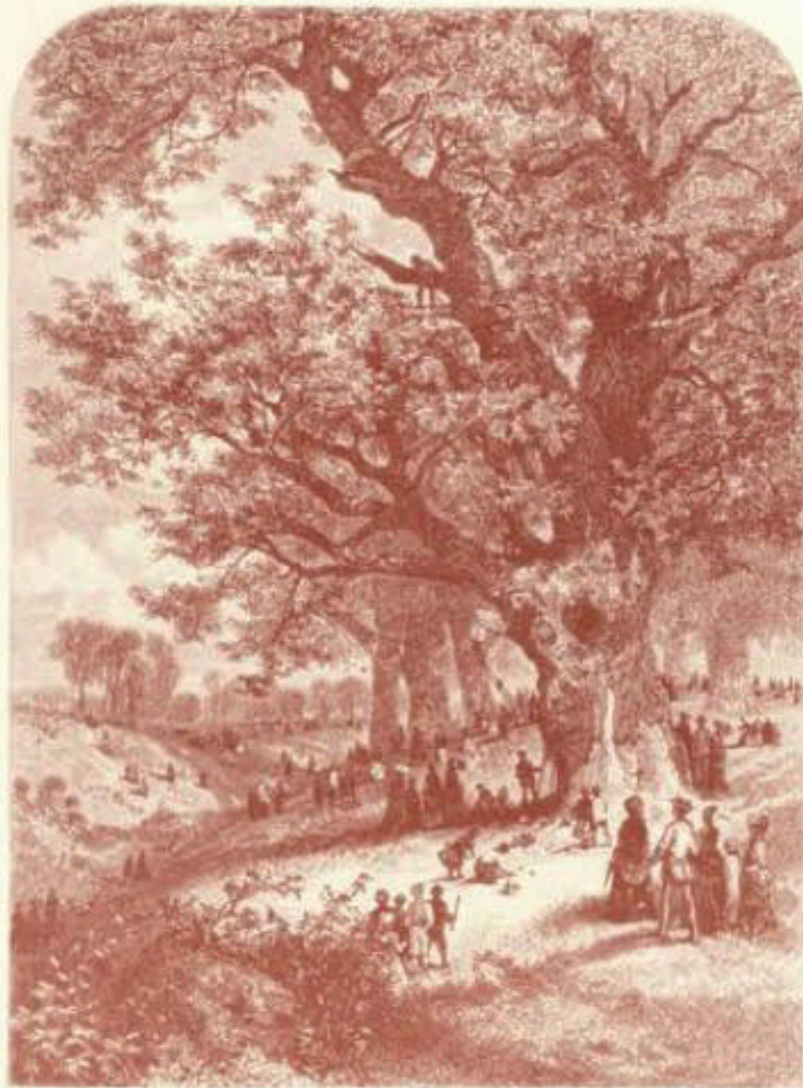


MY CHESTNUT STORY



Gathering Chestnuts.

Paul R. Galloway

My Chestnut Story

It was somewhere around the early 1980's when I spotted an article about a geneticist in Minnesota who was proposing a new and different look at the plight of the American Chestnut Tree. What I was reading at the time was a report about a professor, Dr. Charles Burnham, at the University of Minnesota, who had built up a great reputation in plant genetics and was recognized to be a genius in the field of cytology. His previous work revolved around corn, and it was he that developed the art of chromosome pairing and was instrumental in the development of high lysine corn.

Now Burnham was turning his attention to the chestnut tree. This article that I was intrigued with was apparently one method he was using to get the word out that through genetics he thought the great loss of the American Chestnut tree from the blight that had ravished it could be reversed through a comprehensive breeding program involving back crossing, starting with the Chinese Chestnut which was blight resistant. It wasn't an explain-all

piece but it seemed to me that Charlie was testing the waters to see if Americans really did miss the tree and if it might be worthwhile to put some time and effort into bringing it back.

I had always been aware of the tragic loss of the American chestnut tree, which had happened within a very few years at the beginning of the 20th century, from stories I had heard from my parents and grandparents who told of what a magnificent tree it was. Those stories have stuck with me and I never got over the feeling that I had been somehow robbed of this wonderful creation of nature. I learned as a child that our family had harvested wild chestnuts by the bushel in the fall of the year after the nuts had fallen to the ground. They would be stored away for winter consumption, so I was told, much the same way that I would gather butternuts for the same off-season use. Except, chestnuts were gathered up by the hundreds of bushels or more and I was lucky to scrape together a meager three or four bushels of butternuts. Chestnuts were so plentiful, I was told, that surplus bushels of the nuts were fed to the hogs.

In the latter years of my mother's life, after Chinese Chestnuts became quite available in grocery stores how she would scorn them and declare, "These things are nothing like the good old American Chestnuts I knew as a girl growing up on the farm." Then, to anyone who would listen, she would usually embellish on all the marvelous things that the nuts were used for back in the old days.



Photo of Charlie Burnham in his younger days. Photo taken the year I was born.

I decided to write to Charles Burnham. If this was a guy, by what he was suggesting, who could revive the American Chestnut as a once again a valuable forest tree, I wanted, at the very least, to encourage him. Little did I know at the time, thirty years ago, Charlie was 81 years old, exactly the age I am now.

Not really believing the letter would ever reach him, I nevertheless addressed my letter:
Mr. Charles Burnham, Geneticist
University of Minnesota
Minneapolis, Minn. 55455

I wrote a short note saying that I had seen an article where he, Charles Burnham, thought there was a good chance, with some time and effort, that the American Chestnut could be brought back from extinction through genetics. I mentioned what good news this was to me and wished him all the success in the world. Then I made one brief reference to an American chestnut of some distinction I had been watching for years on my property that had somehow managed to avoid the blight and related the approximate size.

Much to my surprise, not more than a week after posting my letter to him, he called me. It was then when I heard his gravelly voice that I realized I was dealing with an elderly man. Not that that made any difference, but I thought it most unusual that this apparently older man was striking out to rejuvenate a by-gone tree. I thought to myself, this can't be; all college professors retire with long beards at age 65 and only reappear at alumni bashes or football games. Charlie introduced himself and immediately wanted more information about the chestnut I had mentioned in my letter.

He was skeptical that it might be a Chinese chestnut and I reassured him it was not. I told him that it grew back in the woods and I was well aware of the difference between Chinese and American chestnut trees. I also mentioned that I knew of several other American chestnut trees on my land but this was by far the largest. Convinced that I seemed to know what I was talking about he asked, "Is there any way you could pollinate it and send me some nuts." "Pollinate it with what?" I asked, with more stuff going through my mind, like, how the Hell could I get up those fifty feet to the first branches.

Before he could answer, I explained, "It's a long way up to those first limbs and I don't know how the devil I can get up there."

He wasn't listening and said "If your tree is as you describe it I sure would like to get some nuts that have been pollinated by our 3dxv, tree from Wisconsin," or something like that.

"Well, I want to help if I can. Give me some time to think about it and I'll get back to you."

"OK, sounds good. Do I have your address so I can send you some information on pollination?"

Charlie already had me up that tree whisking his pollen around.

Approximately ten days later a two page handwritten letter arrived, including some of Charlie's hand drawn illustrations, and describing what to look for and how to go about pollinating the female flower of a chestnut tree and the proper time to do it. This must have been sometime before spring and pollinating time because I had time at odd moments to fabricate a tower to install close to the trunk, allowing us to get up into the crown to do the pollination. By all indications this was probably going to be more than a one shot deal so my thinking was long term.

Right off I knew I would need help. Fabricating the components of the tower was easy and that I could do. But, erecting the thing and following that up with the actual pollinating, I knew I could never do alone.

I turned to my longtime helper, Alan Rhodes, to see if he was interested. Alan didn't hesitate a minute. "Right up my alley," he said, "I spent most of my childhood climbing trees. Lets get the job done."

Using telephone wire for the stays Alan and I made short work of setting the tower close to the trunk extending into the lower branches of the tree. We rigged up a nylon rope over a pulley in the tree to tether Alan, just in case. I stayed on the ground to handle the rope and Alan did the technical work up in the crown.



THE AMERICAN CHESTNUT FOUNDATION
DEPARTMENT OF PLANT PATHOLOGY
UNIVERSITY OF MINNESOTA
ST. PAUL, MINNESOTA 55108

Please reply to:
1539 Bronstein St
St. Paul, Minn.
55108 May 19.

Dr. Arthur Galloway,

We are expecting to get pollen from Chinese (Blight resistant) x American chestnut first-generation hybrids this year. The Chinese chestnut is the best source of resistant (the fungus does not spread from the point of infection). Do you want to make pollinations again this year?

This is part of the long-term part of the breeding program, to introduce blight resistance into American chestnuts adapted to different portions of the natural range, a plan proposed by D.A.L. L. Lamm, a member of the steering committee who has helped with the work here the past few years. Do you want to grow the seedlings from the

(over)

crosses you made last year.
Similar crosses are growing at Virginia Polytechnic Inst. at Blacksburg, VA.

Cornell Univ. at Ithaca, N.Y. Roth expressed a desire to help.

When the breeding program becomes more widely known organization or institution in new Hampshire may wish to help.

Do you have any suggestions?

Thanks for your interest and help.

Sincerely,

Chas. Burnham
612-644-7797 Home Tel

The resistance found by Gary Griffin and John Elkins in VA is sufficient to greatly slow the growth of the fungus.

One of Charlie's many letters He never wrote the year on any of them

Year after year at springtime another letter would arrive from Charlie. Usually in great detail and with language I barely understood, he would lay out his present thinking and bring me up to date where his chestnut project stood. Charlie knew and began to touch on what was obvious; another place was going to be required to propagate these many seedlings into trees which, in turn, would require ever more land as the program expanded. He also knew that Minneapolis was too far north and a more southern locale with acreage was going to be needed. Charlie was a geneticist and these logistic details were not his cup of tea. He welcomed others that came forth and more and more frequently he would mention those around him that were helping out with his rapidly expanding project. His letters always ended with the part hope, part question, "Would you be willing to pollinate again this year?" To that I would always answer, "Absolutely. Send the pollen."

A foundation was formed and officers installed. Both Minnesotans, Philip A. Rutter was the first President and David French was the first Treasurer. Dr. Lawrence Inman came into the picture and worked closely with Burnham. It was Inman that turned up on my doorstep one day, having driven all the way from Minnesota.

Inman's journey to Walpole was at the direction of Charlie, who wanted a firsthand report of our tree; its location, its health, approximate age, and to also bring back information about this cooperative New Hampshire property owner. We visited the tree and I answered his questions the best I could. It gave me an opportunity to learn more about the chestnut restoration program that he and Burnham were absorbed in. Inman's admiration of Charles Burnham came through time and again during the short day we spent together. He pointed out to me that surely they were going to be successful on the revival. Then, on a sad note, he mentioned because of the many more years involve, and because of Charlie's advanced age, that Charlie would never see the results of his endeavor.

It was Philip Rutter who, while visiting Virginia, ran into the Wagner family of Meadowview, a small town in the western tip of the state. The Wagners wanted to do something for the cause and it was they who generously turned their farm over for a National Chestnut Plantation. So, help and enthusiasm was coming rapidly from many directions. People from all parts of the United States were beginning to get excited over the revival of the American Chestnut tree.

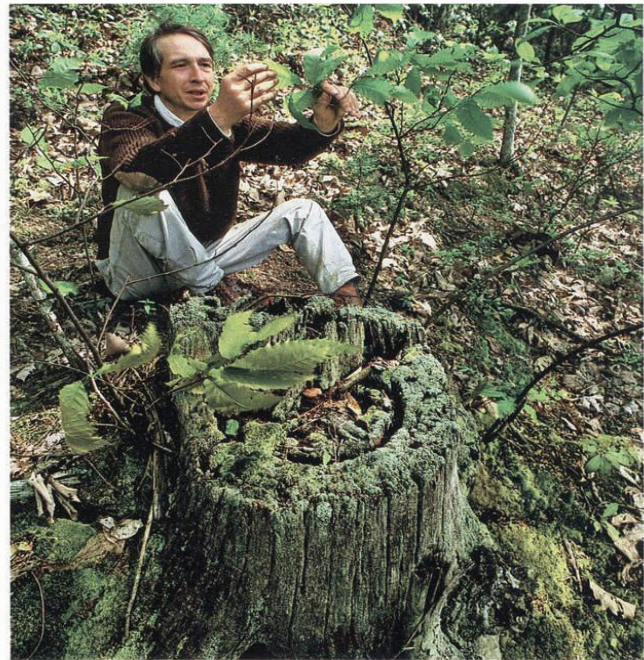


Male catkins are the long showy flower
Female styles (arrow) is where Alan brushes with pollen and the burr will develop

As the foundation took shape in Virginia, Fred Hebard took over there as the breeding specialist and Superintendent of the rapidly expanding farm with its rows of backcross chestnut trees of all different sources and ages. Very soon after Fred became established in Meadowview, Dr. Charles Burnham decided it was about time to go into retirement, which he did. So, by the late eighties to early nineties my contact was Mr. Hebard and for the next couple of years he provided the pollen they asked us to use in backcrossing. I recall one year that Fred asked for some pollen from our tree, so Alan collected a small vial of that and away it went to Virginia.

Fred Hebard

Fred is pointing out the saplings that continue to sprout from the live roots below ground of the decaying chestnut stump of a century past. All of these natural re-growth sprouts carry the blight and never mature to adult trees.

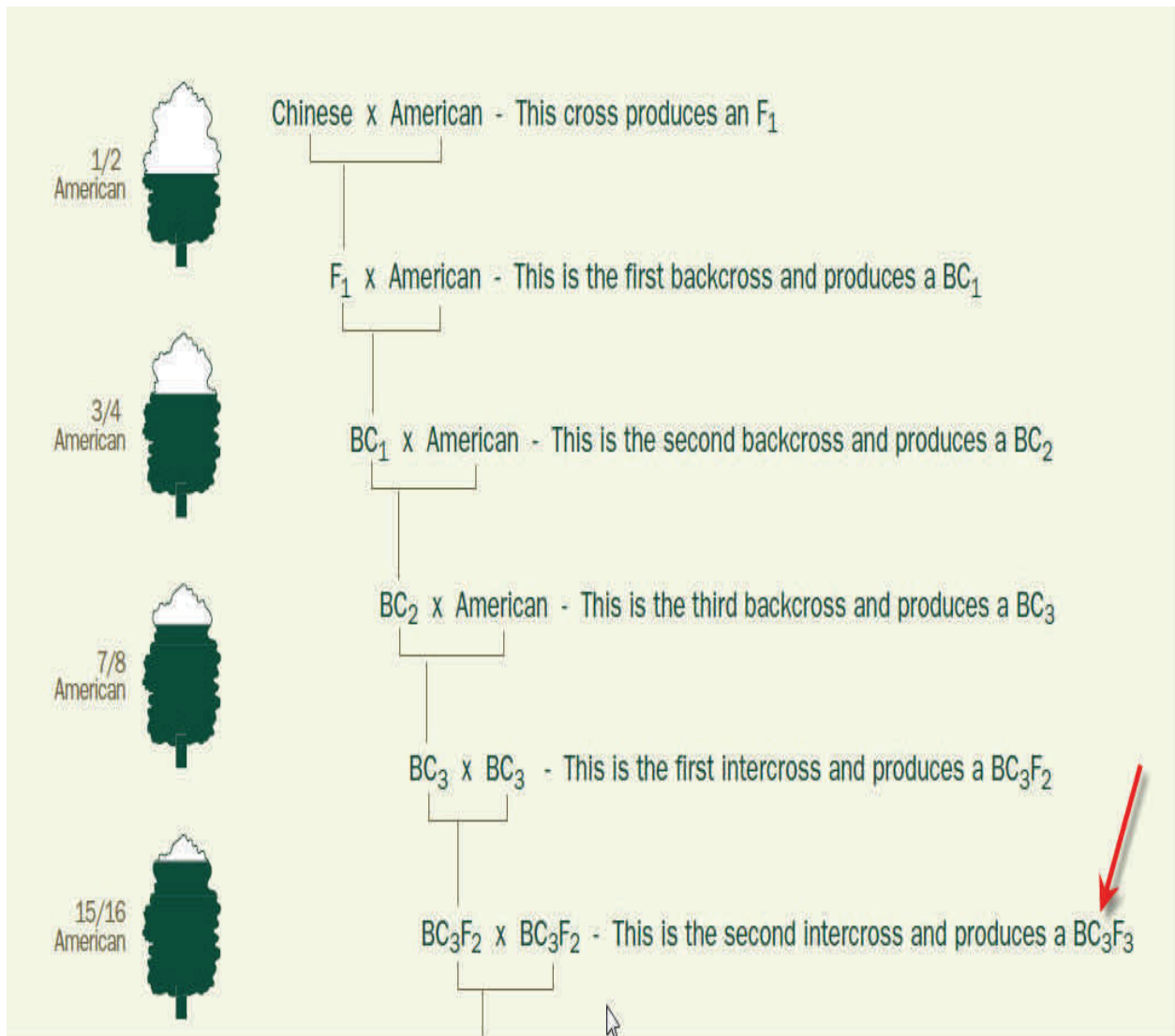


Here is our one year production of Walpole backcross nuts. Round and firm and ready to be propagated in Meadowview, Virginia.



September

Alan going up to harvest the backcross nuts before the squirrels get them



The BC_3F_3 Is the final intercross and will be 31/32 American and blight resistant

About 1991 our tree started to show signs of the blight. It happened quite rapidly and by 1994 it failed to produce even one leaf and it was done for. Coincidentally, in April of 1995 I got word that Charlie Burnham had passed away at age ninety one.

Here is his short obituary which says it all.

Obituary

Charles R. Burnham

One of the pioneers of maize genetics, Charles R. Burnham, passed away on 19 April 1995, at the age of 91. He enjoyed a full life still analyzing data, writing a manuscript on chromosome pairing, authoring a book *Genetics Is For Everyone*, and keeping in close touch with the breeding of a blight-resistant American chestnut through the American Chestnut Foundation, which he founded. His mind was as good as ever until very recently. He seriously fell ill only a few days ago, when congestive heart failure took its toll. Charles Burnham was a scholar and actively thought about plant genetics every day until his death. His passing closes an era in maize genetics and cytogenetics. Memorial gifts may be sent to the Burnham Scholarship for Research by Pre-college Students (University of Minnesota) or to the American Chestnut Foundation.

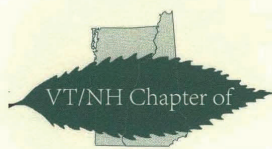
Ronald L. Phillips

Department of Agronomy and Plant Genetics
University of Minnesota
St. Paul, MN 55108, USA



Fifteen years went by and I lost touch with the chestnut people. Then one day in February, 2011 this letter appeared in my mail box.





THE
AMERICAN
CHESTNUT
FOUNDATION®
www.acf.org

February 25, 2011

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President

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Paul R. Galloway
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Todd Ross
Vice President
Goshen, NH

Dear Mr. Galloway,

Spencer Brookes
Secretary
Wilton, NH

Last fall, at the American Chestnut Foundation's annual meeting, Fred Hebard set his lunch tray down next to mine and asked me if I knew Paul Galloway of Walpole, and if so, could I tell him how Paul was doing.

Ed Toth
Treasurer
East Arlington, VT

In truth, I had not heard your name before. Fred went on to tell me that you had sent pollen and/or seed nuts to him (I forget which), in the early years of his breeding work at Meadowview, VA, and that the current crop of B3F3 potentially blight-resistant seed nuts now being distributed to TACF members has, on average 1/8th of its genes from the New Hampshire tree that he named "Paul Galloway".

BOARD OF DIRECTORS:

Yurij Bihun
Jericho, VT

Now that our state TACF chapter has formed, as is working to breed a regionally adapted backcross chestnut that will thrive in northern New England, it is nice to know that even the Meadowview backcross nuts have some New Hampshire heritage.

Marshal Case
Shaftsbury, VT

Jeremy Gardner
Sandgate, VT

Terry Gulick
Springfield, VT

If you could give me any information about the tree named "Paul Galloway", where it lived, its size, when it died, I would be most interested to know more about it. I also think it would be a fine idea to plant some of the seed nuts now being produced in Meadowview near the location of the original "Paul Galloway" tree, if the site is suitable and the landowner willing.

Kendra Gurney
Winooski, VT

Carol Kirkland
Arlington, VT

Randolph Knight
Perkinsville, VT

And lastly, I am travelling to Meadowview, VA on April 14th for TACF's spring board meeting. I would love, this time, to be able to tell Fred how you are doing. Please do get in touch with me; my phone numbers and email address are on this letterhead.

James P. Powers
Essex Junction, VT

Don Richard
Washington, NH

Paul Schaberg
South Burlington, VT

Yours in chestnut,

Grace Knight