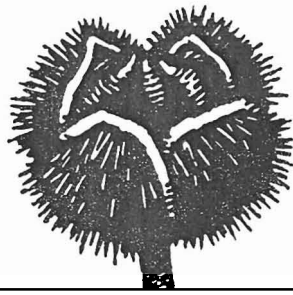


THE BUR



Newsletter of the New York State Chapter of the American Chestnut Foundation, Inc.

Volume 10, No. 2

Fall/Winter 2000

PRESIDENT'S MESSAGE

A brand new approach to the American chestnut restoration program holds tremendous possibilities. If Dr. Danny Fernando's project at CESF is successful in isolating, germinating, and transforming chestnut pollen, TACFNY's seed orchards that we have worked so long and hard on in all districts can then be put to use as soon as the new resistant pollen is tested and available. All the efforts by TACFNY members will start to pay off. This new approach devoted to improving our transformation system should enable us to reach our goal of producing a blight resistant chestnut sooner than if we continued with a single method or if we pursued them one at a time.

In as much as the pollen transformation project was not in TACFNY's original budget, the Board of Directors, at our annual Meeting in Canandaigua, NY, directed \$3,000 be paid to CESF immediately to start the project with existing funds and promised to raise \$10,000 in 2001 and \$10,000 in 2002 to fund this exciting new approach.

A copy of the CESF proposal is available at my office for anyone wishing to know more about the project or to be a potential donor. Please phone Herbert F. Darling, Jr. at 716-632-1125. We need to reach our goal of restoring the timber type American chestnut tree as soon as possible.

LONG LIVE THE AMERICAN CHESTNUT!

2000 SCIENCE REPORT

by Dr. Charles A. Maynard & Dr. William A. Powell
College of Environmental Science and Forestry

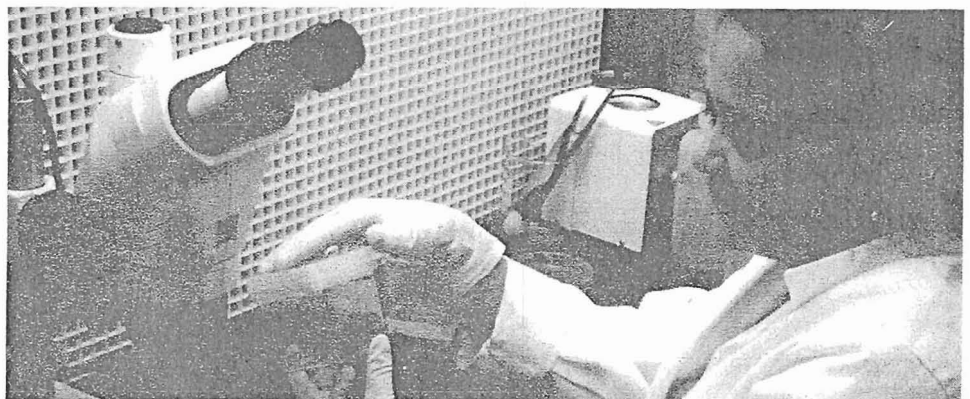
It has been a busy and exciting third full year for the State-Funded American Chestnut Research and Restoration Project. This year we have had more people involved with the project than ever before. This includes new graduates, students, one new faculty member, and several new cooperative projects with foundation members. We also received a new and much appreciated grant from the Wild Turkey Federation.

A very important milestone was Rosy Mukherjee's (Ph.D. student) identification of two American chestnut cell lines that appear to have been transformed (see photo below). Further testing is underway to confirm that they do, in fact, contain a new wheat oxalate oxidase gene. We had previously introduced this wheat gene into model tree species, hybrid poplar, which allowed it to detoxify oxalic acid and make it more disease resistant. The putative transgenic chestnut shoots are currently being multiplied so that they can be brought through the acclimatization process and tested for blight resistance.

After working primarily with somatic embryo culture and transformation for the last three years, we initiated research on five new transformation methods. For years we have been evaluating alternative gene transfer

methods one at a time, a slow and tedious process. With the solid support from the State, we can finally pursue a number of alternative methods simultaneously in order to increase the speed of production and number of transgenic plants. Gesella Penre (M.S. student) is working on transforming intact embryos by drilling a small hole into mature chestnuts and injecting *Agrobacterium*. If successful, the *Agrobacterium* will then inject the DNA of interest into the developing embryo as it germinates. Linda Polin (M.S. student) is working with the gene gun to inject DNA into shoot tip slices. Sharon Bickel (M.S. student) is working on extracting the embryos out of mature nuts and injecting *Agrobacterium* into the tiny developing plant. Sharon is also working on transforming shoot tip slices with *Agrobacterium*. Dr. Danny Fernando (new faculty member recruited to the project), is working on isolating, germinating, and transforming chestnut pollen which would then be used to pollinate flowering chestnut trees either in seed orchards or potted trees in the greenhouse. This large increase in effort devoted to improving our transformation system should enable us to reach our goal of producing a blight-resistant chestnut more quickly than if we continued with a simple method, or if we pursued them one at a time.

cont'd. on page 6



Rosy Mukherjee, Ph.D. student, examining a potentially transgenic American chestnut shoot.

DISTRICT 1: DR. JOHN POTENTE, DIRECTOR

(Counties of Nassau and Suffolk)

516-232-1566

The Long Island District now has eight seedlings growing in the Native American preserve in Hauppauge. These are seedlings grown from nuts that were made possible through the efforts of hand-pollination. They are now one foot tall and constitute the first orchard on Long Island with Long Island stock (genotype) American chestnut trees.

The Caleb Smith State Park orchard on Long Island continues to fare well and hosts saplings from upstate New York. They are now three to four feet tall. John reports that by next year they will be as tall as he is.

DISTRICT 3: FRANK MUNZER, DIRECTOR

(Counties of Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester)

914-266-5138

The two major seed orchards in the District are doing very well. Currently there are 428 trees in the Lasdon Arboretum of which 52 produced burs with 852 seeds provided to the Harvest Exchange. Unfortunately about 70 trees were lost over the 99/00 winter from blight, cold and deer rubbings. The good news is that most tree lines were saved because of returning stump sprouts. Mud packing and some fungicides have been used to slow the blight's infestation.

At the District's nursery at Wethersfield in Amenia there are 200 American chestnuts growing strongly despite some losses to the blight. Frank reports the harvest was outstanding with over 100 nuts each from the orchard's first plantings. He expects a larger harvest from all trees next year.

A Charlie Chestnut educational program was initiated through the 4-H program of the Cornell Co-op Extension. Some of the resulting trees were planted in the Lasdon seed orchard.

Over the year two presentations were made by District 3 members as well the manning of an exhibit at the Lasdon Arboretum.

DISTRICT 4: ALLEN NICHOLS, DIRECTOR

(Counties of Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie)

607-263-5105

As Asst. Director, before his election to Director at this past fall's Annual Meeting. Allen's primary goal was to locate existing American chestnut trees. He successfully approached the local newspaper's Sportsman Column where an article appeared appealing for information about unknown American chestnut trees. There were so many responses that Allen had not been able to look at all locations. Many of the trees he did inspect were dying from the blight but he found numerous trees that are just beginning to produce nuts.

Allen also located several American chestnut trees by contacting foresters at local lumber mills. Further, he put a short section of a chestnut limb with a few burs into local gun and archery shops, along with his TACFNY card. He recently had a tree that may qualify for Supertree status.

He assisted Dr. Leahy pollinate a 16 inch tree along with several smaller ones. He comments: "The results were not encouraging but it

seems that every one had the same results this year."

Allen's wife who teaches third grade presented the Charlie Chestnut program to her students. As a result, she would highly recommend the program to other elementary schools. Ten trees from the student project were planted in Gilbert Lake State Park.

This past fall, Allen planned to start a District 4 seed orchard. If you can give him a hand in this work, call him.

DISTRICT 6: T. URLING WALKER, DIRECTOR

(Counties of Jefferson, Herkimer, Lewis, Oneida and St. Lawrence)

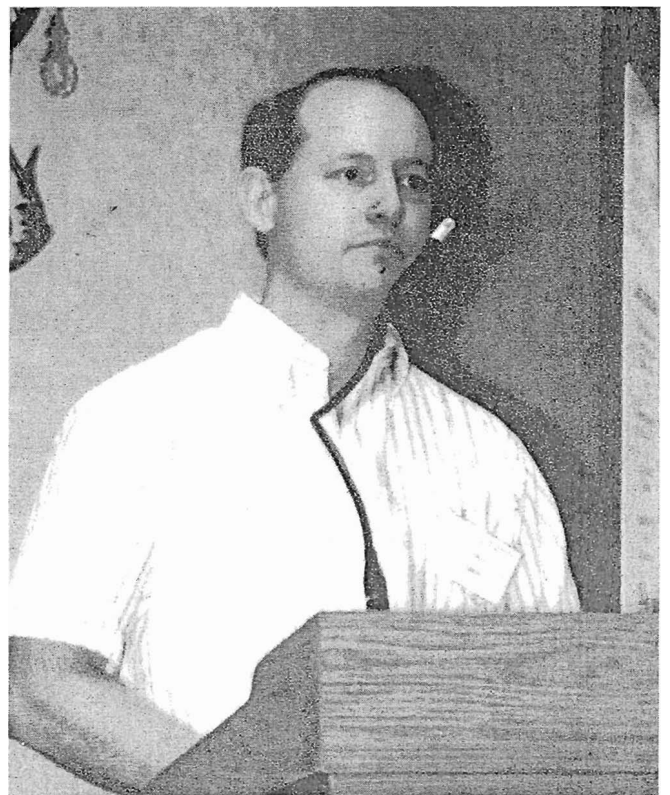
315-782-3153

In 1995, following a microburst that toppled trees throughout the City of Watertown, a citizens group was formed called "Tree Watertown." Its goal was to plant 2,000 new trees in the city by the year 2000. Happily, the milestone was surpassed and on November 4 the achievement was celebrated by a symbolical planting of three American chestnut trees on Chestnut street. The site is owned by the Stone Presbyterian Church which shared in sponsoring the planting. As an educational assignment, Sunday School children will keep an eye on the well-being of the trees. The event drew good press coverage.

Of the eight American chestnut saplings from southern areas of the state to test harsh winter endurance, five have died. Tom plans to change the pH on the remaining in an attempt to stimulate their growth.

Tom continues his annual County Environmental Awareness Days presentation to 200 students. The Day is sponsored by the Cooperative Extension.

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Despite a broken foot bone, Chip Leavey, District 8 Director, presents his report at the 10th Annual Meeting. Chip hosted the meeting and led the field trip on crutches.

DEER DAMAGE FIGHT GOES ON!

Deer browsing in TACFNY seed orchards in many parts of the state is ongoing. The Cornell Cooperative Extension suggests three solutions: fencing, hunting and repellents.

From a practical point of view, however, fencing has been ruled out by most people in TACFNY. The areas are large and an expensive eight-foot fence is required. Some claim they have actually seen deer jump fences of this height or eventually go through them.

Hunting may be tried near the Sherburne seed orchard in District 7 which has suffered over the years Roy Hopke, the District Director, proposes to ask the neighboring farmer to join the Deer Management Assistance Program. If the farmer has experienced deer damage to his crops, he can request a special permit from the DEC for a determined number of deer tags which can be used during hunting season by licensed hunters. According to Roy, deer do not are not nomadic so if the population can be reduced locally, it should reduce the demand for food in the Sherburne orchard.

"Cornell Mixture," a repellent, has been used at Sherburne with limited success. Roy feels that they must increase the frequency of application to cover new leafing and restore the power lost over time.

John Ellis, a TACFNY Director, has had initial success with Milorganite. He writes: "I've been using Milorganite on a few test white cedar since last August. And so far it is working."

Milorganite is a fertilizer made from treated waste water, 100 percent organic and virtually odorless to humans

According to a newspaper clip John sent: "Milorganite is marketed as a lawn fertilizer but at some point someone discovered that deer were seen avoiding sections of greensward that had been treated with the stuff."

"They tried sprinkling it around plants that deer are known to favor, such as hostas and yews, and lo, it worked..."

If you have deer damage solutions or experiences you would like to share with others, send the information to the BUR Editor, Jack Mansfield, 349 Roycroft Blvd., Snyder NY 14226.

CHARLIE CHESTNUT NEEDS A NEW BOSS



Glen Gelinas, our erstwhile TACFNY Education Chairman, has found it necessary to give up his duties after several years of devoted effort. Glen has been the jet fuel that propelled the Charlie Chestnut program through its conception to testing to full implementation. Charlie Chestnut has been enthusiastically received at the teaching level and may well serve as the model for a national program by TACF.

The Charlie Chestnut package is complete. The need now is to service teachers who have previously enrolled in the program as well as assemble the kits required for teachers joining the program for the first time.

It is vital that we find a volunteer who can take over the administration of the program. Through the example of the American chestnut tree, Charlie Chestnut tells the story of the fragility of our forests and the importance to turn around the downward spiral of our forest ecology.

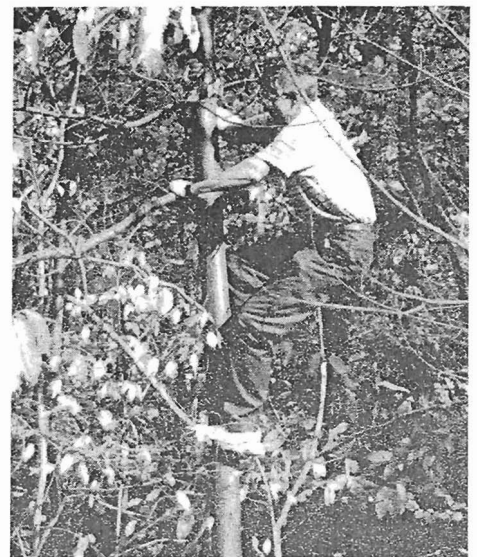
If you can help, or know another who might, please cull Herb Darling at 716-632-1125.

HERE IS HOW TO PUT YOUR MEMBERSHIP INTO ACTION

Man) of our nine Districts embrace huge territories. As a result our District Directors find it difficult to reach all corners of the many counties they represent.

The need to find new existing trees, see to their pollination, collect and plant seeds in new orchards is ongoing. Perhaps you as an individual, or your group, would like to participate in our exciting venture.

Phone or write for information to your District Director or our president: Herb Darling, c/o Darling Construction, 131 California Drive, Williamsville NY 14221, phone 716-632-1125, fax 716-632-0705.



Allen Nichols, District 4 Director, shakes nuts from American chestnut trees during the Annual Meeting field trip. It was an exciting moment for some members who had never seen burs and nuts in the wild.

ARE WE LOSING OUR SUPERTREES?

With the recent death of two Western New York Supertrees, (American chestnuts of over 20-inch dbh), there are currently no Supertrees existing in New York State.

These trees were invaluable for bearing hundreds of seeds for replanting in our seed orchards thereby preserving their genetic lines. Genetic diversity will be important for

the long-term durability of the restored resistant American chestnut.

You can help. Ask your hiking and hunting friends, as well as foresters of your acquaintance, to keep an eye out for the telltale burs strewn below a chestnut tree. When you locate one, phone your District Director for his assistance in identification.

ASTIMULATING 10th ANNUAL MEETING

The Canandaigua Inn-on-the-Lake welcomed members of the New York Chapter of the American Chestnut Foundation for our 10th annual meeting the weekend of October 13-15, 2000. The beautiful sunshine and colorful scenery provided a great setting for the meeting – especially for the field trip to a chestnut grove, and the enjoyable dinner cruise on the paddle wheel boat on Canandaigua Lake.

District 8 Host Director Chip Leavy – crutches and all – lead the hike and one of our athletic and experienced members climbed a chestnut tree to shake down some remaining nuts for newcomers to enjoy harvesting.

Conversation flowed among old and new friends Friday evening as exhibits were set up, and socializing around the goodies table went on all evening.

Roasting chestnuts again greeted us Saturday morning, thanks to John Gordon. (What great PR this is, too! The staff at the Inn had never had them before, and wants us to come back.)

The always interesting reports about the work done during the year were given by Dr. Charles Maynard, Dr. William Powell and Dr. Daniel Fernando of the College of Environmental Science and Forestry at Syracuse (CESF). (See Science Report.) Ryan McAfee, who worked on the NY State American Chestnut inventory during Summer 2000, reported on his many visits and gave an overview with display map on our current status.

Sharon Bickel, Laboratory Manager for the CESF Project, explained a new step in this research. "EMLETS" (trees grown in the laboratory from embryo tissue, not seeds) will be placed with "TLC" planters to observe, nurture and to act as outside research assistants by reporting various changes as they occur in the "real" world. Their records will be kept with the CESF records for future evaluation and finalizing protocol.

An interesting workshop on "coping with critters," given by Kristi Sullivan, Wild Life Specialist from Cornell University, created spirited discussion. John Gordon's workshop on "Chestnut problems and new planters' help" was held after-dinner and kept people talking all through the evening.

The featured speaker at the luncheon was Dr. Steven Kresovicli, Professor of Plant Breeding and Director of Genomic Diversity at Cornell University. He discussed the increasing knowledge and enrichment of life being brought about by genetic research and the advantages of continuing to pursue this knowledge. He warned, however, that it must be accompanied by testing before product release, with the type and length of testing depending upon the material used.

He cited the recent enrichment of rice, which has alleviated famine in Asia. An interesting point made was that genes should be thought of as individual entities rather than as belonging only to a specific animal or plant, or a human. The same gene may be commonly found in several different

organisms. A gene found in a frog is not a "frog gene" but a gene, which causes certain things to happen regardless of its source. (Did you know there are many genes found in a tree, which are also found in humans!) It was a most stimulating presentation.

A memento of our 10th anniversary year, a fluted glass mug inscribed with the NY Chapter logo and dates, was at each place at the luncheon. The raffle, conducted by Bethany White, was held following dinner in the evening.

The harvest exchange was put together by hard working Ken and Rose Burdick, Jim and Dana Kruser and Stan Wirsig with the help of several others. Harvesters provided 9,000 nuts so it's no wonder it took until 2:00 a.m.

The open board meeting was held on Sunday morning and included a review and update of short and long term planning (see Goals 2001). The meeting was adjourned at 11:00 a.m.

But the talk continued. While finishing off the last of the cookies, you could hear: "Now next year we can..."

A BIG, BIG THANK YOU

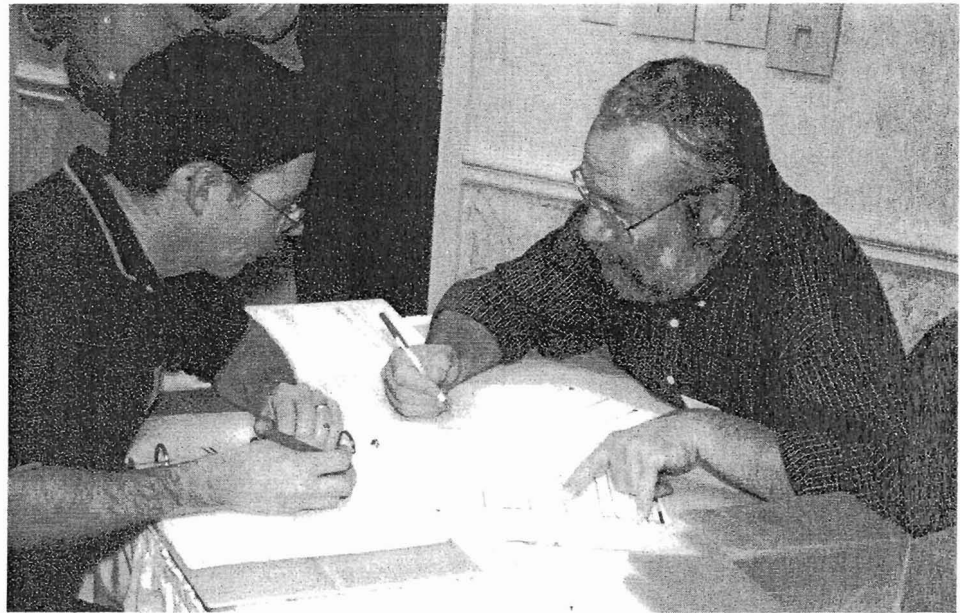
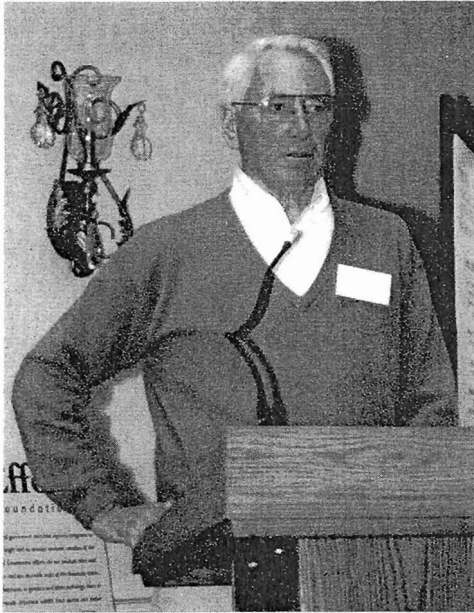
So many helped in so many ways - moving, carrying, bringing delicious snacks, manning the tables, taking lap top notes, donating trees and raffle items, counting nuts, and especially working the woods for the bumper harvest you name it! Anything needing to be done, you always pitch in with a spirit of "We're in this together." - You're appreciated!

THANK YOU POETS

In the previous BUR we appealed for poets to commemorate our 10th Anniversary. Two excellent responses were received. One from Barbara Rosen was in the form of a poignant song with music and lyrics. The other was a touching poem by Eugene J. Dougherty. Both song and poem were printed for all to read at the 10th Annual Meeting. Thank you both.



A large number of members and friends attended the 10th Annual Meeting. This picture shows the cheerful faces of about half of them.



Clockwise from top left

- *President Herb Darling opened the 10th Annual Meeting with a report on the anniversary year's activities.*
- *Ken Burdick and Jim Kruser work out the final details of which genetic line goes where for the annual Harvest Exchange.*
- *Stan Wirsig, Vice President, and Arlene Wirsig, Secretary/Treasurer, help guide the Board of Directors meeting which is open to all members.*
- *Many gathered on the top-viewing deck of the paddle wheeled cruise boat on Lake Canandaigua for a view of the fall leaf colors. Later, dinner was served below.*
- *During the field trip to Ontario County Park, members had a close-up look at the distinctive American chestnut leaf.*



The Research Lab Crew, from left to right: Chuck Maynard, Sharon Bickel, Linda Polin, Bernadette Connors, Haiying Liang, Ryan MacFee, Bill Powell. Not pictured, Rosy Mukherjee, Ted Andrejko, Jason Corwin.

AMERICAN CHESTNUT RESEARCH AND RESTORATION PROJECT

Another important phase of the project that has received a lot of attention is the delicate process of moving plantlets from the laboratory into the field. Thanks to the greatly improved rooting and acclimatization protocol developed by Sharon Bickel, Seth LaPierre and others, we were able to root, acclimatize, and harden off 15 plantlets (see photo below). This is by far the largest batch of plantlets we have been able to bring back out of tissue culture at one time. At the annual meeting in October, we enlisted the help of several Chestnut Foundation members as cooperators in conducting field trials with this material. Each cooperator will be observing how the tissue culture plants go into dormancy this fall and come out of dormancy next spring. They will then be following the growth of the plantlets over the coming summer. The field performance of these plants will tell us a great deal about how our transformed plantlets should be handled when they become available.

Also on the topic of field performance, we continued to monitor the growth and survival of the first chestnut tissue culture plantlets that went into the field four years ago. From this handful of plants we have determined that it takes at least one full growing season for the small plantlets to reinitiate vigorous growth after transfer to the field.

Bernadette Connors (Ph.D. student) continued her research to isolate a stem-specific promoter (a genetic switch) that would target the expression of blight-resistance genes to the tissues directly attacked by the chestnut blight fungus. Bernadette identified more than 50 genes that are expressed in the stem, with 10 of these having little or no expression in the nuts or

leaves. The next step is to clone the promoters of these genes and attach them to our gene constructs.

Haiying Liang (Postdoctoral student) continued the basic gene design work so that we will have an expanding list of potential blight-resistance genes to choose from. Haiying is continuing research from a previous student, Hongyu Gao, who designed and constructed a self-splicing gene that will produce both a fungal cell-wall degrading enzyme (Chitinase) and the detoxifying oxalate oxidase enzyme

mentioned previously. This year she is also working on better marker genes so that we can more quickly identify transgenic cell lines and regenerate whole plants.

In a related project financed by a generous grant from the American Wild Turkey Federation, Ryan MacFee (M.S. student) logged over 2,650 miles, visited 8 seed orchards, and 55 parent trees. Ryan is now doing DNA fingerprinting of the parents and finishing up his evaluations of the seed orchards. When completed this winter, we will have a much better idea of how genetically variable a group of parents we have selected, and how best to use the seed orchards when blight resistant transgenic plants come out of the lab.

We would like to thank the members of the NY chapter of the American Chestnut Foundation, the Wild Turkey Federation, and finally our sponsoring members in the New York State Senate for their interest, enthusiasm and financial support. This is a big project moving rapidly forward toward an exciting goal.



Sharon Bickel and Ted Andrejko preparing a batch of acclimatized American chestnut plantlets for field-testing.

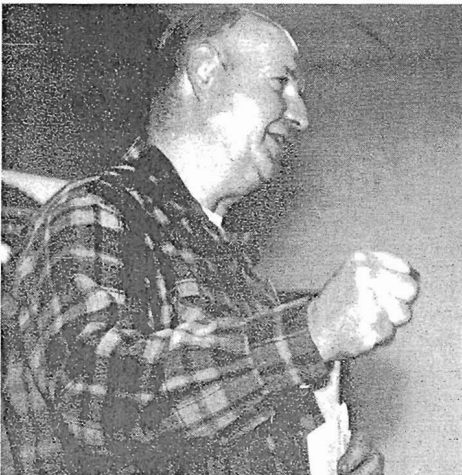
DISTRICT 7: ROY D. HOPKE, DIRECTOR

(Counties of Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga and Tompkins)
607-648-5512

This past spring District 7 members planted an additional 50 trees at the Sherburne plantation. The seed orchard now totals over 400 trees. Recently John Ellis showed the Sherburne orchard to Ryan MacFee, a CESF grad student who was doing a statewide survey of TACFNY seed orchards to authenticate the species of the many chestnut trees. Most of the trees at Sherburne have been authenticated as full American.

The small planting effort at the SUNY's ESF Heiberg Forest near Syracuse has turned out to be at least partially useful. CESF will choose a tree or two to put in their greenhouse for early flowering research. At last check about half of the original 50 planted trees have survived and are doing surprisingly well. Roy says District 7 is at CESF's service if additional planted trees are required for the Heiberg seed orchard. They may prove useful for projects that have not yet been conceived.

Roy is on the track of a tree which, if American, may qualify as a Supertree.



At the Annual Meeting, TACFNY Director, John Gordon, as well as planting and growing expert, conducted a workshop on "Chestnut Problems and New Planters' Help."

In Memorium

DISTRICT 8: CHIP LEAVY, DIRECTOR (Counties of Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne and Yates) 716-293-2540

This year District 8 made additional plantings to two of their four seed orchards dedicated to New York State seeds. Unfortunately, there were quite a few losses due mostly to wet conditions. Chip cautions about the necessity of a well-drained site for seedlings.

Chip and his wife have been growing between 1,000 and 2,000 American chestnut seedlings each year for the last four years. They distributed just over 1,000 seedlings this year to about 9 different County Soil and Water Conservation Districts and 30 individuals. The large number of seeds required for this program came from Wisconsin. Chip noted that again he volunteered for Field Days in Genesee and Monroe Counties directed to over 900 fifth and sixth grade students.

Chip was the host for the 10th Annual meeting in Canandaigua this past October. He gave special thanks to Woody Clark, former District 8 Director, for his valuable assistance.

DISTRICT 9: BILL SNYDER, DIRECTOR (Counties of Allegany, Cattaraugus, Chautauqua, Erie, Niagara and Wyoming) 716-839-5456

This past spring 65 members, friends and boy scouts turned out at the annual planting in DEC's Zoar Valley Multiple Use Area. 150 trees were replanted and protected by staked shelters.

Bill announces that volunteers will be needed to man a booth at "Plantasia," a flower and garden show. The show will be at the Western NY Event Center on Main Street in Clarence, NY and will run from Thursday, March 22 to Sunday, March 25, 10 a.m. to 6 p.m. daily. Please call Bill at 839-0096 if you can help.

Lewis Decker
Gloversville, NY
District 4 Director

Robert G Jerabek
Cheektowaga NY
Valued Member

ANNUAL MEETING ELECTIONS

Board of Directors
Class of 2001

Allen Nicholas, Thomas Deacon, Jim Donowick, John Ellis, Adrien Gaudreau, Craig Hibben, Ted Kozlowski, Dr. Charles Lamb, Dr. John Potente, T. Urling Walker, Bill White

Class of 2001 and 2002

Margaret Collins, Wayne Cooper, Roy Hopke, Chip Leavy, Frank Munzer, Dr. Eric Randall, William Snyder, Dr. Richard Zander

Class of 2001 thru 2003

Douglas Campbell, John Gordon, Jack Mansfield, Arlene Wirsig, Herbert F. Darling, Jr., John Spagnoli, Stanley Wirsig

2001 Officers

Herbert F. Darling Jr., President;
Stanley Wirsig, Vice President;
Arlene Wirsig, Treasurer and Secretary

GOALS 2001

- I. Increase Membership
 - A. Target 6 presentations per district to service clubs and other organizations during 2001
 - B. Mailing to non-renewals
- II. Locate and Map New Wild Chestnut Mother Trees
 - A. Establish search teams in each district to seek new trees
- III. Research New Planting Sites to Prepare For Transgenic Propagation
 - A. Determine criteria including soil map study
- IV. Expand Education Program
 - A. Assist National with Charlie Chestnut Program
 - B. Develop additional New York Charlie Chestnut Program with funding

The Bur
New York State Chapter of the
American Chestnut Foundation, Inc.
c/o Buffalo Museum of Science
1020 Humboldt Parkway
Buffalo, NY 14211

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the **BUR**
Starting our
11th year

THE  **BUR**

**IF YOU HAVE FRIENDS WHO ARE INTERESTED IN
OUR GOAL OF RESTORING THE AMERICAN CHESTNUT,
PLEASE GIVE THEM THIS APPLICATION.**

Membership Application

Enclosed is my
membership support of:

- Gold Leaf, \$1,000
 Silver Leaf, \$500
 Bronze Leaf, \$250
 Green Leaf, \$100
 Regular, \$40
 Student, \$15
 Other \$ _____
 Special Gift to NY
State Chapter \$ _____

Total Amount \$ _____

Enclosed is an additional contribution in the amount of
\$ _____ in support of the New York State chapter's activities.

Name: _____

Address: _____

City/State/Zip: _____

Telephone: _____ E-mail: _____

This is a gift membership from: _____

Address: _____

Membership includes subscriptions to *The Bark* and *Journal of The American Chestnut Foundation* and enrollment in the New York State Chapter. The Chapter publishes the *Bur*, helps guide research at CESF, and includes nine Districts for local involvement in maintaining the American Chestnut gene pool. Please make check payable to: The American Chestnut Foundation, P.O. Box 4044, Bennington, VT 05201-4044. TACF is a 501(c)(3) non-profit organization. Except for the member services portion of your contribution (valued at \$15), your gift is tax deductible to the full extent allowed by law.