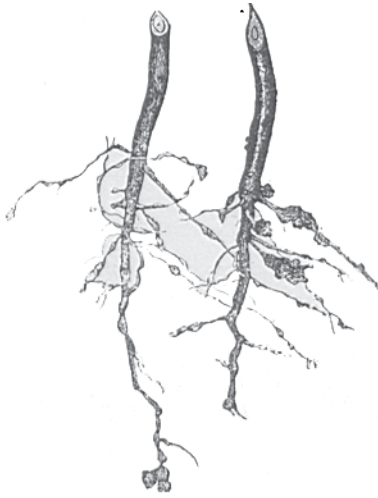


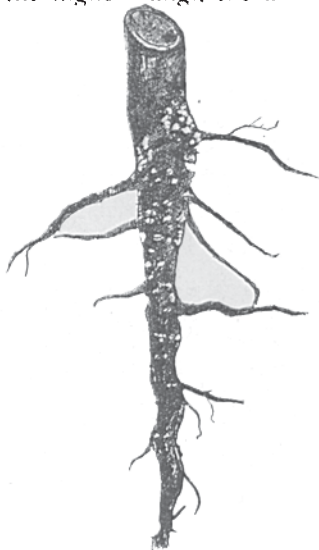
tode worm, which, living in the tissues, causes abnormal growths termed *galls*. The injuries produced by the presence of the worm cause distortions of the tissue elements, and in many cases so devitalize the tissues that putrefactive organ-



ROOT GALLS OF COTTON.

isms set to work and produce extensive diseased areas. The large amount of nutriment taken also by the roots in the development of the galls lessens the product of the plant. The greatest injury to cotton, however, seems to appear when the disease is accompanied with the *frenching* organism.

**ROOT ROT OF COTTON (Ozonium):**—One of the diseases the cotton plant is subjected to; due to fungus diseases. The disease is a true rot caused by one of the higher fungi, the affinities of which



ROOT ROT OF COTTON.

are still unknown. Nearly all classes of soil are more or less subject to it. The disease is most prevalent in the central black prairie region of Texas. A white rotten limestone, often cropping out, underlies the entire region. The soil of these black waxy prairie lands is very retentive of moisture, which is a condition favorable to the development of the fungus. The first indication manifested by the cotton plants of the activity of the fungus is the sudden wilting of one or more plants. In passing through the belt where the

disease is prevalent a striking contrast is observed between the areas made black by the dead plants, everywhere so conspicuous in the fields, and the interspersed green areas of apparently healthy plants; dry weather checks the disease. If the roots of plants just dead from the disease be examined, frequently there are small *wart-like* bodies on the surface. The fungus derives its nourishment from the living substances of the root, and also in its physiological processes sets up certain fermentations which kill the affected portions, causing partial decomposition, which results in the shrinking of the tissues and the formation of quite extensive depressed areas. The borders of these depressions show at first a red discoloration, which ultimately becomes brown. Near the surface of the soil an enlargement frequently is formed in which elaborate materials are apparently stored during the progress of the disease. From these enlargements new roots are frequently developed as the lower roots are placed under contribution to the parasite. These help, in favorable weather, to prolong the life of the plant, but are usually not sufficiently developed to prevent the collapse of the plant, when the older roots give way. When the roots become seriously injured, the plant wilts. In the affected areas the disease spreads from year to year in a centrifugal manner, the fungus making its way through the soil from plant to plant. The lint of the diseased cotton is injured, the fibres are wider and the spirals are fewer and more uneven than in lint from healthy plants. The disease cannot be transmitted through the seed. The results of experiments at the Texas Station show that the disease cannot be controlled by any application to the soil at present known. Rotation of crops seems to be the only method which will keep the fungus in check. Corn, sorghum, millet, wheat, oats and other members of the grass family are suggested as desirable crops to grow in rotation with susceptible plants.

#### CHRONOLOGICAL TEXTILE EVENTS.

(Continued from page 77.)

1805. The cloth manufacturers and dressers, in Pittsfield, Mass., had become so numerous that in April, a public proposal was made for their combination into a society for the purpose of investigating the natural qualities of chemical liquids, and improving the making and dressing of cloth.

Arthur Schofield, Pittsfield, Mass., made and sold double carding machines for \$400, or \$253 without the cards, and picking machines for \$30 each. The first machines made by him, about four years before, are said to have sold for \$1,300 each.

John Lee, who had become the proprietor of the woolen mill in Byfield, Mass., succeeded, about this time, in shipping clandestinely from England, in charge of his brother-in-law, James Mallalow, in large casks labelled *hardware*, a quantity of cotton machinery, consisting of drawing frames, and spinning frames or mule throstles. To avoid suspicion, he followed in another vessel. The machinery was at first employed in spinning wick yarn, and warp, which were in much demand for household manufactures; afterwards the factory made bed ticking, coarse gingham, and sheeting, and other heavy

fabrics, all woven by hand. Sheeting then sold at 50 cents a yard, and gingham for about 70 cents. This factory is said to have been one of the first to produce that class of goods.

Government returns this year discriminated, for the first time, between Sea Island and other cottons; the amount of the former exported was 8,787,659 lbs. and that of other kinds 29,602,428 lbs., representing a total value of \$9,445,000. The quantity of cotton manufactured into yarns and fabrics, in the United States in this year was 1,000 bales.

The price for 12's, 16's and 20's cotton twist yarn, at Pawtucket, R. I., was respectively 99 cents, \$1.15 and \$1.31. The number of spindles in Slater's cotton mill was increased to 900.

The first commission house agency in the United States for the sale of American manufactures established in Philadelphia, by Elijah Waring. He was the agent of Almy, Brown & Slater, who consigned to him, for sale, cotton yarns and threads, in great variety. To these were added, as their manufactures improved, plaids, stripes, checks, denims, chambrays, tickings, etc. The depot for these articles was, for many years, a very small store, at No. 152 Market Street. In 1812, Jeremiah Brown opened a second agency in Philadelphia for Samuel Slater.

The weaving of girth webbings started in America by Seth Craige at the Globe Mills, 110 High Street, Northern Liberties, Philadelphia.

Peter Marsland invented in England a procedure for sizing cotton yarn in an air-tight receiver, from which the air was withdrawn by a pump.

Revolving temples, formed like bevelled wheels, with pins in the edges to hold the cloth as it passes through them, invented in England by Thomas Johnston and James Kay; they also received a patent for the application of projections on the picking cams.

Twisted cotton yarns, suitable for lace manufacture, first made in England by Samuel Cartledge.

**1806.** Samuel Slater, having, on account of the prosperity of his business, about this time invited his brother John to come to America, the village of Slatersville, in Smithfield, R. I., was projected by Samuel Slater & Co., with all the recent improvements in machinery, which John Slater was able to bring with him. In June, the latter removed to Smithfield as superintendent of the concern, which commenced spinning in the following spring, and was managed by him for upwards of fifty years, with uninterrupted improvement and profit, contributing to the large estate accumulated by Samuel Slater. The establishment at Slatersville, originally owned by Samuel Slater, Oziel and William Wilkinson and Timothy Green, eventually became the sole property of John Slater, and the heirs of his brother.

Two cotton mills were this year established at Cumberland, R. I. and two at North Providence.

Peter Marsland, Stockport, England, invented a crank motion to the batten of the loom, by means of which the motion was caused to be slow during the passing of the shuttle.

S. Williamson invented in England a loom for weaving two pieces of cloth, side by side, with a shuttle box in centre of the batten.

**1807.** Sheep of the English breed, called the Bakewell, and mixed English and merino, introduced into Cheshire, Mass.

Five cotton factories erected in Rhode Island this year, and one in Connecticut, built in the town of Pomfret, on the west side of the Quinnebaug river. The latter was known as Congers Mills, and the capital invested up to 1808 was \$60,000.

The great New York Mills at Utica originated in a small factory built by B. S. Waldron, Jr., who had worked in Pawtucket.



JOHN SLATER.

Factories started in Fitchburg and Watertown, Mass.

There were fifteen cotton factories in all erected in the United States up to the close of this year. About 8,000 spindles were employed in them and about 300,000 pounds of yarn were produced in a year.

The manufacture of floor oilcloth established in America by John Dorsey, at Chestnut Street between Eleventh and Twelfth, Philadelphia.

William Atkins patented in England a plan for weaving the selvages of shawl with separate shuttles, having boxes on each side for this purpose in addition to the boxes for the body-work.

Dawson's unequal wheels applied to the hosiery warp-frame.

Vickers and Gray applied spotting-bar and wheels to the hosiery frame.

#### INCREASING STRENGTH OF SILK WEIGHTED WITH TIN.

By weighting silk with tin its strength is diminished. To overcome this fault, thiourea and other substances have been suggested, but they, it is claimed, do not show very successful results. Lately, a German patent has been taken out suggesting the use of hydroxylamine compounds. It is claimed that if a weighted silk is impregnated with a solution of a hydroxylamine salt and then dried, the strength and elasticity of the silk remains the same as before weighting; also that this treatment does not affect the color, even in some cases improving its fastness to light. It is suggested to use  $\frac{1}{2}$  per cent solution of hydroxylamine hydrochloride.