and a little potassium chromate and warmed, then washed, and introduced into warm alkaline water, and washed again; when the water is evaporated from the slide, a drop of glycerine is added, and after a short time the characteristic structure of the jute will be seen, under the microscope, if jute is present.

RAMIE is stained a purple by sulphuric acid and iodine, but aniline sulphate gives no coloration.

HEMP: Iodine and sulphuric acid stain hemp a greenish yellow with a mottled appearance, while Schweitzer's reagent, beyond causing the fibres to swell, has no further action.

Hydrochloric acid and caustic soda give a brown color to hemp, and sulphuric acid gradually dissolves it.

TO TEST SHODDY FROM WOOL.

In testing the presence of shoddy in a lot of woolen yarn or fabric, treat the sample with warm hydrochloric acid, which will remove from the shoddy the color due to its second dyeing and leave its original dye clearly exposed. As the wool present was at the same time stripped of its color, it was left more or less white, thus distinguishing shoddy from wool.

TESTING MERCERIZED FROM NON-MERCERIZED COTTON

It is true that the microscope reveals some differences between the fibres of mercerized and non-mercerized cotton, but in the case where all the fibres have not been thoroughly penetrated by the lye during mercerization there is a possibility of mistakes. Also if the cotton has undergone subsequent treatment, *i. e.*, if it has been calendered or Schreinered, the nature of the fibre is so altered that the difficulties of distinguishing are accentuated, and washing does not entirely eliminate the effects of these after-treatments.

A solution of 30 grains of iodine in 100 cubic centimeters of a saturated solution of potassium iodide is the reagent to use. In an actual comparison, pieces of mercerized and ordinary cotton were treated with this solution for a few seconds and then washed well with water in a bottle, the water being frequently changed. The non-mercerized cotton was seen to become light blue in color and finally to wash quite white, while the mercerized sample was still a blue black, and remained very dark colored in spite of further repeated washings. A piece of cotton cloth containing a stripe of mercerized cotton was put into the liquor and washed; the stripe remained dark blue, whereas the non-mercerized portion of the fabric returned to its original color.

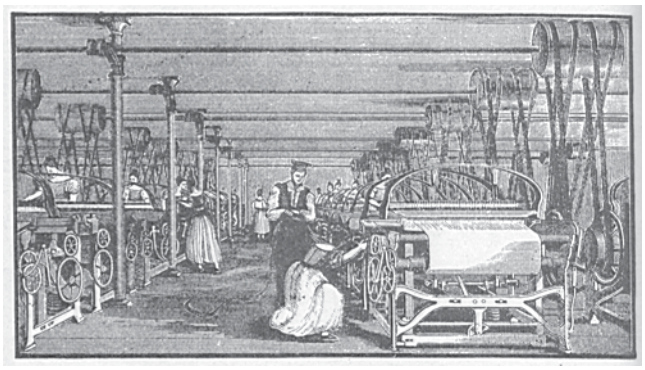
Another test is perhaps even more striking than the first. For the testing reagent in this case a water solution of zinc chloride is made containing 140 grains of the zinc salt in 150 cubic centimeters of solution, and to 10 cubic centimeters of this solution are added 2 drops of the iodine solution which is produced when one dilutes to half strength Herzberg's well known iodine solution. This solution turns mercerized cotton a deep blue (almost black), whereas non-mercerized cotton remains white. The intense blue color shows itself over most colors, but in the case of blue and black materials the color must be "stripped" before the cotton is tested. The test is applicable to all classes of goods if the finishes they contain are first removed.

CHRONOLOGICAL TEXTILE EVENTS.

(*Continued from page 103*)

1808. The Union Manufacturing Company, of Maryland, was incorporated with a capital of $1,000,000. A site was selected upon the Patapsco River, ten miles from Baltimore. Two mills were erected, 110 by 44 feet, five stories high, and adapted for 10,000 spindles, with the requisite water looms. The first mill commenced running in May, 1810, and continued until Dec., 1815, when its machinery, consisting of 6,000 spindles and auxiliary machinery, was destroyed by fire. The second mill was started in July, 1814.

Five new cotton mills established in New England; the Potowomut in Warwick, R. I., one at South Kingston, R. I., one at Coventry, R. I., one at Rehoboth, Mass., and one at Sterling, Conn.



POWER LOOM WEAVING EARLY IN THE LAST CENTURY.

The manufacture of oilcloth in two, three or four colors established in America by Isaac Macaulay on Market Street near Schuylkill bridge, Philadelphia.

John Heathcoat invented his first bobbin-net machine.

Snodgrass' scutching machine introduced into England, for beating and opening up cotton ready for carding.

1809. The Washington Cotton Mfg. Co., incorporated with a capital of $100,000. They erected their mills on James Falls, five miles below Baltimore, Md.

The scarcity and high price of woolen goods, created by the restrictions upon trade, at this time turned public attention strongly to sheep husbandry, and the domestic manufacture of wool. The few full blood Spanish merino sheep in the country, derived from the importations of Humphreys and Livingston, speedily rose in price to $500, and up to $1500 each in special instances, and fine merino wool from 75 cents to $2 per pound. In the course of this year Wm. Jarvis, of Weathersfield, Vt., the American consul at Lisbon, purchased 1,400 of the crown flocks of the Escuriel, sold by order of the French government, and which he shipped to this country. During this, and the following year, he sent upward of 2,000 more pure merinos. These, with some importations by other parties, to the number in all of about 5,000 imported up to this time, soon reduced the price, and introduced the breeds widely throughout the country.

The New York Assembly encouraged the woolen branch by offering premiums of silver plates worth $80, $100 and $160 respectively, in addition to bounties from each county, for the three best

specimens of narrow cloth, woven by families, and like premiums for the best samples, of 200 yards each, of cloth made by professed manufacturers.

A woolen mill started at Danville, Pa., said to have yielded a net profit of 40% on the capital stock.

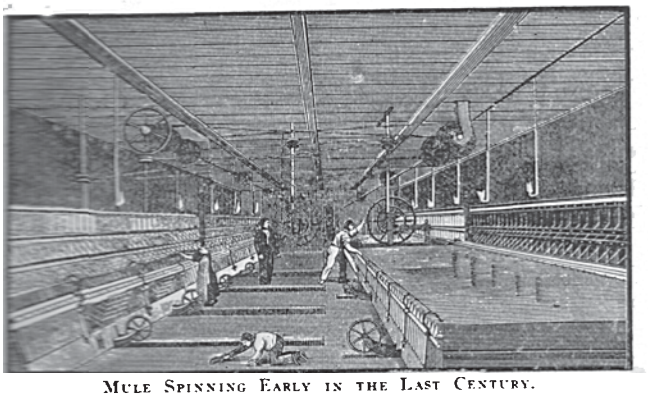
President Madison was introduced into office wearing the first inaugural suit of American broadcloth.

Sales made in Boston of the first all-cotton sail cloth manufactured in New England, if not in the world. Sail duck of flax and cotton, and cotton bagging, were already extensively made in Philadelphia and in Kentucky. The cotton sail cloth was made by Seth Bemis, an enterprising manufacturer of Watertown, Mass., and a pioneer in several branches of manufacture, who employed a Mr. Douglass to construct for him a twisting machine of 48 spindles, and, in October, had six English weavers employed at 14 cents per yard. His first sales were at 65 cents per yard for number one, and 58 cents for number two. Encouraged by his success, he increased the business the next two years, employing as his selling agent Capt. Winslow Lewis, who, by his energy, and the use of the new article upon his own ships, contributed to bring it into notice.

The Harmony Society, under Mr. Rapp, in Butler Co., Pa., this year built a fulling mill, which did much business for the adjacent country.

The number of cotton mills erected before the close of the year was at least 87, of which 62 (48 water and 14 horse mills) were in operation, and worked 31,000 spindles. The other 25 were to go into operation during the ensuing year.

Among the new mills established this year, 14 were within thirty miles of Providence, with a capacity of 23,600 spindles, the largest of which was that of Butler and Wheaton, at Meriden, Mass., to commence with 10,000 spindles. The others were at Attleborough, Northbridge, and Swansea, Mass., total capacity, including the first named, 13,000

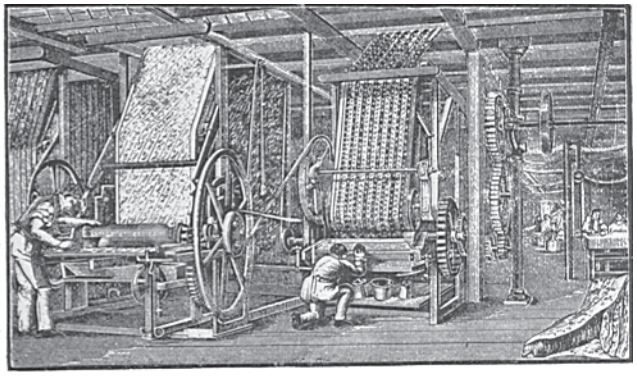


Mule Spinning Early in the Last Century.

spindles; two at Cranston, two at Smithfield, one at Scituate (2,500 spindles), one at Johnston, and one at Coventry, R. I., with an aggregate of 7,600 spindles, and one at Killingly and one at Plainfield, Conn., each 1,500 spindles.

A power loom was about this time projected by Dr. Josiah Richards, while a student of medicine at Claremont, N. H. He attempted to put it in operation by water power at the Byfield cotton factory in Mass., but failed, through some defect in the machinery.

Printing of cotton goods by engraved rollers established in America, by Thorp, Sidall & Co., at their bleach and print works, located between Germantown and Branchtown, Philadelphia.



Calico Printing Early in the Last Century.

The following patents were granted this year: Mary Kies, Killingly, Conn.: weaving straw with silk or thread; N. Foster, Flemingsburg, Ky.: spinning hemp and flax; Jacob Alricks, Wilmington, Del.: a spinning machine.

The Cotton manufacture of Great Britain was estimated to employ 800,000 persons, and its annual value to amount to £30,000,000 sterling. Of this product the United States had for a number of years taken a greater value than the whole of continental Europe together.

Kirkland, of Beeston, England, produced two-course net by adding Dawson's wheels to the lace warp frame.

John Heathcoat invented in England his second bobbin-net machine.

To ascertain number of threads in warp to use, when two or more different counts of yarn are called for; counts, lengths and weight being given.

Combine one repeat, or the average of one repeat of the pattern in a compound thread; multiply weight by the standard of the compound thread; divided product by length, divide quotient by number of threads in compound count.

Example: — Find number of ends for the following warp:

Dressed: 2 ends face warp, 5-run.
1 end back warp, 2½-run.

3 ends in repeat.

Length of warp 50 yards; weight 40 lbs.

5÷5 =1
5÷5 =1
5÷2½=2

4

5÷4=1¼ compound size of the 3 threads in repeat of pattern.

1¼-run=2,000 yards per lb., hence:

40×2,000=80,000 yards of the compound thread in the amount of weight required.

8,000÷50 (Length of warp.)=1,600
1,600×3 (threads compounded)=4,800

Answer: — 4,800 threads are required for warp given in example. From "*Textile Calculations*" by E. A. Posselt.