DEDICATED TO RESTORING THE AMERICAN

Chestnut Tree

The Pennsylvania Chapter of
The American Chestnut Foundation

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SPRING 2005 MEMBER'S AND GROWERS MEETING

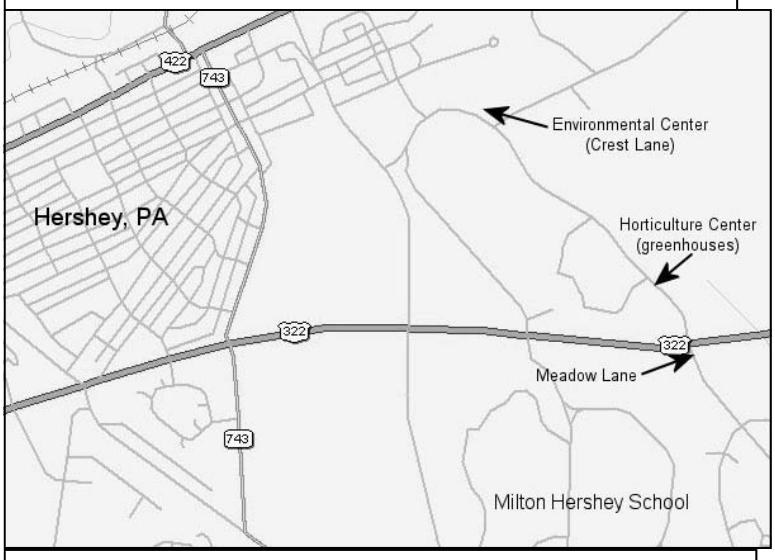
The Chapter Spring meeting will be held at the Milton B. Hershey School Environmental Center, Hershey, PA on Saturday, April 9th starting with a coffee reception at 8:00a.m.

Our morning agenda will include information about our recent elections and introductions of the current PA-TACF board and officers; president's remarks by Chapter President **Tim Phelps**; Grower and Member sharing experiences; and four workshop discussions.

For the member sharing session, we encourage our tree planters and growers, pollinators, and harvesters to discuss some of their best techniques and developments.

Workshops sessions will consist of Pollinations, Planting, Tree Identification and Orchard Maintenance.

After a catered lunch, we have a presentation by **Dr. Robert Leffel**, PA-TACF Scientist on the subject of Chapter tree breeding methods. **Ann Leffel**, Chairperson of the Science Committee and **Sara Fitzsimmons**, Tree Breeding Coordinator will outline our future chestnut breeding program.



Directions to Meeting Place:

1. *From US 322, turn onto Meadow Lane.*
2. *Continue on Meadow Lane for 0.5 mile to Crest Lane.*
3. *Turn right to the Environmental Center*

Upon completion of these presentations, we will travel to the MBH Horticulture center to pick-up seed, supplies and tools. Those who do not plan to go to the Horticulture center may review our new chapter multimedia presentation at the environmental center.

President's Corner

- Tim Phelps

Words cannot express what an honor it is to be your new President. These are some mighty big shoes to fill. The past Presidents of this Chapter, along with their respective Boards and Committee members, have done a tremendous job in keeping this non-profit organization growing in membership and financial support and, also, in participating in a breeding program

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WELCOME TO THE 10TH ANNIVERSARY OF THE CHESTNUT TREE!

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Calendar of Events:

PA-TACF Board Meeting	April 8, 3pm - 7pm
PA-TACF Spring Meeting	April 9, 8am - 5pm
Inoculation Season	early June
Pollination Season	mid-June-July
Ag Progress Days (Rock Springs, PA)	August 16-18
TACF Annual Meeting (Lexington, KY)	October 28-30

Art Imitates Life

- editorial, Sara Fitzsimmons

As usual, TACF and its chapters, PA's included, have received fantastic exposure in magazines, radio, and, in particular, newspapers this past year. Of course there is no such thing as bad press, but I can only imagine the leaf samples we will receive this spring after a November article ran on the front page of *The Frederick News Post* on TACF activities in Maryland, in which a large photo of a horse chestnut leaf was propped front and center. I can't wait!

However, over the past few weeks, from about Thanksgiving to Christmas, I've been a bit taken aback by the amount of chestnut references I've noticed in popular culture. Most of these references I've heard before, as the TV I have been watching has been mostly a practice in the art of nostalgia. Nonetheless, the current density per unit time of these associations is rather extraordinary. TBS recently reran *Austin Powers: International Man of Mystery*, one of the funniest spy film parodies of all time. In one of my favorite scenes, the one in which a group therapy session is led by the venerable Carrie Fisher, Dr. Evil explains his "mundane" upbringing, and, in the quote below, ascribes the following qualities to his father:

"*Sometimes, he would accuse chestnuts of being lazy - the sort of general malaise that only the genius possess and the insane lament.*"

In *The Simpsons,* perhaps my favorite show of all time, two incidences have arisen in recent reruns. In one episode, Homer is driving home from work, singing a song to the tune of *The Flintstones* theme:

Simpson! Homer Simpson!
He's the greatest guy in history.
From the! Town of Springfield!
He's about to hit a chestnut tree!

Then, a rerun from a more recent season (2002, I believe), Bart Simpson resigns to his current situation by proclaiming, "If I may dust of an old chestnut: Ay carumba. Ay carumba, indeed!"

How much does this speak, then, of a species, practically extinct for 60 years, that can still handsomely lurk on the cutting edge popular culture!? From one of the highest grossing comedies of all-time to the longest-running animated series (and now, almost longest-running non-news TV show) of all time?

Being a popular culture junkie, I can only hope that in the years to come, references to our beloved species will become even more pervasive in popular media. Perhaps a yellow ribbon will be tied around an old *chestnut* tree? Or there will be a Nightmare on *Chestnut* Street? No doubt, the more the tree and fruit become a part of our everyday lives, the more it will be reflected in the thoughts and art of our modern entertainers. So, in the spirit of this recent holiday season, here's to the eventual partridge holding residence in a chestnut tree!

BREEDING UPDATE

Although we gave a fairly good summary of our breeding accomplishments to date in September's issue, how can we let an issue of *The Chestnut Tree* go by without giving ourselves a pat on the back for all of the breeding work we've accomplished to date?

We are working to try and restore the American chestnut tree to the Appalachian Mountains, where it once took a place as the most plentiful and one of the largest growing species. As part of this extraordinary effort, we produce chestnuts from different **sources of resistance**. Each source of resistance is classified back to a particular Chinese or Japanese chestnut tree.

In order to recover the great majority of diversity from the current population of American chestnuts, we **backcross** to as many wild American chestnuts that we can find out in the mountains of Pennsylvania.

We currently stand at the following levels of breeding:

Number of Sources*	Generation	Number of American Parents Used	Trees Alive (as of 10/04)
N/A	American	127	3012
67	F1	72	764
6	BC1	12	298
3	BC2	15	411
2	BC3/BC4	63	5226
1	BC3F2	N/A	1526

Breeding Update: continued from Page 2:

The past

Currently, a source defined as traceable to a unique Asiatic chestnut, but at the F1 level, we don't know true differences in resistance.

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The Status of Chapter Grants

- *Dave Armstrong*

We have been very fortunate this past year in receiving some first-class grants and we also have a number of grants submitted for review to several organizations.

Pennsylvania Department of Community and Economic Development Grant. Last September, **Pennsylvania Representative Sam Smith** (Jefferson County), presented Chapter President Bob Summersgill with a check for $50,000. This grant was provided to finance a new PA-TACF Chestnut Operations and Research Center at Penn State University. We are grateful to Chapter member **Fred Roberts** of Punxsutawney, for initiating this grant and introducing us to State Representative Sam Smith. See page 4!

Fred Roberts and I are working with Representative Sam Smith on a grant request for $72,000 to provide funding for our county orchard growing programs. The grant was forwarded to DCED last September.

PA-TACF President (2002-2004) Bob Summergill accepts a check for a $50,000 grant awarded to the chapter from PA Representative Sam Smith and PA Senator Joseph Scanarti.

Hardwood Forestry Fund of Reston, Virginia. In August, we applied for a grant of $20,300 to HFF for a five year program of planting PA-TACF backcross trees in the PA-DCNR District Forests on reforestation plots. We are approved for $4,030 for the first year, 2005 and we have been asked by HFF to renew the request each year.

PA Department of Agriculture, Hardwood Forest Council. The Council provided a check for $5,000 to pay for our interns in 2004. We used these funds to pay our summer intern, **Adam Karl** for salary and travel expenses (see article on back page).

Stanback Foundation Grant. With the help of TACF Regional Science Coordinator Dr. Paul Sisco, the chapter received another Stanback Foundation grant that allowed PA-TACF summer intern **Bill Gallup**. The chapter supplemented the grant to pay Bill for travel expenses from the PA Department of Agriculture grant mentioned above.

Exxon/Mobile. Thanks to **Tom Pugel**, we have received $2,000 again this year from the Exxon/Mobile Volunteer Improvement Program. Tom reports his volunteer service to Exxon/Mobile and they match his service with $500 each quarter. Tom has been consistently doing this for five years!

Mineralogical Society of Pennsylvania (MSP). As part of a last order of business for the organization, MSP donated $10,000 to the PA Chapter. Through the efforts of members **Tim and Livy Eck**, the last of MSP's funds were distributed to the Chapter in the hopes that they will be used to encourage volunteerism in the chapter. Many thanks to the Society and the Ecks for supporting our efforts!

The Rocky Mountain Elk Foundation, Missoula, MT. We requested $70,000 that will fund two years of operating costs, equipment costs, project management and genetic research at the Pennsylvania State University as a joint chestnut recovery project between PSU and PA-TACF. This was another outstanding initiative by member **Fred Roberts**.

GET INVOLVED!!

There are a lot of ways to help us out in restoring the American chestnut to its original range and many of those activities allow one to get out into the woods and work with native chestnuts, or to help out in one of our orchards by planting, inoculating, pollinating or harvesting. If you're interested in volunteering your time, join our e-mail mailing list, and start seeing where you can get involved! Send an e-mail to: **PA-TACF-subscribe-request@lists.psu.edu**

New PA-TACF Chapter Office to be Established at Penn State

We received a $50,000 grant from the Commonwealth of Pennsylvania to establish a PA-TACF Chestnut Operations and Research Center in 2005 (see the article on Chapter grants status on page 3). Thanks to the PSU College of Agriculture Sciences and School of Forest Resources we are implementing plans to open the office in the Forest Resources Lab, University Park, PA in March 2005. We will then hire a part–time Administrator to work with Tree Breeding Coordinator Sara Fitzsimmons and Chapter President Tim Phelps in our new center. We will also be searching for a volunteer in the State College area to perform Volunteer Coordination throughout Pennsylvania.

(Continued from page 1)

that is on par with Meadowview's. To date, one source of resistance (Clapper) is nearing the final stages of backcross breeding as we anticipate inoculating the eldest B3F2 seedlings this Spring. It gives me goose bumps to think that within only a couple of years the first blight resistant chestnut seed will be picked from the bur of one of those selected seedlings. How impressive it is to think that all of this was done by volunteers. With the support of members like you, we are all able to relish in the fact that we participated in the restoration of a species, not to mention one as vital to the health of the central Appalachian ecosystem.

With all of this joyous momentum we need to remain cautious and proceed carefully since the breeding of a source (or two) of resistant chestnut is merely the first step in the restoration effort. There are still many unknowns surrounding the program, and future breeding will no doubt take place, as other characteristics (e.g. form, cold hardiness, phytopthera resistance—please no!) are selected for/against. As daunting as that may sound…hey, we got this far! This is why the Chapter and TACF continue to rely on the support of members like you. Keep up the good work.

I would like to extend a warm welcome to all of our new members and recognize all of our great neighbors from New Jersey. I encourage all of you to contact a Board member, your county coordinator, or me with any questions or concerns.

Respectfully yours,
Tim Phelps

(814) 865-7228
phelpst@psu.edu

From left to right: PA-TACF Gary Gilmore is flanked by Unilec employees John Anderson Art Kepart. Harvest 2004.

ELECTRIFYING!

Many thanks to United Electric for letting the Jefferson County folks use their bucket truck! We would not be able to access and move on the genetic diversity contained within our larger American chestnut trees without the assistance of bucket trucks, and the people who can operate them. This year, PA-TACF members **Dave Lazor**, **Gary Gilmore**, and **Jim Ross** were able to harvest almost 3000 chestnuts from trees all over Jefferson County. Thanks for your cooperation and we look forward to another bountiful harvest in 2005!

All Rolled Up

Another round of thanks are needed for **Alcoa Mill Products** in Lancaster, PA for donating rolls of aluminum to TACF. In the upper right, you'll see large rolls, which is how they are delivered. The fellows down at our research farms in Meadowview, VA then roll small cuttings from the rolls into cylinders which are then placed around newly planted chestnuts. The aluminum cylinders act to protect the nut from predation by, especially, rodents.

SUPPLIES

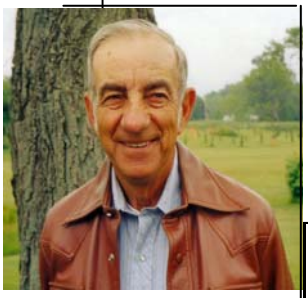
Do you need supplies for your orchard? What do you need? Ladders? Fertilizer? Herbicide? Just call the chair of the chapter supply committee:

Bob Summersgill
(home): 908-647-5864
(cell): 724-3967338
(e-mail): rgsummersgill@juno.com

Chapter Elections and Leadership

Each year, our members elect officers and board members to fill the positions of those whose terms have expired. In 2004, three board positions became available. Nominating Committee Chairman **Phil Gruszka** and the committee of **Larry Patchel** and **Chandis Klinger** recommended six candidates for member voting. They also nominated a candidate for Vice President for the years 2005 and 2006. The Vice President is also the President Elect and will become the PA-TACF President in 2007 and 2008.

Thank you for your participation in the Chapter's election process!



Jim Walizer

Dave Armstrong

Here is the PA-TACF member election decision:

Dave Armstrong was elected as Vice President and President Elect. The three board members selected were **Jim Walizer** of Centre County, **Bill Montague** of Tioga County and **Jim Egenrieder** of Dauphin County.

Bill Montague

The Executive Board wishes to thank our Past President **Phil Gruszka**, and departed Board Members **Lee Saufey, Blair Carbaugh** and **Greg Yochum** for their significant contribution to the development and progress of the Chapter over the past two years. Also, thanks to **Bob Summersgill** for all he has done as President in the past two years.

Jim Egenrieder

PA-TACF's new organization chart is shown below:

SEEDS, BLIGHT, AND POLLEN, OH MY!

The growing and breeding season for chestnuts is quickly approaching. As the temperatures rise (although, hasn't this been a surprisingly warm PA winter?), the trees will begin to do what they do best, and we need to be ready. This business will certainly fill up your calendar! Pencil us in for a few days. We look forward to seeing you at one of our activities! Just contact us to do so.

In **late March through April**, we start to plant our chestnuts. If you'd like to install a planting, contact the chapter to see how. We also distribute some amount of American chestnut seed during our Spring Meeting (see front).

In **early June**, we begin inoculation trials of our chestnuts. This could be one of the most exciting portions of our program, as this tests the blight resistance of the hybrids we make for our program.

In **mid-June through July**, we make controlled pollinations of chestnuts, which we subsequently harvest in **late September through October**.

And then we have general orchard maintenance from **spring to fall**. Weeding, mowing, fertilizing, herbiciding: There's always a chance to participate!

PA-TACF Organization Chart

Officers and Board Members Elected by the Membership

President: **Tim Phelps (2005-2006)** Past President: **Bob Summersgill (05-06)**

Vice President and President-Elect	Board Member	Board Member	Board Member	Board Member	Board Member	Board Member
Dave Armstrong (05-06)	**Tracey Coulter** (04-05)	**Frank Brouse** (04-05)	**Chandis Klinger** (04-05)	**Bill Montague** (05-06)	**Jim Egenrieder** (05-06)	**Jim Walizer** (05-06)

Board Member	Board Member	Board Member
Alex Day PA DCNR Rep.	PSU Rep	Hardwood Industry Rep.

Action Volunteers and Committees Appointed by the Officers and Board Members

Chapter Scientist	Chapter Treasurer	Tree Breeding Coordinator	Science Committee Chair	Nominations Committee Chair	Grants Committee Chair	Grower's Committee Chair
Dr. Robert Leffel	**Tim Eck**	**Sara Fitzsimmons**	**Ann Leffel**	**Bob Summersgill**	**Dave Armstrong** Co-Chair **Larry Patchel**	**Bob Summersgill** Co-Chair **Tom Pugel**

GIVE A CHESTNUT AN INCH . . .

-Sara Fitzsimmons

Chestnuts are lazy? Me thinks not! Jim Wykoff (*see page 7), one of our loyal members in Warren County, has requested an article on what happens when a chestnut tree is "released". In forestry, "releasing" a tree refers to the process by which competition surrounding a tree is removed, thereby allowing a particular tree access to more resources most often resulting in greater growth.

American chestnuts respond particularly well to being released. Figure 1 shows a picture of half a cookie taken from an American chestnut growing in Westmoreland County, on the farm of past chapter president Bob Summersgill. In the early years of it's life, one can see from the tightly spaced tree rings that growth was limited; competition from other trees reduced the amount of resources, such as sunlight and water, that were available to that individual.

Then, around it's 27th year of growth, the competing vegetation was removed — and growth exploded! Within those first 27 years, the tree grew about 1.25 inches in radius on one side (~2.5 inches in diameter). Within the following 9 years of growth after release, the tree tripled it's original growth by tacking on about 3.75 inches in radius on one side (~7.5 inches in diameter). Quite impressive!

Within the activities of TACF, releasing chestnut sprouts is encouraged primarily in order to promote flowering, so that breeding of advanced hybrid stock may occur. Chestnut trees need almost full access to sunlight in order to flower. In general, it's been found that a released chestnut tree takes about 2-3 years to flower in response to a release event (Dr. Fred Hebard, communication through TACF Growers on-line mailing list, archives available at: http://lists.psu.edu/archives/tacf-growers.html)

But there are potentially negative consequences of release. It has also been observed that soon after a release event, sprouts die from the blight. This can even be observed in Figure 1, where it took only 9 years for the tree to die from blight infection after the release event (time of initial blight infection is not certain). Because most of our goals are related to breeding and growing of chestnuts, this problem is not often a consideration when deciding whether or not to release. A non-flowering tree is one that cannot be represented in the genetic stock of our advanced hybrid material, nor can it be used to collect open-pollination progeny for distribution of American chestnut stock.

As always, there are advantages and disadvantages to both sides, and the eventual decision should be carefully weighed by any landowner.

Further information on the ecology of chestnut sprouts, particularly as related to release events, can be found in past editions of the Journal of The American Chestnut Foundation. See in particularly Volume 3, Issue 1 (February 1989), in which Dr. Fred Paillet writes on *Genetic Diversity in Post-Blight Populations of American Chestnut: Past, Present and Future*. Another Journal article of interest is one written by Drs. William MacDonald and Dennis Fulbright in Volume 4, issue 1 (February 19990) entitled *Hypovirulence: A Biological Control for Chestnut Blight*.

Electronic copies of several editions of the TACF Journal are available at: http://www.acf.org/journal.htm With more issues being added as time goes on. Articles may often be ordered through your local library.

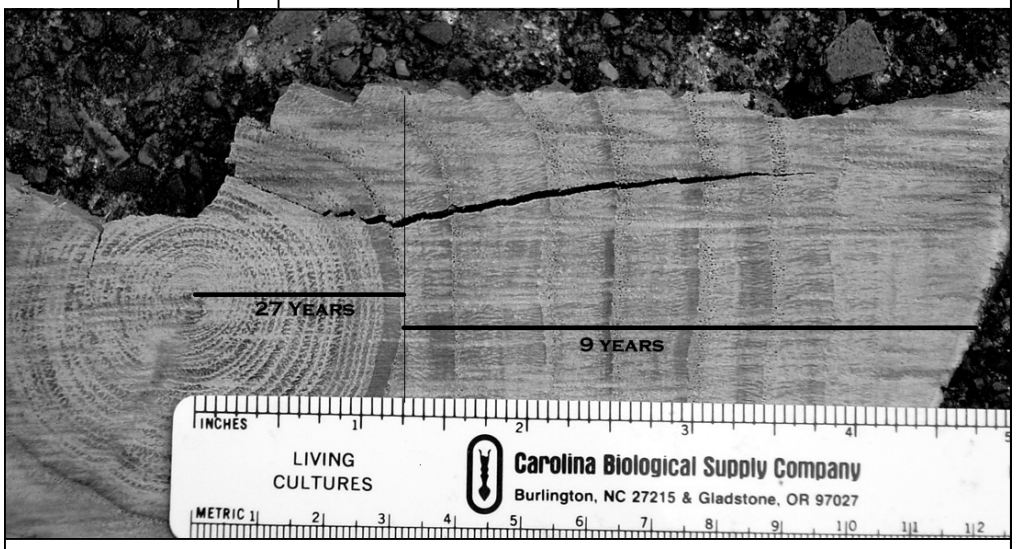


Figure 1. Image showing the response of an American chestnut to a release event. Within the first 27 years of growth, the tree grew about 1.25 inches in radius. Within the 27th year, competing vegetation around the tree was removed, and the tree responded in the following years with tremendous growth, tripling its former radius in 1/3 of the time.

WHO CUT THE CHEESE?

- Timothy McKechnie

You may not know that an enzyme from the chestnut blight fungus, *Cryphonectria parasitica*, is used in making cheese. It is especially good for Swiss and the hard Italian-style cheeses like Parmesan because it helps impart a suitable bitterness. It is also used in sharp cheddar and vegan cheeses.

In spite of its common use in cheese, you probably will never see *C. parasitica* listed as one of the ingredients. If you look at the label of most cheese sold in the USA, all you will see listed is "Enzymes".If by chance a cheese label is more specific, the name of the fungus might appear as "Endothia cryphonectria", avoiding the ominous-sounding word "parasitica". *Endothia* is the older genus-level name.

The enzyme is commonly used along with another enzyme called rennin or chymosin to coagulate (curdle) milk in the first step of making cheese. Apparently there is no particular reason why the enzyme from *C. parasitica* works better than enzymes from other fungi, and in fact it isn't the only fungal enzyme used for this purpose. Chymosin was originally obtained from calf stomachs, but now is mostly from bioengineered microbes like yeast and *Escherichia coli*.

By the way, a bioengineered form of rennin was the first genetically engineered product for human consumption approved by the FDA, in 1990.

This use for *C. parasitica* enzyme was discovered in 1966, apparently merely by trying lots of enzyme extracts from lots of fungi, and was motivated by a shortage of calf stomach enzyme in the 60s and 70s.

As you might guess, *C parasitica* has been bioengineered to produce chymosin as well as it's own enzyme, but unfortunately the chymosin is destroyed by yet other enzymes produced by the fungus.

IF THE GLOVE FITS

Many thanks to the **Perfect Fit Glove Company** who donated three dozen pairs of work gloves to the Chapter which were distributed to participants of the PA-TACF fall meeting in Pittsburgh, PA.

These gloves, coated with rubber on the underside, make the perfect fit for harvesting and shucking nuts from burs, but can also be used for various other activities. Your humble editor always carries a pair in her car and finds them indispensable for many chestnut-related (and unrelated!) tasks.

For more information on their products, visit their website at: http://www.perfectfitglove.com/

(Continued from page 2)

10+ years of breeding, fellowship, and enthusiasm have resulted in a tremendously fruitful product! Thanks to all the volunteers who work to get this done every year. We look forward to creating new lines in our sources in 2005 and striving to eventually achieve the mission we all care so much about.

MEMBER SPOTLIGHT: JIM WYKOFF

In one season of travel and observation (summer 2004), Jim Wykoff collected a database of over 50 flowering American chestnuts in Warren County.

Such a compilation of trees is helpful to the Chapter in being able to track down areas where flowering American chestnuts are generally found. Additionally, having size measurements of the trees can allow us to assess whether we have the capacity to breed advanced hybrid material on the trees.

Next season, Jim has decided to tackle McKean County. We wish him the best of luck and look forward to receiving more information!

If you find an American chestnut in your area, collect a leaf and twig sample and fill out one of our Tree Locator forms, which can be obtained by either writing to the address on the front of this newsletter, or from the following website: http://www.patacf.org/Locator_fm.htm

Nonprofit Organization
U.S. Postage Paid
State College, PA
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Pennsylvania Chapter
The American Chestnut Foundation
691 Pumping Station Road
Hanover, PA 17331-8608

The Chestnut Tree Newsletter

LETTER FROM OUR INTERN—*Adam Karl*

The American chestnut and the ACF have given me more than I can give back. Volunteering with the Foundation provided a stimulating hobby to sustain me through high school; after graduating, I felt extremely fortunate to receive an internship with the Foundation. Working with science, enjoying the outdoors, and traveling across the state (not to mention getting paid for what I used to do as a volunteer) add up to a fabulous experience.

After my first semester at Bowdoin College, I look back and realize how benefiting my internship was. As a biology major, the familiarity with the scientific process (outside of a high school classroom) that I learned through my internship is an apparent advantage. But what I can now see is how my internship also prepared me for college as an individual. Going on my first solo road trips, being the youngest person in the field, and being considered an "expert" of sorts, I felt a heightened degree of responsibility and maturity. In college, being in charge of myself is a seemingly simple challenge that I find this past summer prepared me for.

What first attracted me to the American chestnut was its tragic past and bright future, and the blend of biology and ecology in the breeding program. What stands out now are the encounters with the growers and volunteers my parents have affectionately named "chestnut people." Coming from all backgrounds, I find that the unifying characteristic among all "chestnut people" is their willingness to be giving of themselves. From nudists to hard right wingers, I have found all of you to be affable, fascinating, and generous. I believe my exposure to this exemplary group of people at my impressionable young age will be more valuable than all of the other gifts the chestnut has given me. I look forward to working with all of you more in the future.

Thank You

PA-TACF Intern Adam Karl and PA-TACF member Donald Dorn look at leaf morphology characteristics of a chestnut planted at the Allegheny National Forest BC1 orchard.