OLD CHESTNUT TREE FIGHTS THE BLIGHT - Patriot-News, The (Harrisburg, PA) - July 18, 1999 - page H01

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In Eleanor **Kelley**'s small, shady back yard off of Camp Hill's sycamore-lined 27th Street lives one of the last links to the glorious landscape of America past.

Still giving shade and producing supersweet nuts after nearly a century is what may be the state's biggest, oldest American **chestnut** tree.

This treasure from yesteryear is one of the few that didn't fall victim to the notorious blight that virtually wiped American chestnuts off the map early this century.

It should've died long ago with the estimated one billion other American chestnuts that once towered over the Eastern forests from Maine to Georgia, sometimes growing 100 feet tall with trunks 10 feet wide.

For some reason, it didn't. In fact, **Kelley**'s tree has been enlisted in the effort to breed a new generation of American chestnuts resistant to the blight.

Members of the Pennsylvania Chapter of the American **Chestnut** Foundation this month pollinated **Kelley**'s tree with pollen from third-generation hybrids of American and Chinese **chestnut** parents. Chinese chestnuts are naturally resistant to the blight.

After three more generations of hybrids, the hope is to produce trees nearly identical to the chestnuts of yesteryear but with the blight-fighting genes of the Chinese variety.

Few American chestnuts survived the blight, which is caused by a fungus that was imported on Japanese chestnuts in the late 1800s.

Survivors are so few and far between that the ACF has mapped and named them.

The '**Kelley** Tree,' as it's now known, stands about 38 feet tall with leaves that are large, deep green and toothed. As far as landscape specimens go, it's far from perfect.

Large calluses stick out where dead limbs once were pruned. The canopy seems to lean to the right, thanks to a Norway maple that for many years grew into its left side. And there are a few darkened spots on the bark, possibly areas where blight once attacked but was turned back.

However, to Dave **Armstrong**, manager of the ACF's Pennsylvania Chapter, this is a tree of immeasurable beauty.

'Of the thousands of trees I've seen in my lifetime, this is my favorite,' he says. 'This is at least 85

to 90 years old, and it's a lone survivor. There's no blight on it, either. That's very unusual for a survivor this age. When you look at a tree this size that's as healthy as it is, this is what it's all about. This is what we'd like to bring back to the forests of Pennsylvania.'

Chestnuts once were known as the 'king of the Eastern forest.' They were so plentiful that in some Pennsylvania counties, chestnuts accounted for nearly 50 percent of all hardwood trees.

These were vital trees, too. Many livelihoods depended on them in 18th and 19th century America.

Because of their tall, straight growth habit, American chestnuts made a great lumber tree. The wood also was naturally rot resistant, easy to work, slow to split and as good-looking as oak.

It's no wonder everything from fence posts to barns to fine furniture to musical instruments was made out of this wood.

The wood also was great in the fireplace -- slow to burn and seldom sparking or popping.

The nuts were a popular snack as well as an important food source for livestock and wildlife such as bears, wild turkeys and the huge flocks of now-extinct carrier pigeons.

Boxcars loaded with fresh chestnuts were regularly shipped from rural parts of the Appalachians to vendors in New York, Philadelphia and other cities.

'This was the popcorn of the day,' says **Armstrong**.

Chestnut bark also happens to be high in tannic acid, which was a valuable resource for curing leather.

'This was an important cash crop,' says Tracey Coulter of Mount Holly Springs, treasurer of the ACF's Pennsylvania Chapter. 'The **chestnut** and the history of the Appalachians go hand-in-hand.'

The **chestnut**'s charm goes beyond cash. These stately trees were planted in parks and yards for shade, and many a street was lined with chestnuts and often named after them.

Even today, we still sing about roasting chestnuts over open fires.

Then the chestnuts died.

Out of nowhere, a devastating fungus (Crythonectria parasitica) began causing orangish cankers on the trunks. The fungus quickly worked its way around the cambium layer inside the bark, eventually girdling and killing whole trees.

The problem was first documented at the Bronx Zoological Park in 1904. By the 1920s and 1930s, millions of chestnuts were gone.

Since then, their once majestic population has been reduced to occasional struggling sprouts from stump roots (which usually die of blight within 15 to 20 years) and the precious few survivors like

the **Kelley** Tree.

Three generations of Americans have grown up scarcely seeing a single American **chestnut**, much less groves of them that once made hillsides look like fields of snow when in bloom.

Kelley, who realized the importance of this tree when she moved to Camp Hill in 1960, remembers seeing the **chestnut** devastation as a child growing up in western Pennsylvania.

'I remember going to **Chestnut** Ridge in Ligonier and seeing all the dead trees,' she says. 'It was like a moonscape.'

She says her survivor tree dates to around the turn of the century when the area around North 27th Street was an orchard.

She doesn't know why the tree was spared in 1913 when owners were being advised to remove chestnuts in an effort to halt the blight, and she's not sure how her tree managed to survive the blight all of these years.

And she is more than happy to see the tree used in the current breeding effort.

The breeding project is the brainchild of the late University of Minnesota plant geneticist Dr. Charles R. Burnham, a corn hybrid pioneer who founded the ACF with several scientist colleagues.

Burnham's approach involved crossing the American and Chinese chestnuts and then breeding three successive generations of these hybrids with an American parent. By crossing the resulting hybrids with one another twice more, the result is a tree that's 94 percent American but with the Chinese **chestnut**'s complete resistance to blight.

That's different from the failed U.S. Department of Agriculture effort -- dropped in 1960 -- that simply crossed thousands of American chestnuts with Asian ones in the hopes that some combination would pay off. None of those trees turned out to be very blight-resistant, nor very 'American-looking' for that matter.

The down side of the Burnham approach is that it takes five to seven years for each of the six generations.

'If we let nature alone, it might take 1,000 years through natural selection to do the same thing,' says **Armstrong**. 'That's what happened in China for the Chinese **chestnut** to become resistant. All we're doing is speeding up the process.'

So far, researchers at the ACF farm in Meadowview, Va., and volunteer growers have made it through the first three generations.

This is meticulous work that involves hand-pollinating each female flower and then growing out the resulting nuts.

Armstrong, a retired military man 'brainwashed' by a **chestnut**-loving stepfather, made one trip

to the **Kelley** Tree in late June to place waxed bags around selected female flowers.

Early this month, he and Coulter returned to pollinate the protected flowers. After washing down with grain alcohol much as a surgeon preparing to go into the operating room, the surrogate pollinators took pollen-laden tassels called catkins and gently rubbed them over the hair-like burs that eventually will contain the nuts.

If all goes well, nuts will be ready to harvest in mid-September. **Armstrong** then will grow these into new fourth-generation saplings next spring.

These and other saplings being started by other researchers and volunteers end up being grown by volunteer 'cooperative partners' around the country. Partners include Longwood Gardens, Penn State University, the city of Pittsburgh, the Bernheim Arboretum and Research Forest and even former President Jimmy Carter.

Only the most American-looking and blight-resistant trees are selected from each generation. **Armstrong** says only four or five trees out of every 100 are suitable enough to be used as progeny for the next generation.

By the year 2007, breeders should be hitting the sixth and final generation. A few years later, the first blight-resistant new American chestnuts should be ready to go into the fields and forests.

'That's the objective,' says **Armstrong**, 'to get 'em back out where they belong. This is not a quick fix. We might not see them, but our grandchildren will.'

Readers who are interested in the American **Chestnut** Foundation's efforts or know of other surviving true American chestnuts, may call the York-based Pennsylvania Chapter at 852-0035, write the American **Chestnut** Foundation Pennsylvania Chapter, 800 E. King St., York, PA 17403, or e-mail pachapter@acf.org.

CITATION (APA STYLE)

Weigel, G. (1999, July 18). OLD CHESTNUT TREE FIGHTS THE BLIGHT. *Patriot-News, The (Harrisburg, PA)*, p. H01. Available from NewsBank: Access World News: https://infoweb-newsbank-com.ezaccess.libraries.psu.edu/apps/news/document-view?p=AWNB&docref=news/10D98CC12193BC15.