, downy, cylindrical rolls ready for the spinner. Wool-carding is usually carried on by water-power, in connection with the fulling, dyeing, and dressing of cloth, which require a supply of soft water. Wool is carded at a stated price per pound. The fulling of cloth is commenced by scouring the fabric in water, holding in suspension an aluminous clay called *fuller's earth*, or other detergent, to absorb the grease. It is then washed and beaten by heavy wooden mallets in a trough, soap and hot water being copiously used in the operation, whereby the cloth acquires body and thickness by a shrinking or condensing of the web nearly one-third in its length and one-half in its width. This milling or felting which cloth undergoes in the fulling stocks renders the web close and compact, and increases its beauty and firmness, and is due to the peculiar imbricated or serrated structure of the filaments of wool, which become thereby closely and inextricably united, as is more perfectly seen in hat bodies and the felted cloths now made without spinning or weaving. After fulling, cloth undergoes a process of teasling for the purpose of raising the nap. This is done by scratching the web alternately in its linear and transverse dimensions by means of teasles, which are the seed balls of a species of thistle, called from that use *Dipsacus fullonum*, and are cultivated for that purpose in Europe,

and to some extent in the United States. The teasles are either applied by hand or arranged on a revolving cylinder in a machine called the gig mill. The next operation is that of shearing the raised nap, which, like teasling, is either done by hand or by a machine having knives of peculiar shape revolving in contact with other knives. In the manufacture of fine cloth the two operations of teasling and shearing are repeated alternately until a close, thick, short nap is obtained. The cloth is then dyed, if necessary, and stretched upon tenters, and, after being brushed and dried, is folded and submitted to a screw or hydraulic press between glazed paper boards and metallic plates heated by steam. It is then packed and sent to market.

Fifty years ago gig mills were used to a very limited extent in this country, although upwards of thirty patents had been taken out here for shearing machines, and eight or nine for the napping of cloth. One or more powerful presses had also been patented before Mr. Gilmour, in 1814, introduced here the hydrostatic press of Bramah.

The improvements of the last fifty years in domestic and foreign manufactures, and in the facilities for travel and transportation, have so increased the supply and cheapened the cost of cloth, and at the same time brought the agriculturist in such immediate contact with the manufacturer, that he can now readily exchange his wool for the varied products of the loom of home or foreign make. Cotton has also been so extensively substituted for wool as to render wool-carding and fulling mills relatively less numerous and important than they were a century since. From our older manufacturing States they have nearly disappeared. They chiefly abound in those States and localities where manufacturing establishments are few, and family manufactures predominate. Hence we find that the western and southern States, in which there are comparatively few regular factories, and where the possession of raw material invites to a larger production of household fabrics, return the greatest number. The small amount that is still done in the fulling and finishing of homespun cloths is embraced in the values with that of wool-carding, which is still required to prepare wool for spinning hosiery, yarns, and other undressed household products.

The first fulling mill of which we have any account in America was built at Rowley, Massachusetts, which was settled in 1638 by a company of non-conformists from Yorkshire, England. It was built about the year 1643, by John Pearson, at the head of tide-water on Mill river, and was still running in 1809, when one of the cedar tenter-posts, brought from England by our first cloth makers, remained perfectly sound. A second mill was built at Watertown in 1662, by Thomas Leveran, a cloth worker from Dedham in Essex. Another fulling mill was erected in that town previous to 1686. In 1681 Messrs. Draper & Fairbanks built a fulling mill at Dedham, Massachusetts, on the first artificial canal built in this country. At New London, Connecticut, the first fulling mill was built in 1693, by Peter Heckley, and land was the same year set apart for one at Waterbury. Two others were set up in New London within a few years. There was one at Newport, Rhode Island, before 1745. In 1703 twenty acres of land were granted for the erection of a fulling mill in east New Jersey, which State in 1784 contained forty-one. Others were built near the same time on the Darby and Wissahickon creeks, near Philadelphia, by the Quaker emigrants from Yorkshire and other cloth districts, among whom, in 1698, were enumerated dyers and fullers, comb and card makers, spinners, weavers, &c. Wool combers and carders received twelve cents per pound for their work. Within the present corporate limits of that city there were twelve fulling mills in 1760, and they were numerous in other towns. Although first settled, we have no account of any fulling mills being erected in Virginia until about 1692.

A very complete wool dyeing and fulling mill was put up at Jamaica, Long Island, in 1764, by Tunis Popham, and six years later the first one was built in Pittsfield, Massachusetts, which was the first place that engaged in the manufacture of fine cloth, for which it has become so noted. This, which was a type of the old-fashioned clothiers' establishments, was a double-action crank mill, driven by an open-bucket three-foot water wheel, and could seldom run in dry weather. It was furnished with hand shears, and the proprietor received forty to fifty cents a yard for fulling and finishing homespun cloth. An improved mill was erected in the town in 1776. In 1801 Authur Schofield, an Englishman,

put in operation in that place probably the first wool-carding machine in the country. It was built, without models or drawings, from memory alone, as Slater, his co-emigrant, built his cotton machinery; although the former was compelled to revisit England during its construction, to revive his recollection of the parts, so jealously did that country guard the exportation of machinery and drawings. He carded wool for 12½ cents per pound, including the picking and greasing. With his nephew, Mr. Schofield now commenced the manufacture of wool-carding machines, for sale at Pittsfield. His first machines sold for about $1,300 each, but in 1806 he advertised double carding machines for $400 with the cards, and $253 without, and picking machines at $80. Many others in that and neighboring towns obtained the machines and set up carding, the price of which was soon reduced to eight cents per pound for white and ten cents for mixed.

As wool-carding up to this time had been done altogether by hand-cards, or had been combed and spun for worsted hosiery and cloth, for which much of it was used in that day, the manufacture of cards and combs and the erection of fulling mills became objects of encouragement for several years preceding the Revolution, and large bounties were offered in several of the provinces. Hand cards were made in Boston and one or two other places before the war. About 1779 Oliver Evans, of Delaware, who was engaged in making card teeth by hand, devised a machine to cut 3,000 teeth per minute. He soon after invented other mechanism which would prick the leathers, and cut, bend, and set the teeth at one operation. A Mr. Chittenden, of New Haven, Connecticut, also about 1788 contrived a machine to make 36,000 card teeth in an hour. With these or other automatic machinery of great ingenuity, a manufactory of cotton and wool cards was established in Boston in 1788, by Giles Richard, Amos Whittemore, and others, who the next year employed 900 persons, and made yearly 63,000 hand cards. The mechanism was patented by Mr. Whittemore, the reputed inventor, in 1797, previous to which three large and as many smaller factories had been set up in Boston, employing 2,000 children and 60 men, making annually 12,000 dozens of cards, which were sent to other States, particularly the southern, and were even smuggled to England. There were two card factories in Worcester county, and some in other parts of the State, and one also in Providence, Rhode Island, from which cotton cards were sent to England before 1789, and sold at a profit. This card-making machinery effected a revolution in the manufacture, being equally adapted to sheet cards for cotton and wool, hatters and clothiers, cards and jacks. The manufacture of card clothing by machinery was first begun by Pliny Earle, of Worcester, who took out a patent in 1803 for pricking the cards It was introduced into England, and patented in 1811, by Joseph C. Dyer, an American. Carding machines now became appendages of fulling and dyeing establishments. Towards the close of the last and during the first quarter of this century such small mills were numerous for carding the wool and dressing the cloth of farmers and of the small woollen factories which sprung up about that time.

Robert Pierpont, of Hartford, Connecticut, in the seven months following September, 1789, finished at one press 8,134 yards of cloth, of which 5,282 yards were fulled. A small factory at Stockbridge, Massachusetts, about the same time, produced five or six thousand yards of fulled cloth. Middlesex county, in that State, had 20 fulling mills in 1796, and Worcester county between 30 and 40 in 1793, chiefly employed on homespuns. Deep blue and scarlet were the favorite dyes at that day. Fulling mills were numerous in Pennsylvania, where the fulling of hosiery was practiced on the Germantown stockings. There were ten in the vicinity of Reading. A fulling and dressing mill was at work on Fishing creek, near the Catawba, in South Carolina. In Pendleton district there had been one previously erected.

In 1810, according to the third census, there were in the United States 1,776 carding machines, which carded 7,417,261 pounds of wool, cotton, &c., valued at $1,837,508. The number of fulling mills was set down at 1,682, and the quantity of cloth fulled 5,452,960 yards, valued at $4,117,308, the whole quantity of woollen goods made in families being 9,528,266 yards.

In 1840 the number of fulling mills returned was 2,585, which probably included all regular factories, amounting to 1,420 in the woollen manufacture. In 1850 the wool-carding establishments, outside of regular woollen factories, were 680; their capital, $739,925; cost of material, $1,251,550; hands employed, 1,092; annual wages paid, $225,972; and total product, $1,739,476.

The aggregate number of fulling and carding establishments in 1860 was 712. Their capital amounted, collectively, to $1,080,985, an average of $1,517 each; the quantity of wool carded, 5,230,651 pounds, valued at $1,759,125. The number of persons employed was 1,276, whose annual wages cost $286,267. The quantity of rolls made was 5,091,196 pounds, the value of which, including the fulling and finishing done, was $2,403,512. The average weight of rolls made in each establishment was 7,150 pounds; and the average product, $3,375. These mills were distributed as follows, viz: in New England, 64; the middle States, 99; the southern States, 217; the western States, 328; and in the Pacific States, 4.

The New England establishments employed a capital of $85,500, or an average of $1,336 each, the product of their business being $179,999, or $2,812 each. They employed 85 males and 67 females, whose annual wages cost $23,484, and carded 343,291 pounds of wool, valued at $137,151. The weight of rolls made was 318,659, an average of 4,979 to the mill. Maine had the largest number of mills, numbering 37, and New Hampshire 17; Vermont and Massachusetts 5 each.

In the middle States, exclusive of New Jersey, which returned none, the capital invested in carding and fulling was $155,655; the weight of wool carded, 482,345 pounds, and its value $207,004. The cost of wages for 159 males and 8 females employed was $38,664. The quantity of rolls made was 471,525 pounds, and the total value of carding and fulling was $286,143. The average capital of each mill was $1,572; product in rolls, 4,763 pounds; and the annual value, $2,890. Of the whole number, 55 mills were returned in New York, and 39 in Pennsylvania. The product of the former State was 280,000 pounds of rolls, and of the latter 176,225 pounds; and the value in New York $188,900, and in Pennsylvania $87,543.

The southern States employed in this business a capital of $266,900, and 317 persons, whose annual wages was $55,624. The material used was 1,403,155 pounds of wool, worth $459,751, which produced 1,366,635 pounds of rolls, the total value of the business being $617,428. This was an average to each mill of $1,236 in capital, and $2,845 in product, the weight of rolls made being 6,298 pounds each. The largest number of mills was in Tennessee, which had 69, with a total capital of $82,300, and 100 hands. They carded 460,665 pounds of wool, worth $160,033, and made 460,000 pounds of rolls, valued—with the fulling and finishing done—at $219,772, or upward of one-third of the total business in those States, and only exceeded by three States in the Union. Virginia had 63 mills, being 6 less than Tennessee, which considerably exceeded those of Virginia in the amount of capital and value of product.

The capital invested in carding and fulling establishments in the western States was $564,160, an average of $1,720 to each mill. The quantity of wool used was 2,963,060 pounds, valued at $939,739, and produced 2,899,586 pounds of rolls. The total product of the business, which employed 631 persons was $1,298,319, an average of $3,958, and of 8,867 pounds of rolls made by each mill. The States of Missouri and Kentucky returned the largest number of establishments of any in the Union, the former having 86 and the latter 81. Ohio, with 48 mills, was second in the amount of capital invested. Kentucky, with a capital of $104,095, and 164 hands, made 761,950 pounds of rolls, and returned a product of $319,535. Missouri had invested $142,335, and produced 719,200 pounds of rolls, the business being set down at $315,619; and Ohio, with a capital of $124,510, made 406,350 weight of rolls, valued, with fulling, at $225,856.

Of four mills in the Pacific States, Utah returned three and Oregon one. The three in Utah had a capital of $5,400, and that in Oregon of $1,500. The former carded 23,800 pounds of wool, worth $14,280, and the latter 15,000 pounds, worth $1,200. The product of Utah, in rolls, was 20,791 pounds, and of Oregon 14,000 pounds, the business in the former being set down at $19,623, and in the latter at $2,000.

The average value of the wool carded, calculated on the aggregate of the whole Union, was 32½ cents a pound. Its average value in New England was 39.6 cents; in the middle States, 43.1 cents; in the southern States, 33 cents; in the western States, 31.4 cents; and in the Pacific States, 39.8 cents per pound.

The loss in the process of converting wool into rolls appears to have been, on the aggregate amount carded, 2.6 per cent. In New England it amounted to 7.1 per cent.; in the middle section to 2.2; in the south to 2.4; in the west to 2.1; and in the Pacific States to 10.5 per cent. of the quantity used.

Statistics of Wool Carding in the United States during the year ending June 1, 1860.

STATES.	No. of establishments.	Capital invested.	Pounds of wool used.	Cost of raw material.	NO. OF HANDS EMPLOYED.		Annual cost of labor.	Annual value of product.	Pounds of rolls.
					Male.	Female.			
Maine	37	$52,200	205,591	$87,906	54	67	$16,176	$118,131	192,111
New Hampshire	17	20,550	73,800	24,020	20	.....	4,728	31,657	69,700
Vermont	5	3,550	45,500	19,175	6	.....	1,656	22,511	39,548
Massachusetts	5	9,200	18,400	6,050	5	.....	924	7,700	17,300
Total in New England States	64	85,500	343,291	137,151	85	67	23,484	179,999	318,659
New York	55	95,555	285,880	140,297	84	3	21,828	188,900	280,000
Pennsylvania	39	56,100	180,965	61,707	66	5	15,216	87,543	176,225
Delaware	2	1,000	7,500	3,000	3	.....	324	3,600	7,500
Maryland	3	3,000	8,000	2,000	6	.....	1,296	6,100	7,800
Total in Middle States	99	155,655	483,345	207,004	159	8	38,664	286,143	471,525
Ohio	48	124,510	412,000	170,655	105	23	33,972	225,856	406,350
Indiana	41	62,100	393,696	105,737	70	3	20,964	151,850	389,686
Michigan	15	31,450	145,600	54,785	28	5	7,527	72,000	136,000
Illinois	29	55,750	252,300	82,540	53	1	14,592	114,516	252,300
Wisconsin	11	17,700	91,000	29,406	18	.....	4,524	42,070	89,000
Minnesota	1	740	600	250	1	.....	60	500	600
Iowa	16	25,480	152,000	42,463	25	.....	7,056	56,373	144,500
Missouri	86	142,335	750,314	223,870	133	2	35,448	315,619	719,200
Kentucky	81	104,095	765,550	230,033	164	.....	41,172	319,535	761,950
Total in Western States	328	564,160	2,963,060	939,739	597	34	165,315	1,298,319	2,899,586
Virginia	63	59,970	345,520	106,990	76	2	7,108	141,919	329,210
North Carolina	21	19,900	89,890	29,636	24	.....	4,644	40,133	82,000
South Carolina	9	10,800	53,800	13,920	13	.....	2,040	17,962	49,175
Georgia	19	20,900	79,930	26,292	25	1	5,244	35,841	79,000
Alabama	10	11,500	84,200	34,780	14	.....	3,480	43,475	84,000
Texas	8	13,600	89,250	24,250	15	.....	4,440	37,000	86,250
Mississippi	6	15,000	58,400	23,610	13	3	3,108	29,850	58,000
Louisiana	1	1,800	16,000	4,000	4	.....	960	6,000	14,000
Arkansas	11	33,000	125,500	36,240	22	5	5,340	45,476	125,000
Tennessee	69	82,300	460,665	160,033	92	8	19,260	219,772	460,000
Total in Southern States	217	268,770	1,403,155	459,751	298	19	55,624	617,428	1,366,635
Oregon	1	1,500	15,000	1,200	1	.....	600	2,000	14,000
Utah	3	5,400	23,800	14,280	6	2	2,580	19,623	20,791
Total in Pacific States	4	6,900	38,800	15,480	7	2	3,180	21,623	34,791
Total in United States	712	1,080,985	5,230,651	1,759,125	1,146	130	286,267	2,403,512	5,091,196

CARPETINGS.

The returns on this interest embrace the operations of 213 establishments in five New England four middle, and two western States. These, in the aggregate, employed a capital of $4,721,768, and 3,910 male and 2,771 female hands, the annual cost of whose wages was $1,545,692; they consumed 8,843,691 pounds of wool, in addition to considerable quantities of cotton and flax, the total value of which was $4,417,148. The quantity of carpeting made was 13,285,921 yards, valued at $7,857,636, an average value of fifty-nine cents per yard, which was exclusive of the quantity and value of carpetings made in families.

In 1850 the whole number of carpet factories in nine States was 116, with an aggregate capital of $3,852,981, employing 3,881 male and 2,305 female operatives, whose labor cost $1,246,560. The cost of raw material was $3,075,592, and the value of the product $5,402,634, showing an increase in ten years of 97 establishments of 43.6 per cent. in the value of material consumed, and of 45.4 per cent. in the annual product. The total increase of hands was only 495, or 8 per cent., and of male hands only 29. The average number employed by each establishment in 1850 was 53, and in 1860 only 31; but the average annual earnings of each hand in the latter year was $231 against $201 in the former, or nearly 15 per cent. increase.

Of the whole number of concerns, nineteen were in New England, (eleven of them in Massachusetts,) and were among the largest in the country, having an aggregate capital of $2,716,900, and 2,169 hands, whose labor cost annually $542,024. They consumed 6,882,477 pounds of wool and 395,000 pounds of cotton, valued at $2,214,636, and produced 4,807,487 yards of carpetings, worth $3,352,938, an increase of 14.8 per cent. upon the production of 1850, when it was $2,919,783.

The middle section of the Union contained 182 establishments, (of which 137 were in Pennsylvania,) representing a capital of $1,998,918, and giving employment to 4,482 persons, whose wages amounted to $996,214. They consumed 2,859,714 pounds of wool, and in Pennsylvania 800,000 pounds of flax, at a total cost of $2,194,242. Their aggregate production of carpetings was 8,424,254 yards, valued at $4,479,419, which was an increase of 80.9 per cent. over their manufacture in 1850, when it reached the sum of $2,919,783.

The two western States—Ohio and Illinois—returned eleven establishments, with a total capital of $5,750, and 28 hands, whose annual wages cost $7,284. The consumption of wool in Illinois amounted to 3,500 pounds, and its value in both States to $8,396. The quantity of carpeting made in both was 51,580 yards, worth $24,291, of which $18,516 was the product of Ohio, being an increase of 208 per cent. over the product of that State in 1850, which amounted to $6,000.

The several States individually augmented their production in the following ratios, viz: Maine, 47.3 per cent.; New Hampshire, 14.1; Massachusetts, 44.8; New York, 32.9; Pennsylvania, 138; and Ohio, 208 per cent. Rhode Island, Maryland, and Illinois, made no returns in 1850; and Delaware, which reported one small factory in that year, made no return in 1860. In Connecticut the product of carpeting declined from the value of $1,079,292 in 1850, to $893,100, or, in the ratio of 17.2 per cent.; and in New Jersey it fell off from $115,099, to $112,590, or more than two per cent.

The average value per yard of the carpeting made was, in New England, 69½ cents; in the middle States, 53 cents; and in the western States, 47 cents. In the several States the average price per yard, in cents, was respectively as follows, viz: Maine, 63; New Hampshire, 91; Massachusetts, 72; Rhode Island, 83; Connecticut, 62; New York, 71; Pennsylvania, 45½; New Jersey, 80; Maryland, 48; Ohio, 42; Illinois, 72 cents.

The carpet manufacturers of Connecticut—three in number—were, relatively, the largest in the Union, having an average capital of $233,166, and 233 operatives, with an average product of 480,000 yards, worth $297,600 each. They consumed an aggregate of 1,950,000 pounds of wool and 260,000, pounds of cotton, valued together at $614,510.

Massachusetts was the only other State that reported a consumption of cotton in this business.

which amounted to 135,000 pounds, in addition to 4,774,275 pounds of wool. The average amount of capital employed by its eleven factories was $180,118, the number of hands 123, and the product was 294,141 yards per factory, valued at $214,338.

In the State of New York there were 28 establishments, having an aggregate capital of $1,017,868, and 1,903 hands, or an average of $37,691 in capital, and 70 hands. They consumed, altogether, 1,082,494 pounds of wool, and 800,000 pounds of flax, and manufactured 2,293,544 yards of carpet, worth $1,627,960, an average of 81,912 yards.

Pennsylvania had much the largest number of establishments, (137,) most of which were in Philadelphia and vicinity, and were small hand-loom factories. The aggregate capital employed in this business in the State was $872,200; the hands employed, 2,396—an average of $6,366 in capital, and 17 hands to each factory. The consumption of wool was 574,720 pounds, which, in addition to yarn used, were of the value of $1,247,059. The quantity of carpeting made was 5,931,460 yards, worth $2,710,092, an average of 43,295 yards, and nearly $20,000 in value to each establishment. Of the foregoing, 120 establishments, representing a capital of $864,875, and 2,370 operatives, were in the city, and their consumption of material was 548,520 pounds of wool, worth $1,233,277. They produced 5,884,680 yards of carpetings, the value of which was $2,685,712, an average of more than 49,000 yards, and value of $22,380, to each factory. The number of looms in Pennsylvania was ascertained to be 1,745, of which 1,721 were in Philadelphia, and the average product per loom of the former was nearly 3,400 yards, and of the latter, 3,418 yards.

HISTORY AND STATISTICS.

In no part of the world is the use of carpets so general as in Great Britain and the United States, although little more than a century has elapsed since they began to be used, to any extent, in either. In both countries their manufacture has made rapid progress within a few years. The humid climate of the former, and the comparative coldness of both countries, rendered some coverings for the floor almost indispensable to comfort, which the people of both nations are studious to promote. Hence, at a period not very remote, the clay floors of the houses, even of the nobility and of princes in England, were strewn with straw, hay, or rushes, which were often plaited into matting.

But carpets undoubtedly originated in the warmer latitudes of Asia, where the climate favored the custom of sitting or reclining much in the open air beneath the shade of trees, or in tents. As a protection from the sand and dust, mats, or coverings, at first, probably, of skins and of leather, and afterward of textile fabrics of wool, cotton, or silk, variously wrought and ornamented, were spread upon the ground, and sometimes served the added purposes of a couch by night and of a mantle by day. These articles often, at the present day, constitute the principal household effects of Oriental families—their use being nearly universal for kneeling upon during worship, and for occasions of state. The ancient Medes and Persians, the Babylonians and the Egyptians, all excelled in the manufacture of carpets. Persia, which was, perhaps, the parent of the art, is still almost unrivalled in it, and employs whole families and tribes in weaving carpets, which, though generally too small for European use, were once largely imported as articles of luxury, being remarkable for beauty of pattern and harmonious combination of rich, warm colors. The carpets of Turkey and India are similar fabrics, and, like the former, are all hand-woven. Western Europe, for a long period, was supplied with all its carpets from Persia; and the east, through the commercial enterprise of Venice and Spain, obtained them through the Moors.

About the year 1607, and according to some accounts much earlier, the manufacture of wool carpets was first introduced into France at Aubusson, from Persia, under the patronage of Henry IV and his minister, the Duke de Sully. In 1664 another manufactory was established at Beauvais by Minister Colbert, who soon afterward united the first one with the celebrated tapestry factory established by Jean Gobelin, of Flanders. Another large factory for making carpets in the style of the modern Wilton was established at Chaillot, near Paris. The first named of these establishments is now the

property of the French government, and sent to the World's Fair, in 1851, superb specimens of Gobelin carpets and tapestry.

In England carpets were so little known in the middle of the twelfth century that it is cited as an instance of the luxurious living of Thomas à Becket that his sumptuous apartments were daily spread with clean straw or hay. In the reign of Henry VIII an unsuccessful attempt was made by William Shelden, esq., to establish a manufactory of tapestry and carpets; but in the time of Mary, and her successor Elizabeth, the royal presence chamber presented the incongruous spectacle of walls hung with splendidly embroidered tapestry, while the floors were strewed with rushes or hay. Floors of polished and waxed oak were often seen in early times, however. In 1609 a more successful attempt was made by Sir Francis Crane, who, aided by a grant from King James I, established the weaving of carpets and tapestries at Mortlake, in Surrey. The manufacture was improved and extended in England by the Protestant Huguenots, who forsook France in 1685. About the middle of the last century, when the manufacture had become somewhat extended, the manufacture of Turkey carpets was brought to England by two artisans from France, and by the efforts of Mr. Moore, the secretary of the Society of Arts in London, was so improved that the society awarded him a premium for the best imitation of Turkey carpets. Their manufacture was established at Axminster in 1755, and, though no longer made there, have since borne the name of that place. These carpets, which, being made in one piece, often of large size, and having numerous tufts of colored worsted inserted and secured by the shoot, are very tedious to weave, requiring several persons to manage the colors and designs, were rendered still more costly than the elegant original by the use of worsted instead of woollen yarn, and hence the production was never large.

Kidderminster, Wilton, Cirencester, Worcester, Axminster, Halifax, &c., in England, and Kilmarnock, in Scotland, are the principal seats of the carpet manufacture, but the local names given to the several kinds are not always indicative of the present or original place of production. Kidderminster is the principal manufacturer of Brussels carpet, having a weft of linen, and the kind called Kidderminster or two-ply, and in America ingrain, are principally made in Scotland and Yorkshire. Wilton carpets—the French Moquette—differ from Brussels chiefly in having the worsted loops, after the withdrawal of the wires on which they are formed, cut through with a sharp knife to form a pile in the manner of plush or velvet. Royal Wilton has the pile raised higher than the common Wilton. Plain Venetian carpets, used for bed-rooms, stairs, &c., are not known ever to have been made at Venice. Halifax, England, probably contains the largest carpet manufactory in the world, that of Messrs. Crossley & Sons, who lately employed a capital of £1,650,000 sterling, and 4,400 work people.

Many improvements have been made in the carpet manufacture in Great Britain. Among these may be named that of Richard Whytock, of Edinburgh, whose combined improvement in weaving and printing has given rise to a new and elegant fabric known as patent tapestry and velvet pile carpet, resembling the Wilton in texture, but superior in richness. This is made by many of the largest carpet manufacturers, of whom one alone, in 1858, employed 300 steam power-looms on that principle. A process of double weaving, introduced by Mr. Templeton, of Glasgow, produced a carpet on the cheneille principle. The patent wool Mosaic carpet, made by cementing a close velvet pile on plain cloth by caoutchouc, introduced from Germany, has been improved by Messrs. John Crossley & Sons, of Halifax. A cheap carpet is extensively manufactured near Manchester, for exportation, under the Sevier patent, being first woven in plain colors by steam power, and afterward printed with colored blocks. Felted carpets, which are also made in Persia and called *mirmuds*, are also made and printed in colors in England to a considerable extent, as also are hempen carpets, introduced from Russia, having the colors running in stripes, but of little durability. James Melville, of Scotland, has patented an improvement in printing carpets and shawls. This manufacture in England is now estimated to employ more than 5,000 looms on goods of every description, and the value of carpeting exported thence to the United States alone, in 1859, was $2,174,064, while the value of French make imported by us was only $10,317.

Although carpets are now used in the United States probably to a greater extent than in any other country, not only in private houses, but in churches, public buildings, counting-houses, offices, &c., they were seldom seen here before the Revolution, and then only in the houses of the most wealthy. In New York, where Scotch and other carpets were advertised for sale by one or two persons about 1760, the house of a wealthy Dutch merchant or burgher may have occasionally contained a carpet in early times, although the first one ever seen there is said to have been found in the dwelling of the pirate Kidd, executed in 1701. It was merely a good-sized Turkey rug, doubtless the ill-gotten booty of his unlawful ventures. With the exception of a crumb-cloth of drugget sometimes found in the best parlors, a floor scrubbed white and sprinkled with fine white sand, often brushed into fantastic circles and curves, contented our female ancestors in colonial and even more recent times.

As early as 1791 a carpet manufactory, conducted by William Peter Sprague, was in operation in the Northern Liberties of the city of Philadelphia, in which were made carpetings called Turkey and Axminster. Mr. Sprague wove a national pattern, with a device representing the arms and achievements of the United States. It was probably in reference to this enterprise that Mr. Secretary Hamilton, in his report on manufactures made in that year, recommended an addition of 2½ per cent. to the duty (5 per cent.) then payable on imported carpets and carpeting as some encouragement to beginnings already made in the manufacture at home. At Providence, Rhode Island, and vicinity, in the same year, and probably elsewhere throughout the country, considerable quantities of carpeting were woven in families for domestic use. A manufactory of carpeting was also established at Philadelphia previous to 1807 by John Dorsey, esq.

The census of 1810 returned 9,984 yards of carpeting and coverlets made, of which quantity 7,501 yards, worth about as many dollars, were made within the present limits of Philadelphia, and 750 yards, valued at $2,500, in Harford county, Maryland. The only establishment for stamping floor-cloths was in Philadelphia, and its product was 1,500 yards, valued at $3,000.

This new article, called patent floor oil-cloth, now so extensively manufactured, was introduced as a summer carpeting, and probably from abroad. It was a strong, canvas fabric, woven without seam, on a seven-yard loom, of any desired size or shape, and afterward covered with a coating or varnish of oil, turpentine, &c., and sold plain, or in colors, with borders to match, at $1 25 to $2 per square yard, according to the number of colors. The proprietor, Mr. Isaac Macauley, who was probably one of the first manufacturers of the article in this country, established his factory at Bush Hill, Philadelphia, where he also produced other descriptions of oil-cloth in a great variety of patterns, and ingrain wool, and Brussels carpeting. In 1821 he had a contract for supplying the new State-house at Harrisburg with ingrain carpeting of his own make, and in 1825 was granted letters patent for the manufacture of oil-cloth. About the close of the war with Great Britain a manufactory of this article was also established in or near New York, which, in 1820, employed eight hands, and made upward of $27,000 of patent painted floor-cloth. There was at the same time another factory, with six hands, in Brooklyn, and one in Baltimore, employing fifteen hands; but the product of the latter was returned at only $6,500.

In 1828 there were five manufactories of floor oil-cloths in the United States. In common with all other branches, the manufacture of carpets, except in families, was nearly suspended by the influx of foreign goods on the return of peace.

The census of 1820 reported small amounts of wool carpeting woven at Newport, Rhode Island; in Queen's county, New York; at Washington, D. C.; and in Frederick county, Maryland; much of which was made for customers. Some stair carpeting was, about this time, made in Baltimore by a Mr. Wilson.

As early as 1806 Francis Guy, of that city, sent into the United States Patent Office specifications for a patent for making paper carpeting. Letters patent were granted him for this invention in 1819, up to which time he had continued to improve the article so as to satisfy himself and others that carpets for summer use could be made of that material as durable as canvas floor-cloth, and much more beau-

tiful, at half the cost. In 1818 a citizen of Springfield, Massachusetts, advertised 1,000 yards of *straw* carpeting, from four to six quarters wide, and in price at 28, 37, and 42 cents a yard.

During the next twelve or fifteen years small manufactories of ingrain and other carpets sprung up in different parts of the country. One of these was at Medway, Massachusetts, where carpets, considered equal to the best Kidderminster, were made. There were several others established in the vicinityof Boston; one at Wheeling, Virginia, which made Scotch and Venetian carpets of good quality, and another at Martinsburg, in that State.

About the year 1827 a manufactory of carpets and shawls was established at the village of Tariffville, in Hartford county, Connecticut, by an incorporated company, under the direction of H. R. Knight. Some of its early products were pronounced excellent fabrics. In May of the following year the Thompsonville Company, in the same county, was chartered for the manufacture of every description of carpeting, the weavers first employed being principally Scotch. In 1832 the first of these employed a capital of $123,000, and 95 male weavers, and gave support to about 367 persons. It produced 114,000 yards of ingrain, or Kidderminster carpeting, equivalent to more than one-fifth the average annual importation of the country. In 1845 these two establishments, which then as now were chiefly owned by the same parties, were about the largest in the country, employing each about 1,000 persons. The Thompsonville factory, made about 1,600 yards daily of every kind of carpets and rugs, including Axminster, Wilton, Brussels, three-ply, super, ingrain, damask, Venetian, &c.

The Lowell Manufacturing Company, at Lowell, was incorporated in 1828, and, in addition to cotton looms, ran about 70 carpet looms, producing weekly about 2,500 yards of ingrain, Brussels, and other carpetings, and 150 rugs. Twenty-eight thousand yards are now made there weekly. In 1830 a manufactory of imitation Brussels and ingrain carpets was put in operation at Carlisle, Pennsylvania, by Mr. Samuel Given, whose goods were highly spoken of. A good article of felt carpeting was made in 1829 at Catskill, New York, for making which a patent was granted the same year to two citizens of that county. In 1833 there were three carpet factories in operation in Columbia county, in that State, and one at Rochester. There was also a large one at New Haven, Connecticut, and about 18,000 yards were annually made by the Norwich Manufacturing Company, in New London county. The Great Falls Manufacturing Company, at Somersworth, New Hampshire, also made carpeting. About the same time a carpet factory in Baltimore, owned by C. G. Conradt & Co., employed 28 carpet looms, and 40 women and children, producing annually 80,000 yards of carpeting. There were two or three carpet factories at this time at Steubenville, Ohio, and others in different parts of the Union.

In December, 1834, there were in operation in the United States at least 511 carpet looms in from 18 to 20 factories. Of these, 18 were for Brussels, 21 for treble ingrained, 424 for other ingrained, 44 for Venetian, and 4 for damask Venetian. Upon these looms were made annually of Brussels carpeting, 21,600; three-ply, 31,500; other ingrained, 954,000; Venetian, 132,000; damask Venetian, 8,400; total, 1,147,500 yards. Its average value was estimated at one dollar per yard.

The American market at this date was supplied in a great degree with carpets of all kinds of domestic manufacture. Large quantities of an inferior quality were still made in families, and in some sections, as in several counties of New Hampshire, the amount of it made and sold in other States was supposed to exceed the amount of foreign articles consumed in them.

The average quantity of carpeting imported from 1828 to 1832 was 536,296 yards, valued at the place of export at $416,944. In 1833 the following quantities were imported, viz: Brussels, Wilton, and three-ply, 104,108 yards, valued at $147,820; ingrain and Venetian, 240,668, value, $171,606; all other kinds, 337, value, $166; total, 344,113, value, $319,592.

The increased manufacture of carpetings which had taken place within a few years resulted in part from the attention given for a still longer period to wool-growing and improvements in the breed of sheep, the number of which, in 1831, was estimated at 20,000,000. It was mainly due, however, it is probable, to the stimulus applied by Congress to the woollen manufacture by augmented duties on foreign woollens. In April, 1816, Congress laid the duty on woollens at 25 per cent. ad valorem until

July, 1819, and after that date at 20 per cent., and on painted floor cloths at 30 per cent. In 1824 the duty was raised to 33⅓ per cent. on all woollens costing over 83⅓ cents per square yard, the effect of which was countervailed in England by reducing the impost on foreign wool from 6*d.* to 1*d.*, and afterward to ½*d.* sterling per pound. The American high tariff act of 1828, framed with especial reference to the woollen manufacture, imposed a duty of 70 cents per square yard on Turkey, Brussels, and Wilton carpets, of 40 cents on Venetian and ingrains, and of 32 cents on other kinds; painted floor cloths paying 50 cents the square yard. The high duty undoubtedly called into existence many carpet and woollen factories, although its benefits were in a measure counteracted by a duty of 4 cents a pound and 40 per cent. ad valorem at the same time laid on foreign wool when imported, the cheapest qualities of which were altogether imported. By the subsequent act of July, 1832, when the importation of wool amounted to upward of 4,000,000 pounds, about one-half of which was low-priced wool from the Levant, Turkey, and Egypt, wool costing less than eight cents a pound was placed on the free list, and the duty on the higher priced carpetings above named was reduced to 63 cents, and on common carpetings to 35 cents the square yard.

A rapid increase of carpet factories, and especially of floor oil-cloth establishments, followed these measures, and enabled American manufacturers to supply at from $1 25 to $1 75 per yard as good an article of floor cloth as could be imported at from $2 to $2 50 per yard, which was the price of the best English. In 1848 there were five oil-cloth factories in the town of Newburgh, in Orange county, New York, and two years later there were 19 in the State and 56 in the Union. In 1836 a factory of considerable size was erected at Poughkeepsie, in that State, for weaving ingrain carpets, which soon afterward turned out annually 100,000 yards of three-ply, superfine, fine, and common ingrains, and plain and twilled Venetian stair-carpeting, and about 1,000,000 yards of carpet binding. Another was started at the same place the next year by C. M. Pelton.

Up to this time the weaving of ingrained carpeting, both in this country and in England, had been done exclusively on hand-looms. Many improvements on the common carpet-loom had been made or attempted in both countries, some of which have been mentioned. But the jealousy with which the exportation of textile machinery had been watched made it difficult to obtain the latest improvements, except occasionally by the way of continental ports, in which way Mr. Haight, of New York, is said several years ago to have obtained carpet-looms. Several patents were granted in the United States between 1820 and 1840 for ingrain and other carpets, and for looms for weaving such fabrics, among which were two in 1830 to William Sherwood, of Somersworth, New Hampshire, one for an ingrain carpet-loom, and one for taking the figures of such fabrics, which improvements were probably used by the Great Falls Company at that place.

Power-looms as yet had been little used, except in the manufacture of the plainest and simplest fabrics, and in Europe all efforts to employ them in weaving ingrained carpets had been abandoned as impracticable. The difficulty of incorporating two distinct webs, such as compose the two-ply or Kidderminister carpet, into one fabric at a single operation, so as to bring the colors regularly to the surface and make the figures match, and at the same time leave a smooth surface and a perfect selvedge, seemed to require so many adjustments under the guidance of ever-present watchfulness and judgment as to be utterly beyond the power of automatic art on any scale that would pay. This difficult achievement was most successfully accomplished by Mr. Erastus B. Bigelow, of Massachusetts, who had previously, when quite a young man, and without any mechanical training, devised a power-loom for weaving knotted counterpanes, and another for weaving coach lace, by simply studying the texture of those fabrics. The coach lace loom, patented in 1837, contained all the essential principles of the Brussels carpet loom afterwards matured by him. Having, in connexion with his brother, Horatio N. Bigelow, and others, established the Clinton Company, at Lancaster, Massachusetts, for the manufacture of coach lace, and supplied the Lancaster Quilt Company, at the same place, with an entirely new counterpane loom, Mr. Bigelow made, it is said, a written contract to furnish a company at Lowell with power-looms for ingrain carpeting before he had even made a model or drawing of the machines. His

first power-loom was erected within a year, and averaged ten to twelve yards of carpeting per diem, the product of the hand-looms being only eight yards a day, and inferior in quality. A second loom with improvements produced eighteen yards per diem; and a third, essentially modified and improved, raised the product to twenty-five or twenty-seven yards daily of two-ply, and of seventeen or eighteen of three-ply, and superseded the first machines. The Lowell Manufacturing Company, which are the assignees of the patentee, and were the first to manufacture carpeting successfully by power-looms, erected a new mill of great size, which was supplied with 200 iron power-looms. These have continued to make annually 1,300,000 yards of two and three-ply ingrains, and 2,500 tufted and cheneille rugs. They reduced the price of weaving two-ply carpets from 11¾ cents to 2.51 cents per yard, and of three-ply from 25 cents to 2.83 per yard, the higher prices being the wages paid before their introduction. In 1848 Mr. Bigelow introduced the Brussels carpet loom, which was the coach-lace loom, so modified as to adapt it for weaving wider fabrics in figures to match, and afterwards to admit of a velvet pile. In the following year he organized the Bigelow Carpet Company at Clinton, Massachusetts, to run 30 power-looms, which made with perfect success five-frame Brussels, Wilton, and tapestry carpets, and, in fact, every kind of looped and velvet pile fabrics required. Attended by a single female, each loom wove with ease 20 to 25 yards daily of Brussels carpeting of the best quality, three or four yards being the average product of a hand-loom. This at once reduced the cost of weaving Brussels carpet from 30 to 4 cents per yard.

These and other improvements of Mr. Bigelow in textile machinery form a series of mechanical inventions which are covered by upwards of twenty American patents. His ingrain power-looms, which have reduced the price of carpetings probably twenty per cent., were introduced into the great factories of the Hartford Carpet Company at Tariffville and Thompsonville, Connecticut, each of which paid a royalty to the Lowell Company of about $25,000 per annum, and are capable of producing annually 1,700,000 yards of ingrain, 500,000 yards of Venetian, and 200,000 yards of Brussels carpetings. The Bigelow power-looms have also been employed in the large establishments of A. & E. S. Higgins in New York, in one at Troy, in that State, for making tapestry and velvet pile carpets and rugs. The American patent has recently expired; but the Hartford Company, in the last 8½ years, paid in aggregate dividends upward of one million dollars.

The product of the Bigelow Company at Clinton, Massachusetts, in Brussels carpeting is about 500,000 yards yearly, exceeding the total annual importation of that article at the time the looms were introduced to the public.

In 1851 Mr. Bigelow exhibited specimens of power-woven Brussels carpeting at the World's Fair in London, which the jury declared were "better and more perfectly woven than any hand-loom goods brought to their notice;" and the proprietor was acknowledged to have been the first successfully to use the power-loom in their manufacture. He obtained a patent in England the same year, and large orders were soon after given by Messrs. Crossley & Sons, of Halifax, for power-looms for their extensive manufactory at that place, now, perhaps, the largest in the world. The proprietors who now hold the patent right of those machines for the United Kingdom had already found themselves unable to compete with the superior machine-made American carpets, but, by the aid of power-looms, were soon after able to reduce the cost of weaving from 14*d.* to 2½*d.* per yard, and give better wages to their work-people for fewer hours of labor.

Many minor improvements in carpet machinery and designs have been made by Americans within a few years, including modifications of the Jacquard loom, which has been much employed in carpet-weaving.

In 1845 Massachusetts contained 17 carpet mills, with a capital of $488,000 and 1,034 hands, producing 1,158,958 yards of carpeting, worth $834,322. In 1855 it contained 13 factories, whose capital was $2,264,172. The number of hands was 1,614, and the product 1,988,460 yards, valued at $1,362,819. New York State, in the latter year, had, according to the State census, 18 carpet mills, employing 1,988 persons. They employed a capital of $1,199,470, of which $934,200 was in machinery,

and the balance in real estate, and the value of their product was $2,076,703. The principal factories were at New York, Auburn, Poughkeepsie, Amsterdam, Newtown, and West Farms. Messrs. A. & J. Smith, of the latter place, held a patent for an improved style of weaving tapestry, ingrain, or chenille carpets in medallion figures, granted, we believe, in the previous year to John G. McNair.

The number of power-looms in operation in the United States in 1857 was estimated to be upward of 5,000, which were unable to supply the demand.

In Philadelphia and its vicinity, where the largest amount of carpeting is made, several peculiarities in the trade are noticeable, relating both to the character of the goods and the system of manufacture. The large New England manufactories are almost exclusively engaged in the production of super and extra fine carpets from wool and worsted materials, and chiefly by the aid of power-looms. In Philadelphia the product embraces ingrain and Venetian carpets of every quality known in the market, from damask Venetians, costing before the war $1 to $1 15 per yard, down to cotton and wool, and all-cotton carpets, sold for about 20 cents the yard. These are chiefly woven on hand-looms, of which, in 1857, there were at least 1,500 distributed among 100 manufacturers, the largest having 150 looms, one manufacturer only employing a few power-looms. Each hand-loom made about 4,320 yards annually, and the total product was about 6,480,000 yards, worth, at a low average of 40 cents per yard, $2,592,000 per annum. In addition, there were 560 looms engaged on rag and list carpets, of which 1,680,000 yards, worth, at an average of 30 cents, $504,000, were made annually. The average price of weaving ingrains was 9 cents a yard, and of rag carpets, 6 to 10 cents. The whole number of persons employed was about 3,130, whose annual wages was $821,000. The aggregate production of carpetings of all kinds was 8,160,000 yards, valued at $3,096,000 per annum. An English manufacturer, a few years since, stated that more yards of ingrain carpeting were made annually in Philadelphia than in all Great Britain. Improvements have been made and patented by the proprietors of the Bridesburg Machine Works, in that city, in the carpet-loom, which, in its latest form, carries 32 shuttles, and is capable of laying 16 different colors in the figure and as many in the ground of the carpet.

The Bay State Mills, at Lawrence, Massachusetts, formerly made an excellent article of printed felt carpeting, the materials of which were felted in the manner of a hat body into a firm fabric with a white ground, which was afterward printed on blocks in a variety of brilliant colors and elegant designs, and sold either as floor-cloth or drugget at 75 cents to 90 cents the yard, according to width, which varied from 40 inches to two yards. The American Felting Company and the Mystic Mills, at Winchester, Massachusetts, also make felt carpetings.

A new article of printed carpetings, rugs, and crumb-cloths is made by the Fibrilia Manufacturing Company, at Lawrence, in which *fibrilized* or *cottonized* flax is used as a substitute for cotton and wool. Hemp carpeting has been made by a mill at Paterson, New Jersey, and probably elsewhere.

Fine carpets are manufactured by only about six large establishments at this time. Four of the largest companies have an aggregate capital of $6,500,000, and three of these are alone capable of making annually an aggregate of 4,500,000 yards of carpetings of various kinds. One of them employs 288 power-looms, and makes upward of 2,000,000 yards annually. One of the four companies referred to makes only Wilton and Brussels carpets and rugs; another, only two and three ply ingrains; a third, ingrain, Venetian, and Brussels; and the fourth, velvet, Brussels, ingrain, and Venetian and rugs.

Although the financial state of the country during the present war has generally been favorable to large sales, the high cost of materials has proved embarrassing to home manufacturers. The imports of all kinds of carpeting during the fiscal year ending June 30, 1862, amounted to 559,928 square yards, valued at $466,596.

The present tariff is nearly prohibitory, and we may soon expect to find the market entirely supplied with carpetings of domestic manufacture.

Statistics of carpets manufactured in the United States during the year ending June 1, 1860.

STATES.	Number of establishments.	Capital invested.	RAW MATERIALS USED.			Cost of raw material.	NO. OF HANDS EMPLOYED.		Annual cost of labor.	ANNUAL VALUE OF PRODUCTS.		Per cent. increase.	Yards of carpeting produced.	Average value per yard.
			Pounds of wool.	Pounds of cotton.	Pounds of flax.		Male.	Female.		In 1860.	In 1850.			
														Cents.
Maine	2	$8,000	40,000	.....	.....	$32,510	26	11	$10,380	$42,090	$28,500	47.3	66,500	63
New Hampshire	2	26,000	115,702	.....	.....	35,473	50	17	17,604	57,060	50,000	14.1	62,434	91
Massachusetts	11	1,981,900	4,774,275	135,000	.....	1,530,903	599	762	334,184	2,358,278	1,761,991	33.8	3,235,553	72
Rhode Island	1	500	2,500	.....	.....	1,240	1	2	552	2,500	*	.....	3,000	83
Connecticut	3	700,500	1,950,000	260,000	.....	614,510	376	325	179,304	893,100	1,079,292	Dec.	1,440,000	62
Total in N. England States	19	2,716,900	6,882,477	395,000	.....	2,214,636	1,052	1,117	542,024	3,352,938	2,919,783	14.8	4,807,487	69
New York	28	1,017,868	1,082,494	.....	800,000	886,502	971	932	358,980	1,627,960	1,223,619	33.0	2,293,544	71
Pennsylvania	137	872,200	574,720	.....	.....	1,247,059	1,750	646	606,060	2,710,092	1,136,733	138.0	5,931,460	46
New Jersey	10	62,800	268,000	.....	.....	48,317	76	75	23,652	112,590	115,099	Dec.	140,200	80
Maryland	8	46,250	32,500	.....	.....	13,076	33	.....	7,692	29,765	*	.....	61,650	48
Total in Middle States	183	1,999,118	1,957,714	.....	800,000	2,194,954	2,830	1,653	996,384	4,480,407	2,475,451	81	8,426,854	53
Ohio	7	3,250	†	.....	.....	6,161	24	1	6,108	18,516	6,000	.....	43,580	42
Illinois	4	2,500	3,500	.....	.....	2,235	4	.....	1,176	5,775	*	.....	8,000	72
Total in Western States	11	5,750	3,500	.....	.....	8,396	28	1	7,284	24,291	6,000	.....	51,580	47
Total in United States	213	4,721,768	8,843,691	395,000	800,000	4,417,986	3,910	2,771	1,545,692	7,857,636	5,402,634	45.4	13,285,921	59

* Value of products, 1850, no return for.

† Yarn is used in this and other States.

CLOTHING.

The manufacture of men's and boy's wearing apparel for sale, ready made, is a branch of industry which has grown up within a few years, and in all our principal cities has become one of considerable magnitude and importance. The statistics of this branch, including the custom business of the tailor and clothier, but excluding shirts, collars, and other furnishing goods for men, and all women's wear, in 1850 employed 4,278 establishments, having invested a capital of $12,509,161. The consumption of raw materials amounted to $25,730,250; the hands employed numbered 35,051 males and 61,500 females, whose annual wages were $15,032,340, and the aggregate value of the product was $48,311,709.

The returns of 1860 show a decrease of 485 in the number of establishments, but a considerable increase in the aggregate values above enumerated, and a small increase in the total number of hands employed, as follows, viz: number of clothing establishments, 3,793; capital invested, $24,939,193; cost of material, $39,976,845; male hands employed, 41,173; female hands, 57,730; cost of labor, $18,942,888; value of product, $73,219,765. The aggregate product was augmented $24,908,056, which was at the rate of 51.5 per centum. The number of female employes was diminished 3,770, and the male hands were increased 6,122, making the total number of persons employed 2,352 more than in 1850.

In the number of establishments devoted to this business there was a decrease, amounting in the eastern, middle, and southern States together to 730, which was in part counterbalanced by an increase of 245 establishments in the western and Pacific States. In the New England States the decrease was 222, Vermont and Rhode Island alone showing increase. In the middle section there was a diminution of 484 in the total number of concerns, with only a small increase in two States. The western States showed an aggregate increase of 228, Kentucky alone having reduced the number of its

clothing establishments from 131 to 79. In all but four of the southern States there was a decrease in the number, but the general deficiency was nearly compensated by an increase of 138 establishments in Louisiana, making the total decrease in this section only 24. The whole number of clothing establishments in New England was 499; in the middle States, 1,887; in the western, 1,040; in the southern, 352; and in the Pacific States, 15. Eleven of those last named were in California, and all but one in New Mexico were the creation of the ten years preceding the census.

The falling off in the number of clothing establishments in the older States, and particularly in some of the large cities, was due in part to a silent revolution which had been going on in this business for a number of years, chiefly through the agency of the sewing machine, whereby many small shops have been merged into large wholesale establishments for the manufacture and sale of ready-made clothing, which has now become an important commercial interest. Hence, notwithstanding there were in 1860 fewer clothing establishments than in 1850 by upwards of 11 per cent., and an increase of only 2.4 per cent. in the aggregate number of hands employed, the amount of capital invested in the business had augmented nearly 100 per cent., and the aggregate value of the product 51.5 per cent., as compared with the returns of 1850.

The total value of the clothing manufactured in New England was $11,408,333, a decrease of 8.3 per cent. in ten years. The capital invested in the business was $2,719,430, and the hands employed were 3,095 men and 10,427 women, the annual cost of whose wages was $2,353,740, an average of $174 to each. The value of raw material consumed was $6,266,463. Upward of one-half the product, or $6,070,975, was returned by 196 establishments in Massachusetts, having a capital of $1,498,400 and 5,647 hands, which was 30.6 per cent. below the product of that State in 1850. Of that product Boston returned about three-fourths, or $4,567,749, as the proceeds of a capital of $1,078,300, and 4,017 hands, which figures by no means overstate the large clothing business of that city. Connecticut, also, showed a diminished product in the ratio of six per cent., while each of the other New England States exhibited an increase, which in Rhode Island amounted to 169.4 per cent., that State having increased the number of its establishments from 22 to 55. Maine ranks second among the New England States in the extent of capital and value of its product, the latter amounting to $1,635,354, much of which is manufactured for Boston firms, who distribute their work in large quantities throughout that State and a part of New Hampshire to be made up and returned through a peculiar system of agencies.

The clothing manufacture of the middle States employed a capital of $16,370,702, and paid for raw material $25,273,136, and for labor $12,269,570 per annum, the latter being the wages of 27,318 male and 36,932 female hands, an average of $191 per annum to each. The total value of the product was $45,236,596, an increase of 58.4 in ten years, and equivalent to 93.6 per cent. of the product of the whole Union in 1850, and 61.7 per cent. of the same in 1860. The States of New York, New Jersey, and Pennsylvania, respectively, augmented their production in the proportion of 56.8, 62.6, and 61.2 per cent.; and the product of Delaware, though small, was 115 per cent. above that of 1850. The manufactories in New York State numbered 860, and they had invested a capital of $8,038,361, consumed raw material to the value of $14,540,050, and paid, as the annual wages of 14,767 males and 17,696 females, the sum of $6,190,182. The total value of the clothing made in that State was $25,095,299, which was nearly equal to the combined product of the New England and western States together, and more than half that of the entire Union in 1850. New York city and vicinity alone made a return of 303 establishments, employing $5,645,800 in capital, and 21,568 hands, with an annual product of $17,221,856, of which $210,486 belonged to Brooklyn and Williamsburg. Pennsylvania, next to New York, made the largest amount of clothing of any State, and had 672 establishments, whose united capital was $5,256,201, the cost of material being $6,230,568, and the annual wages of 7,828 men and 10,090 women, $3,012,522. The total value of clothing made in the State was $12,305,541, which, though scarcely half that of New York, exceeded the total production of New England, and was about one and a half million less than that of all the western States. Of the manufactories, Philadelphia contained 344, using a capital of $4,249,775, and paying for raw material $5,071,736, which gave

employment to 6,275 male and 7,928 female hands, whose annual product was $9,962,800, or more than three-fourths the product of the whole State. New Jersey and Maryland, respectively, ranked as fifth and sixth in the value of this industry, which, in the former, showed a product of $4,042,002, and in the latter of $3,271,116, either of which amounts exceed the total production of the southern States in this branch.

The western States had invested a capital of $5,186,801, and consumed raw material worth $7,145,942. They employed in the manufacture 9,687 men and 9,689 women, the annual cost of whose wages was $3,727,452, an average of $192 each, and the total product $13,907,625, an increase of 138 per cent.

The largest producer in that section was Ohio, which numbered 448 establishments, having $3,052,365 in capital, and giving employment to 6,356 male and 6,927 female hands, with an annual cost for raw material of $4,388,169, and for labor of $2,328,348. Its annual production of clothing was valued at $8,771,068, which was 217 per cent. in excess of its manufacture in 1850, and placed the State in the third rank as regards the value of this branch. A large proportion of the product of Ohio was manufactured by 222 establishments in Cincinnati, having invested $2,200,900, and consuming raw material valued at $3,076,571. The annual product of these was $6,381,190, or nearly three-fourths that of the entire State, and more than double the product of the State in 1850. It was made by 5,016 males and 4,963 female hands. The number of persons employed in this branch in Cincinnati was more than double, and throughout the State about three-fold the number so engaged in the whole State in 1850. Kentucky was the only other western State in which the value of this manufacture reached one million, and it exhibited the smallest increase of any, its product being only a little more than in 1850. The relative increase of the business in other western States was in the following ratio, viz: in Indiana, 131 per cent.; Illinois, 75; Michigan, 132; Wisconsin, 235; and Missouri, 26.3 per cent., respectively. Minnesota made no return in 1850, and only $5,765 in 1860.

In the southern States the manufacture of clothing amounted to only $2,573,045, the product of 352 establishments, which had capital invested to the amount of $639,995, and paid for material $1,239,983, and for the labor of 1,038 males and 681 females, the sum of $562,936, the wages averaging $327 for each hand. Louisiana showed the largest production, as well as the greatest relative increase, its product being $1,707,072, or nearly two-thirds the production of that section, and its rate of increase 402.3 per cent. Mississippi increased its manufacture 222.8 per cent. Arkansas and Florida also showed an increase; but in all the other southern States there was a diminished production of clothing as compared with 1850.

The product of the Pacific States amounted, altogether, to $94,186, more than one-half of which was made in eleven establishments in California.

The diminution, which, on a further comparison of these statistics with those of the preceding census, appears in the number of hands employed in some parts of the country, and the small relative increase in others, is attributable to two causes. The returns of the number of persons employed in this industry in 1850 were, in several instances, too great; because the whole number employed throughout the year, some of them only temporarily, were given, instead of the average of the hands constantly employed, as required by the instructions, and as has been done in the recent schedules. Another cause, however, is found in the substitution of machine-sewing for hand-stitching, which, as already stated, has coincided with the natural tendency of capital to reduce the number of small tailoring establishments, and to build up, in the principal business centres, extensive ready-made clothing houses, in which, as in many customer-shops, much of the work is performed by sewing machines, to the exclusion of the needle-women. Hence, in many of these large wholesale establishments it is not uncommon to find that the principal cutters and salesmen are men who have been once known as merchant-tailors, but have concentrated their capital and influence in the larger concerns. Aided by cheap and rapid communication with all parts of the country, these are enabled thus to command a wide range of custom, and with all

the advantages of large capital and machinery, supply every town and village with ready-made clothing, at the lowest prices.

In the eastern, middle, and southern States there was a decrease in the number of female hands, amounting, in the aggregate, to 8,308, which was, in part, balanced by an increase of 5,248 female hands in the western States. The largest displacement of female labor was in New England, where machinery has been most largely substituted, and amounted to a deficiency of 5,780, or more than one-third of the number employed in 1850, and in about the same proportion with the decrease of male hands. In the middle States the females employed numbered 1,723 less than in 1850, and the males 2,848 more than in that year. In the west the male hands increased 5,098, and the females 5,249; while in the south both classes were diminished, the former 342, and the latter 775.

The effects of consolidation of capital in large establishments, and of machinery, are further apparent in the augmented capital and product of the business generally, and in the average of each establishment, and also in the better average compensation of each hand, as compared with 1850.

The total increase of capital in 1860 was in the ratio of 99.3 per cent.; the cost of raw material 55.3 per cent.; cost of wages, 26 per cent.; number of hands, only 2.4 per cent.

The average product of each clothing establishment in 1850 was $11,293; product per hand, $500; capital of each, $2,924; cost of raw material each, $6,014; cost of labor each, $3,747; average number of hands each, 22; and average cost of wages per hand, $155. In 1860 each establishment, on an average, produced $19,303, increase 71 per cent.; the product per hand was $740, or 48 per cent.; capital, $6,575, or 125 per cent.; cost of material, $10,691, or 77 per cent.; cost of labor, $4,994, or 33 per cent.; number of hands, 26; and wages per hand, $191 each, an increase of 23.2 per cent.

In 1860 the average product of each establishment in New England was $22,863, or 33.3 per cent. greater than in 1850; in the middle States the average was $23,972, increase 99.1 per cent.; in the south, $7,309, increase 77.2 per cent.; in the western States, $13,372, an increase of 85.9 per cent.; and in the Pacific States, $6,279 each.

HISTORY AND STATISTICS.

The manufacture and sale of clothing constitutes a branch of trade which is everywhere directly dependent upon the progress of wealth and refinement. Next to shelter and subsistence, the principal want of mankind is for clothing adapted to the circumstances of climate, season, national habits, or individual taste and caprice. The temperate latitudes and the most refined nations, with accumulated wealth, give the largest scope and the amplest rewards to the clothier and costumer. The inhabitant of the frigid zones is forced to dress in skins and furs, while those of tropical climates either reject clothing, or content themselves with loose and flowing garments of the lightest and simplest materials and little diversified in style. The rich and highly civilized nations, on the other hand, which chiefly occupy the temperate zones, by reason of the regular succession of seasons, the gradations of society, the general diffusion of wealth, the multiplicity of arts and occupations, and the personal freedom allowed, encourage a corresponding diversity of costume to meet the varied wants and tastes of each individual, under the changing caprices of fortune or of fashion. Hence we find so large a proportion of the productive industry of civilized nations devoted to the growth and preparation, the elaboration and ultimate manufacture of the various fibrous and textile materials used for clothing, and of the implements and machinery subservient thereto. A large proportion, also, of the internal and foreign trade of the most commercial States consists in the exchange or distribution of the materials for clothing, either in the raw or manufactured state. In the primitive and simple states of society, where public and individual wealth is more limited, all the arts relating to this industry partake more of a strictly domestic or household character. The materials are more coarse and durable, being, to a great extent, spun and woven in the family, where they are often made up with but small aid from the clothier and tailor. Such, to a great extent, was the case in the early history of most of these States, when the straitened pecuniary means and the undeveloped state of all the domestic arts imposed upon all classes a compul-

sory frugality in regard to apparel. In portions of the country, moreover, an austere public sentiment enjoined a rigid simplicity of dress, which was often enforced by legal penalties. Tailors were among the needful tradesmen in the first colonization of all the States; but in many the art and mystery of their calling, which, in its highest exercise, approaches to the dignity of a fine art, found but a limited field.

A recognition of the services of this useful class occurs in connexion with one of the earliest notices of the use of cotton in this country. A public order of the colony of New Haven in 1643, soon after its settlement, required the tailors to see that every family was provided with "a coate of cotton woole well and substantially made." In the following year the functions of the craft were again called into exercise for the public safety in a curious order requiring, under penalty, that so soon as canvas and cotton could be obtained from abroad, "every family within the plantation shall accordingly provide, and after continue furnished, with a coate well made, and soe quilted with cotton woole as may be fit for service and a comfortable defence against Indian arrowes, and the taylors about the town shall consider and advise how to make them, and take care that they be done without unnecessary delay."

Although the first fulling mill in America was erected about the year first named at Rowley, in Massachusetts, we are told that in 1713 there was but one clothier in Connecticut, who could do little more than full a portion of the homespun cloth made, much of which was worn unshorn and undressed. During a greater part of the colonial period much of the materials for clothing for the wealthier classes, and all the finer cloths, were imported from England. Tailoring establishments found ample patronage in all the larger cities, towns, and villages, and were sometimes flourishing concerns. In Philadelphia, which took an early lead in social and commercial importance, we find the tailors, as early as 1718, applying for an act of incorporation by the city government. A "Master Taylor's Society" was incorporated in that city in 1805, and a benevolent society of journeyman tailors, instituted in the year 1800, was incorporated in the year 1807. Although similar associations for mutual aid were formed in other places, confederations of particular interest, or trades' unions, which in some countries have been successfully employed by this respectable class of tradesmen and others as a means of keeping up the price of wages, generally at the expense of other trades, or of the public interests, have not been much resorted to in this country. The wages of labor have generally been adequate under the operation of the natural laws of trade. The needle-women, by whom, under the modern system of wholesale manufacture of slops and clothing the principal part of the work has been done, have sometimes found prices inadequate for a comfortable support. The recent introduction of the sewing-machine, as would appear from the schedule, has reduced the number of sewing women, and their sudden displacement in some places may have been injuriously felt without, on the whole, damaging their interests as a class.

The revolution in the tailoring business, which has created the ready-made clothing trade as a distinct branch of business, began about thirty-five years ago. A few establishments in New York and one or two other principal cities, the largest of them employing three to five hundred hands each, were at that time engaged in shipping clothing to the southern States and to foreign ports. The ready-made clothing kept for sale previous to that consisted principally of "slop work" for seamen, some of which was imported.

The duty on clothing imported ready-made from abroad, imposed by the tariff of 1816, was 30 per cent. ad valorem. In May, 1828, the duty was raised to 50 per cent. on all except articles of silk, at which rate it remained until 1846, when it was again reduced to 30 per cent. In 1857 the duty was still further reduced to 24 per cent., but in 1862 was increased to 35 per cent.

The average annual value of ready-made clothing exported from Great Britain to the United States in the years 1827 and 1828 was £159,724 sterling. During the next six years the average annual value of apparel, slops and haberdashery exported to this country was £102,926 per annum; and for the ten years ending in 1844 the annual value was £160,605. The imports of ready-made clothing for the years 1851 and 1852, from all countries, averaged $97,032. The exports of American manufactured clothing, on an average, of the two years ending 30th September, 1828, was $119,510. During the next five years it amounted annually to $75,576; and for the ten years from 1833 to 1843 the average

yearly exports of clothing amounted to $118,730. In the years 1851 and 1852 the exports of clothing from the United States amounted to an average of $250,102 per annum. The largest exportation was in the year 1838, when it reached the sum of $259,194, and the smallest in 1843, when it was only $23,227.

The domestic market has been the chief dependence of the wholesale clothing trade. This branch had become only partially established in New York and one or two other cities previous to the financial troubles of 1837. In consequence of the large amount of capital required, and the length of credit given, many of the clothing houses were prostrated during the crisis. The trade revived, however, in 1840, and became rapidly established and extended as a distinct branch of the dry goods trade. In 1841 the value of clothing sold at wholesale in New York was estimated at $2,500,000. The State census of 1855 returned 126 tailors' shops in that city, employing 12,968 persons, and expending annually for raw material $4,317,302, with a manufactured product of $7,592,696. The value of the product was estimated much higher. The State, in that year, produced tailors' work to the value of $11,842,929, requiring 3,421,642 yards of cloth. The value of clothing returned by New York city in 1860, exclusive of Brooklyn and Williamsburg, was $17,011,370. The value of clothing manufactured, including neck-ties and suspenders, in Massachusetts, in 1837, was only $2,013,316. In 1855 the value of clothing made in Boston alone, including custom-work, was officially returned at $8,500,000, and, as in the case of New York, it was estimated from twelve to fifteen millions annually. The value reported in 1860 was $4,567,749. Cincinnati has also been among the largest producers of ready-made clothing. In 1840 the value made in that city was $1,940,450. In 1850 it amounted to $4,427,500, and in 1860 to $6,381,190. Philadelphia produced clothing in 1860 to the value of $9,984,497. The four cities above named manufactured more than one-half the total product of the Union in 1860. Baltimore, Louisville, St. Louis, and some other cities, have a large wholesale clothing trade, which, in Baltimore, amounted, in 1860, to $3,124,081.

The business has now become widely distributed throughout the country, as appears from the statistics. Its extension has wrought an important change in the dry goods trade. The importation and sale of foreign and domestic cloths has fallen, in a measure, into the hands of wholesale clothing merchants, who thus unite the jobbing business with that of manufacturers and dealers in clothing on a large scale. These branches, in consequence of the high cost of the materials, the long credits given, and other circumstances, require heavy investments of capital, and the greatest discrimination and judgment in the selection of goods, a particular acquaintance with the wants of different localities and classes of customers, in order to the selection and adaptation of styles suited to each. The same discrimination and taste is a constant element in the success of the country merchant and retailer, who are enabled to dispense with stocks of piece-goods by reason of the facility with which supplies of ready-made clothing, adapted to their peculiar trade, may be selected and sold, cheaper than they can be manufactured on the spot. The general diffusion of wealth enables the American people of all classes to be comfortably and respectably attired, and it is seldom that one class is compelled to wear the cast-off clothing of another, as in countries where the poor are more numerous. Hence, the vast demand for ready-made apparel of moderate cost has developed an enormous and growing trade, giving employment to multitudes of women in the large cities, where they stand most in need of profitable employment. So extensive have some of the wholesale clothing houses become, that several thousand persons have been employed by a single establishment. The male hands have been principally German and Irish immigrants, the cutters being principally American. The wages have almost uniformly been greater than the same class could earn in Europe. The females employed in this branch have generally been better paid than needle-women in European cities. Although there have doubtless been exceptional cases of oppression practiced by a few avaricious employers toward this dependent and deserving class, it is certain that the charge of overwork and underpay cannot be made against the manufacturers as a class. The sewing machine has now been extensively employed in this business for several years, and has given a vast impetus to the trade. It has done this, not only by cheapening the cost of

production, but by enabling the manufacturer to turn out his work with greater rapidity, and thus accommodate his stocks to the peculiar state of the market. As many sewing women also possess themselves of these machines, they are enabled to counterbalance any reduction in the price of work by its increased amount. Others are, by the same means, enabled to live in the country, or at a distance from the crowded avenues of the city, and yet to receive and return, at stated times, a larger amount of work than they could turn out with the needle. Their use has undoubtedly contributed to make the large wholesale clothing houses of our chief cities the palatial establishments which they have now become, rivalling in extent and completeness those of any other branch of trade. The establishment of M. Godillot, in Paris, considered, a few years since, the largest clothing factory in the world, employed sixty-six sewing machines, kept in motion by a steam engine of nine horse-power, which sewed all the clothing of the Crimean army. A cutting machine, invented by Dussantey, the Emperor's tailor, and capable of cutting out fifteen suits at once, and one thousand women and girls were also employed in the establishment.

Statistics of Shirts, Collars and Men's Furnishing Goods produced in the United States during the year ending June 1, 1860.

STATES.	No. of establishments.	Capital invested.	Cost of raw material.	NUMBER OF HANDS EMPLOYED.		Annual cost of labor.	Annual value of product.
				Male.	Female.		
Maine	1	$10,000	$25,150	4	96	$17,400	$43,200
New Hampshire	4	3,300	5,993	2	19	3,468	14,122
Massachusetts	11	53,000	54,460	9	441	75,660	207,450
Rhode Island	2	8,000	24,860	2	64	6,936	53,800
Connecticut	19	547,000	673,989	85	2,593	359,664	1,322,900
Total in New England States	37	621,300	784,452	102	3,213	463,128	1,641,472
New York	74	935,450	2,253,290	257	7,765	572,440	3,779,111
Pennsylvania	81	570,650	642,334	116	3,374	482,772	1,359,614
New Jersey	7	79,200	167,715	35	474	70,680	266,214
Delaware	1	2,000	1,295	1	8	2,400	4,250
Maryland	2	7,500	27,075	5	48	8,640	35,000
District of Columbia	1	1,500	2,200	.....	20	4,320	33,000
Total in Middle States	166	1,596,300	3,093,909	414	11,689	1,141,252	5,477,189
Ohio	8	34,700	29,300	11	111	18,264	61,755
Wisconsin	1	200	420	.....	7	936	2,250
Michigan	1	500	990	.....	4	240	1,650
Illinois	3	1,600	7,964	1	26	7,104	23,581
Missouri	3	1,900	3,572	.....	18	4,068	10,893
Total in Western States	16	38,900	42,246	12	166	30,612	100,129
Total in United States	219	2,256,500	3,920,607	528	15,068	1,634,992	7,218,790

Statistics of Clothing (Men's) produced in the United States during the year ending June 1, 1860.

STATES AND TERRITORIES.	No. of establishments.	Capital invested.	Cost of raw material.	AVERAGE NUMBER OF HANDS EMPLOYED.		Annual cost of labor.	ANNUAL VALUE OF PRODUCT.		Per cent. increase.
				Male.	Female.		In 1860.	In 1850.	
Maine	89	$351,550	$862,983	253	2,823	377,844	1,635,354	917,311	78.27
New Hampshire	64	144,180	519,619	136	1,086	212,280	896,044	616,233	45.4
Vermont	39	72,100	131,899	83	239	68,832	250,669	124,560	101.2
Massachusetts	196	1,498,400	3,362,526	1,720	3,927	1,059,996	6,070,975	8,757,156	Dec.
Rhode Island	55	316,700	604,831	398	970	268,260	1,138,286	422,372	169.4
Connecticut	56	336,500	784,605	505	1,382	366,528	1,416,985	1,519,433	Dec.
Total in New England States	499	2,719,430	6,266,463	3,095	10,427	2,353,740	11,408,313	12,357,065	Dec.
New York	860	8,038,361	14,540,050	14,767	17,696	6,190,182	25,095,299	16,007,534	56.8
Pennsylvania	672	5,256,201	6,230,568	7,828	10,090	3,012,522	12,305,541	6,988,498	76.8
New Jersey	153	1,611,165	2,291,524	2,267	4,991	1,992,254	4,042,002	2,484,594	62.6
Delaware	20	69,675	102,208	64	167	46,176	179,840	83,602	115
Maryland	148	1,270,150	1,917,118	2,242	3,811	936,576	3,271,116	2,694,377	21.4
District of Columbia	34	125,150	191,668	150	177	91,860	342,798	297,900	15
Total in Middle States	1,887	16,370,702	25,273,136	27,318	36,932	12,269,570	45,236,596	28,556,505	58.41
Ohio	448	3,052,365	4,388,169	6,356	6,927	2,328,348	8,771,068	2,765,232	217
Indiana	109	365,705	433,244	628	254	204,304	758,406	327,599	131
Michigan	50	229,750	278,245	251	582	136,120	493,196	212,300	132
Illinois	69	213,460	445,159	479	148	176,384	774,597	441,897	75
Wisconsin	81	337,071	498,064	649	386	224,212	912,729	272,381	235
Minnesota	3	1,900	2,855	3	1	1,344	5,765	.....	.....
Iowa	27	54,310	74,912	90	67	41,484	138,245	8,500	1526
Missouri	171	358,250	476,464	650	274	269,244	948,269	750,791	26
Kentucky	79	595,490	542,300	565	1,050	342,532	1,093,975	1,058,877	.....
Nebraska	3	8,500	6,530	16	.....	3,480	11,375	.....	.....
Total in Western States	1,040	5,186,801	7,145,942	9,687	9,689	3,727,452	13,907,625	5,837,577	138.24
Virginia	63	158,850	231,819	220	373	121,252	421,253	615,857	Dec.
North Carolina	6	2,675	7,496	12	.....	4,068	12,370	76,144	Dec.
South Carolina	9	41,050	19,110	22	2	8,712	44,960	60,075	Dec.
Georgia	7	31,800	35,080	31	8	19,116	70,505	75,500	Dec.
Florida	2	3,500	2,300	6	.....	1,800	5,000	1,600	.....
Alabama	9	13,100	15,955	31	16	11,088	28,350	107,050	Dec.
Louisiana	213	274,420	817,802	578	252	334,140	1,707,072	339,830	402
Texas	5	1,500	2,650	10	4	3,840	7,622	.....	.....
Mississippi	11	69,100	46,900	59	9	25,500	105,100	32,550	222
Arkansas	3	11,500	11,000	17	.....	8,280	33,000	600	.....
Tennessee	24	32,500	49,871	52	17	25,140	137,813	241,356	Dec.
Total in Southern States	352	639,995	1,239,983	1,038	681	562,936	2,573,045	1,550,562	65.96
California	11	11,365	28,221	26	1	24,456	59,086	.....	.....
Oregon	3	4,900	15,100	4	.....	2,940	20,100	.....	.....
New Mexico	1	6,000	8,000	5	.....	1,800	15,000	10,000	50
Total in Pacific States	15	22,265	51,321	35	1	29,190	94,186	10,000	841
Total in United States	3,793	24,939,193	39,976,845	41,173	57,730	18,942,888	73,219,765	48,311,709	51.55
SEAMLESS GARMENTS.									
New York	1	50,000	252,000	135	165	78,300	412,000	.....	.....