

soon gets tired of them. They are the Western form of our *Prunus Americana*. I have also the DeSoto. Little trees of it bore their first crop last year. It is the best in quality of these *P. Americana*, and I heartily recommend it for trial. I have about eight trees of Miner, a Chickasaw, or a cross with it, which have borne moderate or light, but yearly crops without any failure for at least eight years. The fruit is rather large, dark dull red, and has a flavor like a muskmelon. It ripens October 1st and keeps till November 1st. I had about six bushels last year, and owing to its lateness it sells well at 80 cents per bushel, but I do not recommend anyone to grow it who lives further north than Abbotsford. Basset has fruited with me, but is small, astringent and inferior. Of varieties which I have not fruited but which I have seen and tasted on the grounds of the Iowa Agricultural College, I would specially mention Mooreman, a small red fruit of fine quality, and Wolf, a large, red moderately juicy freestone, with heavy rank foliage. Of others I find Weaver spoken of as doing well in Minnesota, and Maquoketa, Speer, Wyant and Rollingstone promise well on the College farm at Ames, Iowa.

THE BLACK KNOT.

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One of the most troublesome diseases of vegetable origin affecting the fruit trees of Ontario at the present time is the well known so-called black knot. Though it has been the subject of much study, and much has been learned regarding its life history, still fruit-growers, to a great extent, are helpless to withstand its attacks.

The duty devolving upon me in reading this paper before you, is to open up a discussion on this troublesome pest. Its attacks seem to be confined largely to the plum and cherry trees, few of which seem to escape its destructive influence.

An examination of the "knot" at an early stage of its development shows innumerable small transparent threads only seen by the aid of the microscope. These branch among the cells which compose the tissue of the inner bark of the tree and form the so-called *Mycelium*, or vegetable part of the fungus. (6) The threads become very intricately twisted together in bundles as development proceeds, beginning in the cambium layer of the bark and radiating outwards. As spring advances, the threads increase in size, reach a more matured condition, and the knot presents a somewhat velvety appearance later in the season. This is the result of the threadlike structures sending up innumerable short-jointed filaments (*Conidia*) on the ends of which are borne egg-shaped spores known as *Conidiospores* (see fig. 1). These are very small, requiring the aid of a microscope to see them. When ripe they are readily disturbed and may be blown long distances by the wind and thus reach new places become the origin of knots similar to those from which they came. This mode of reproduction in the knot continuing till the summer is well advanced, when another class of spores begins to develop and reach maturity about February. The surface of the knot during winter shows pores which can be seen by the naked eye; these open into cavities, on the walls of which are two kinds of structures, one consisting of slender filaments (*paraphyses*) the use of which are not known, the other club-shaped (*asci*); in the latter are developed, toward the close of winter, the *ascospores*, (see fig. 3), usually eight in each *ascus*, at the end of which is an opening through which the spores pass and become new starting points for the fungus when they reach proper conditions for development.

Other cavities also are found among those with the *asci*; these contain very minute oval spores divided by cross partitions into three parts, and borne on slender stalks (see fig. 2). These are the so-called *Stylospores*, the use of which is not known, but generally believed to be concerned in the perpetuation of the species. Still, other cavities exist containing exceedingly slender filaments (*spermatia*), (see fig. 4) also concerned in reproduction. They are seen in the knot during winter and spring, and are much less common than the *conidiospores* or *stylospores*.

