THE BUR

Volume 7, No. 1 | Newsletter of the New York State Chapter of the American Chestnut Foundation, Inc. | Spring/Summer 1997

PRESIDENT'S MESSAGE & RESEARCH REPORT

It has taken six years of research and hard work on tlze part of many people to get to the stage where transgenic American chestnut trees are on the horizon. The laboratory phases of the project have been conducted primarily at the College of Environmental Science and Forestry in Syracuse under the guidance of Drs. Charles Maynard and William Powell, and most recently Dr. Zizhuo Xing, a postdoctoral student working in Dr. Maynard's Laboratiry.

From the immature burs collected last summer, Dr. Xing produced 19 cell lines that are sending out hundreds of new embryos every month. In early Fall, Dr. Xing took three of these cell lines and conducted a large-scale transformation experiment. Almost 850 pieces of tissue were treated with millions of copies of our best gene construct in hopes that at least a few would take up the genes. As of early May three of these tissue pieces had regenerated shoot-producing cell lines. One of the cell lines shows signs of new gene activity. It will take another two months to confirm if these shoots are definitely transformed

We are now waiting anxiously to see if the genes of interest are stable in these shoots. Preliminary DNA tests indicate that one cell line has the new resistance genes, bur they still have to confirm that tlze genes are all expressed properly in American chestnut cells. This is exciting because it is the first time the researchers in Syracuse have attempted to transform what we hope will be the "real resistance genes" into American chestnut. In past studies, they have used marker genes to test various methods of transferring genes into chestnut, but not the "real thing."

Our goal, as always, is a blight-free tree, but only time will tell. By the end of the year; Drs. Maynard, Powell, and Xing hope to confirm that the genes are in the plants and being expressed. They hope to have field-ready transgenic chestnut plants by the Spring of 1998. These plants will then move into various stages of greenhouse and field testing.

In a parallel project Dr. Xing has also been working on moving chestnut plantlets from tlze test tube to growing in soil. (These plantlets have no new genes but have been produced using the same techniques used for the transgenic plantlets described above.) As many of you know moving tissue culture plantlets from test tube to the real world has been a huge problem for many years for many species, especially American chestnut.

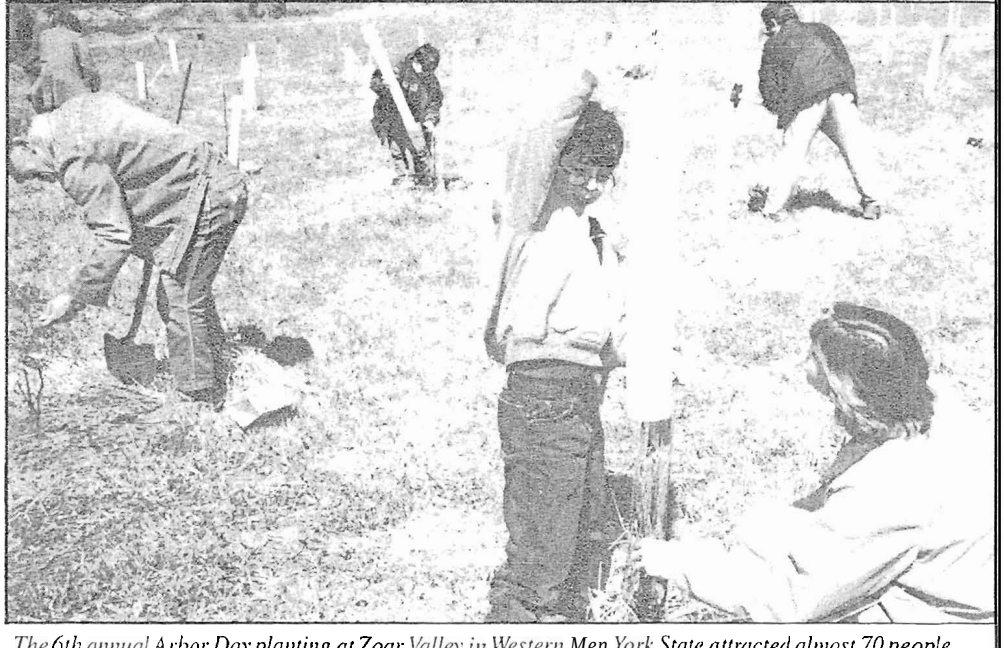
The first hurdle was just to get chestnut tissue culture plantlets to form roots, a problem first solved by Dr. Paul Read at the University of Nebraska. About five years ago, the Syracuse team began using Dr. Read's procedure and making modifications. About a year and a half ago, after a lot of "tinkering" with both the pre- and post-rooting steps, they finally decided that they could root enough plantlets to make acclimatization research possible.

Moving these tiny chestnut trees to soil has been at least as difficult as rooting them in the first place. Since developing a reliable rooting procedure, Dr. Xing has processed at least five batches of plantlets from test tube to potting mix.

Early batches taught us that the American chestnut likes a very porous potting mix and is extremely prone to root rot if the mix is too wet. After he solved the potting mix problem, Dr. Xing found that the size of tlze plantlets at time of transfer is important. Survival of plantlets at least two inches tall and having 10 or ntore leaves at least one quarter of an inch long is better than 75%. Survival of smaller plantlets is less than 10%.

When I contacted Dr. Maynard last week, he said:

"I am sure we have additional lessons to learn, but as of early May, I have four 8"



The 6th annual Arbor Day planting at Zoar Valley in Western Men York State attracted almost 70 people who worked hard at maintaining the "**seed** orchard" of over 600 American chestnut trees.

DISTRICT NEWS

District 1 - Director Dr. John Potente, Hauppauge LI, (516) 232-1566.

Seeds from the 1996 Annual Meeting Harvest Exchange were started and set in containers at Caleb Smith State Park. Sites for a chestnut orchard are being sought at the Park.

An inventory of viable American chestnut trees is continuing in the Long Island District in preparation of summer flowering which will necessitate manual pollination.

John represented ACFNY with a display booth at Hofstra University on Long Island for a symposium sponsored by the Long Island Arborcultural Association. Many private, business and governmental agencies were represented. John also presented the ACFNY slide program at the Museum of Natural Sciences at the SUNY at Stony Brook in December and again at the facilities of the Long Island Chapter of the Nature Conservancy in April.

District 6 - Director T. Urling Walker, Watertown, (315) 782-3153.

Urling reports that "Most likely we are on the fringe, weather wise, for any successful growing of American chestnuts." Members have not been able to find many random chestnuts in the forest, either hybrid or pure-strain. Urling has planted American chestnut seeds and seedlings on his own property and that of his relatives with the hope that they would survive and could be relocated later into seed orchards. As of this report it was too early in the season to tell whether they will make it or not.

District 7 - Director Roy D. Hopke, Chenango Falls, (607) 648-5512, snowhawke@juno.com.

The District continues to locate, categorize, and perform nursery and plantation operations using seeds from remaining American chestnut trees in the District as well as seeds provided through the annual Harvest Exchange.

The Tully plantation (60 trees) is on hold until they see how the wet soils will affect the growth of the trees planted there.

Members repaired and prepared (for planting) the DEC Sherburne plantation on April 5th. On April 19th they planted an additional 110 trees, bringing the total number of surviving trees to nearly 400. Seeds for these trees were collected from approximately 40 wild trees beginning in 1992. Roy reports the weather was perfect for planting trees and lousy for humans. It was just above freezing and there was sleet and light snow from 9:00 a.m. till the finish at noon.

Members have donated the money for the tree tubes and postage to keep communication open. Pomeroy Lumber donated stakes and mulch for the planting in past years. This year Pomeroy contributed enough stakes for five years. The DEC Rogers Environmental Center provided mulch this year as well as mowing for this important project over the years. Thank you Pomeroy, DEC and District 7 ACFNY members.

District 8 - Director Chip Leavy, Churchville, (716) 293-2540.

At the time of this writing, the District is planning to establish 5 new dedicated planting sites in the following towns: Churchville (Monroe Co.), Hector (Schuyler Co.), Italy Valley (Yates Co.), Livonia (Livingston Co.), Wolcott/Butler (Wayne Co.). Each site will start with about 25 seedlings from Wisconsin seed. By the time of this printing, the Spring planting will be done. Anyone interested in helping with Fall '97 planting at any of these locations should contact Chip Leavy. About 700 seedlings were delivered to Soil & Water Conservation Districts and individuals this Spring. Chip plans to present ACFNY information and seedlings at 8 to 9 shows and events this Summer and Fall.

District 9 - Director Bill Snyder, Buffalo, (716) 839-5456.

For Arbor Day 1997, District 9 worked at the planting site in Zoar Valley. DEC Foresters Wayne Cooper and Mike Fay oversaw a crew of almost 70 chestnut planting friends. New trees were planted, data recorded, weeds cleared and plastic tubes restored. Special thanks to Linda Chalker-Scott for bringing her Botany class from Buffalo State to help out. We wish Linda and family the best as they are moving to the Pacific Northwest. For those who stuck around after the work, we had a hot dog and marshmallow roast to finish off the day.

This July we will be pollinating our current super-tree which is isolated from other chestnuts.

NOMINATIONS FOR THE BOARD OF DIRECTORS

New York State is divided into 9 districts. A director from each district will be sought as well as general board members. Their duties will include attendance at annual meetings, help in developing membership in their district, and seeking-out of interested leaders. Please send nominations with a brief resume to:

Nominating Committee, ACFNY
c/o Buffalo Museum of Science
1020 Humbolt Parkway
Buffalo, NY 14211

Nominations must be received by September 1, 1997

LATE NEWS

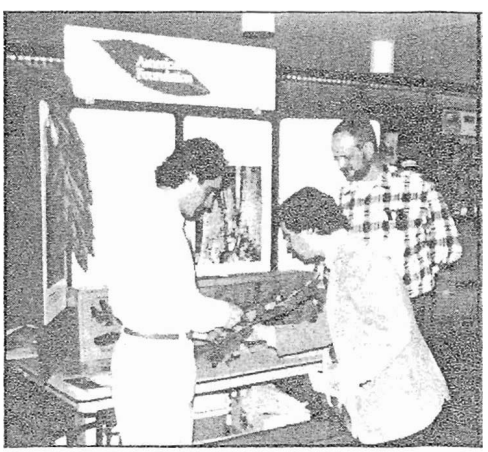
We recently been informed that John Hemngton , Executive Director of ACF, has resigned; effective June 30, 1997.

Good Luck John!

IN MEMORIAM

JOHN LEHRER
ARNOLD REIN

Both had been long time members of ACFNY.



District Director John Potente (left) while displaying ACFNY material at Hofstra University talks to a representative of Cornell Cooperative Extension (center) and Kenneth Law of the USDA (right).

CLASSROOM CURRICULUM NOW IN PILOT TEST PHASE

This spring under the direction of Dr. Don Birdd. Professor of Science Education at Buffalo State College, 56 New York State teachers are using ACFNY's new Chestnut Education Curriculum for Grades 3-5 with their students. The curriculum and supporting materials integrates process science skills as emphasized in the New York State Elementary Science Syllabus. The Roger Tory Peterson Institute in Jamestown and the Buffalo Museum of Science were critical in their continued support of our program attracting participant teachers for the pilot test and providing the location and support to train them in the use of our curriculum and materials.

The kit each teacher receives contains a teacher manual; laminated leaves, nuts and burs of several important local species; cross sections of tree branches (tree cookies); hand lenses and tongs to handle and examine specimens; embossed reproductions of American Chestnut leaves for rubbings; a poster copy of the "Lewis Leaf Chart to Chestnuts and Beeches" (an educational chart for use in schools from 1897 found in the archives of the Buffalo Museum of Science); video tapes "Biological Powerhouse" and "The Life and Times of Charlie Chestnut"; and a packet of viable American Chestnut seeds for planting.

The teacher manual now affectionately titled "A Tree on the Rebound" contains 11 photocopy-ready classroom lessons for the students and directions for teachers. Each set of lessons is presented to teachers in a user friendly format of: 'What to Know', 'What to Learn', 'Words to Learn', 'What to Use', 'What to do', and 'Other things to do'. Games and activities, a glossary, a reference section, The American Chestnut Story, and assistance for planting American Chestnuts and seedlings round out the manual.

Participant teachers are the first to use this program in their classrooms and are providing detailed written evaluations for each lesson and the supporting materials. This summer our writing team will be revisiting the curriculum and materials. reviewing the feedback from the pilot test and make the final editorial changes to the program. The pilot test and editorial process should assure that it is appropriate for a novice teacher, easy to understand, and use in the classroom, and most importantly motivational and enjoyed by children.

According to Glen Gelinas ACFNY's Director of Education, "Our education program has evolved beyond any of our initial expectations into a curriculum of the highest quality." Our appreciation and greatest thanks to all the teachers and administrators involved in our early work in formulating lessons and providing opportunities to work with their teachers and students; the enthusiastic teachers in the curriculum pilot test who are refining our program; and especially Don Birdd and the writing team: Sandra Falsoni at Truman Elementary, Barbara Ann Newton at Springville Elementary, and Dianne Tiede at Sidway Elementary. whose dedication, hard work, talent and high standards are responsible for keeping our project alive, moving forward and the production of an outstanding cumculum.

ACFNY will soon be proud to offer this cumculum to teachers so that their children across New York can develop their knowledge and skills as directed by the requirements of the state syllabus while being provided a hands-on opportunity to personally contribute to this milestone environmental achievement in restoring the American Chestnut!

DID YOU RENEW YOUR MEMBERSHIP?

ACFNY is a volunteer, non-profit organization receiving no funding from any governmental group. It is operationally sustained by membership dues and contributions. Please renew now if you have not already done so.

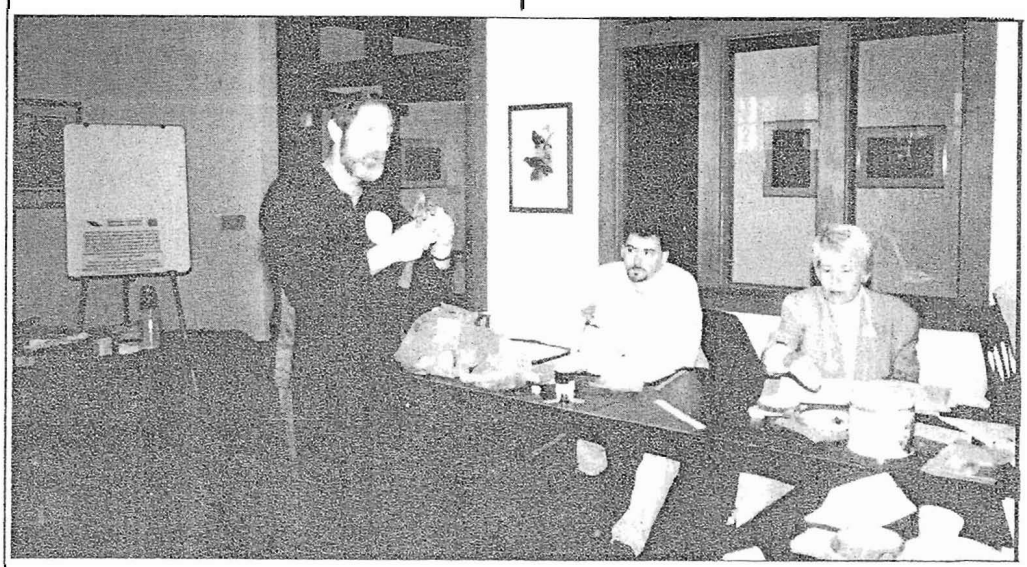
HOLD OCTOBER 25-26 FOR ANNUAL MEETING IN BUFFALO

1997 will mark the sixth Annual Meeting of ACFNY and a giant step forward in our goal of restoring the almost-extinct American chestnut tree.

The Annual Meeting will be in the Buffalo area Saturday October 25 and Sunday October 26 until noon. There will be a hospitality room for the evening of Friday October 24 for a pre-meeting social get-together. The Saturday meeting will include an updating on research activities, review of our educational pilot program, District activities and workshops for both new and experienced members. On Sunday there will be an annual Harvest Exchange which is such an important part of the ACFNY restoration program. It will be followed by an open Board meeting officially ending at noon.

The Buffalo area offers much to make the Meeting a family occasion. Niagara Falls with its raw beauty plus an array of activities including the new Niagara Casino are all within an easy drive. For those with a cultural bent, The Buffalo Philharmonic will be playing Sunday afternoon and the interesting Albright Knox Art Gallery will be open. For sports buffs, The Buffalo Bills will be playing Denver in Buffalo. And, of course, shopping at traditional malls and outlet malls is close at hand.

Watch for details mailed to all members in September. Put October 25-26 on your calendar now.



Dr. Don Birdd (left), Professor of Science Education at Buffalo State College covers elements of the ACFNY teachers manual with some of the over 60 grade 3-5 teachers who will pilot test the program before wider distribution in schools throughout New York State

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Buffalo: NY 14211

plants in my office that have been growing happily in soil for more than three months. The most vigorous of the four has more than a do,-en leaves the largest of which are slightly over five inches long. We have another 15 plants of various ages in a nearby growth room and dozens more rooted plantlets still in the lab. Our plan is to plant out four of these into a nursery this Spring and see how well they do in real soil."

"We would like very much to thank the Board of Directors of the New York State Chapter of the American Chestnut Foundation for their continuing support. We would also like to thank ACFNY members: Robert Wiltse, Robert Milks, John Hofmeister, Calvin DeGolyer, Gerald Rucker, Norm VanDeusen, Bill & Beth White, Burton Nagel, John R. Ellis, James D. Donowick. Alan W. Rand, Tom Deacon, arid Craig R. Hibben for going to great lengths to provide its with chestnut burs."

We still have plenty of work we must do while we wait for the blight-resistant trees. We are actively looking for new parent trees to add to our gene pool and are planning additional nut collection projects to accomplish this. We must also develop a selection plan for cold hardiness, timber type, nut production, blooming time, nut size. Gall Wasp resistance, leaves hanging on in winter, and disease resistance, etc.

If you haven't already done so, please renew your membership.

"We Need You!"
Herb Darling, President

ACF TRACTOR FUND

Last Fall ACFNY was asked to raise $5,000 to help defray the cost of a new unbudgeted $28,500 tractor for the ACF Wagner Research Farm at Meadowview, VA. It seems that the old tractor "collapsed" and was not repairable requiring an unexpected expense to replace it. ACFNY has paid the requested $5,000 from donations to its Special Appeals Funds publicized in the Fall/Winter issue of the BUR.

SEEDLINGS FOR SALE

C&C Nursery still has available 1- 1/2 year old. 10"-16", certified pure American Chestnut seedlings and shelters for sale. These seedlings are not blight resistant. Seedlings cannot be shipped [illegible]k, but the seedlings can be [illegible]urchville and planted all [illegible]ed for Fall shipping/planting. ACFNY member prices (20% discount!) are as follows:

Quantity	Member's Each	Member's Total
2	$7.50	$15.00
10	$6.00	$60.00
25	$5.00	$125.00
100	$4.75	$475.00

Prices do not include tax and shipping. Shipping charges are typically between 10% and 15%, but please call or write for exact shipping charges to your location. Call (716) 293-2540. or write us at C&C Nursery. 457 Palmer Road, Churchville. NY 14428. C&C can also be reached via email. cleavy@kodak.com.

EMBRYO GATHERERS SEEK PARENTAL LINES

This summer hard working ACFNY members will again be watching for American chestnut blooming trees, pollinating, and after approximately 4 weeks from anthesis, gathering embryos for continuing research.

New parental lines are being sought for this work so that eventually the goal of the 100 different lines will be reached as recommended by population geneticists. Ten new trees are being sought for the 1997-1998 work.

Anyone locating an American chestnut is asked to send leaf and twig to ACFNY at the Buffalo Museum of Science along with its location. Your participation is important and will be appreciated.

SCIENCE KIT & BOREAL LABORATORIES GIVES SUPPORT

The donation of a case of hand lenses was provided by Science Kit & Boreal Laboratories in support of the pilot test of our 3rd-5th grade curriculum ensuring that teachers have access to everything needed to make our project a success. Science Kit & Boreal Laboratories helps shape the future of science education and provides innovative tools and products for teachers in every science discipline.