RYELAND SHEEP:—An English breed of sheep, preserved from a remote time in the County of Hereford, and from thence has extended itself into Shropshire, Monmouthshire, Gloucester, and Warwickshire, where it has received various names. These sheep are small, without horns, and distinguished for the great fineness of the wool, which is superior for carding purposes to all others which are produced in England, the merino alone excepted. The introduction of fine foreign wool into England has much interfered with the cultivation of this sheep, because any attempts to improve its character so as to compete with this, have resulted either in the deterioration of the sheep for food purposes, or else its deterioration as a wool bearer if the former character was preserved. The cross with the Leicester has been most successful, but the quality of the fleece has been entirely changed and rendered fit for combing purposes.

FABRIC ANALYSIS.

(*Continued from page 90*)

TESTING TRUE AND WILD SILK.

Tussah and all wild silks of commerce are less reactive chemically than true silk. In an alkaline solution of copper hydrate in glycerine, tussah silk is scarcely affected, whereas true silk is readily dissolved.

Hot caustic soda (10%) dissolves true silk in 12 minutes, tussah silk in 50 minutes. Cold hydrochloric acid (sp. gr. 1.16) dissolves true silk very rapidly, but tussah silk is only slightly affected in 48 hours.

With reference to distinguishing the various kinds of artificial silk amongst each other and against true silk, the following table will clearly permit of distinguishing them.

TO DETECT COTTON IN LINEN.

Treat the sample submitted with a solution of caustic potash (1 : 6). The flax will become more curly than the cotton, and the latter finally turns grayish white, whereas the flax is dyed orange.

Another procedure calls for treating the sample with a stronger solution of caustic potash (1 : 2) and boiling for two minutes, then washing, and drying between blotting paper, and when flax becomes of a deep yellow color as compared to the cotton which assumes a whitish or straw color.

By means of another process, the sample is boiled in water and then steeped in concentrated sulphuric acid for two minutes and when the cotton is dissolved, while the flax remains white and unaltered, and can be separated by washing with a weak solution of caustic potash.

Another test: Steep the sample in a solution of magenta in spirit, and after rinsing, dip in a bath of ammonium chloride. Flax will retain a pink color, while the cotton becomes colorless.

TO DISTINGUISH JUTE FROM HEMP.

Aniline sulphate stains jute a dark yellow, while concentrated nitric acid gives a red-brown stain, distinguishing it from hemp, which is turned yellow.

TO DISTINGUISH JUTE FROM FLAX.

When treated with dilute chromic acid, to which a little hydrochloric acid has been added, jute turns blue, while iodine and sulphuric acid produce a dark yellow stain, which may be used to distinguish jute from flax.

TO DISTINGUISH JUTE FROM FLAX AND HEMP.

The threads are placed in a solution of nitric acid

Table of Reactions of Artificial and Natural Silks.

REAGENT	CELLULOSE SILK	COLLODION SILK	GELATIN SILK	NATURAL SILK
Water	Swells	Swells	Swells	No action
Diphenylamin in Sulphuric Acid	No change	Changes slowly to blue	No change	No action
Schweitzer's Reagent	Slowly swells	Swells and dissolves	Changes to violet, but does not dissolve	Dissolves
Iodine in Sulphuric Acid	Pure blue	Pure blue	Brownish yellow	Yellow coloration
Chlor-iodide of Zinc	Grey blue	Blue violet	Yellow	Yellow coloration
Vetillard's Reagent	Not colored	Reddish-blue, grey on washing	Red, vanishes on washing	Yellow coloration
Caustic Potash 40%	Swells, but does not dissolve; colored yellow	Swells, but does not dissolve	Dissolves rapidly	Dissolves on boiling
Chromic Acid	Rapidly dissolves	Rapidly dissolves	Rapidly dissolves	Dissolves very slowly
Conc. Sulphuric Acid	Becomes transparent and dissolves slowly	Dissolves rapidly	Dissolves when heated slowly	Little action
Acetic Acid	Slowly swells	Slowly swells	Dissolves completely when heated	Dissolves
Alcohol	Fibre contracts	Fibre contracts	Fibre contracts	No action
Conc. Hydrochloric Acid	Little action	Little action	Dissolves rapidly	Little action

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.

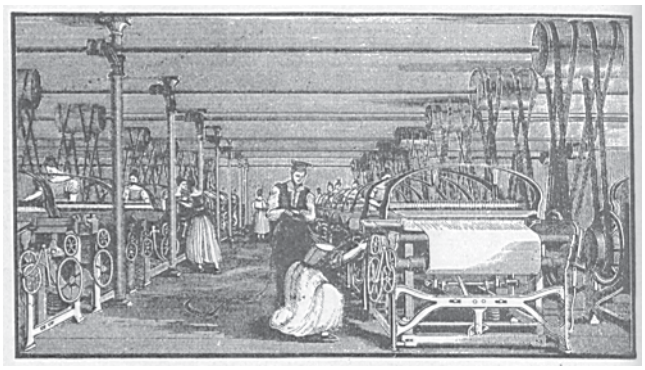
Another test is perhaps even more striking than the first. For the testing reagent in this case a water solution of zinc chloride is made containing 140 grains of the zinc salt in 150 cubic centimeters of solution, and to 10 cubic centimeters of this solution are added 2 drops of the iodine solution 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