

THE BUR

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

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Fall/Winter 2002

PRESIDENT'S MESSAGE

Once again our TACFNY all volunteer group comes through. A call was put out to find large American "Supertrees" for our gene pool, to be used in the seed orchards. The actual results are in an article inside this issue.

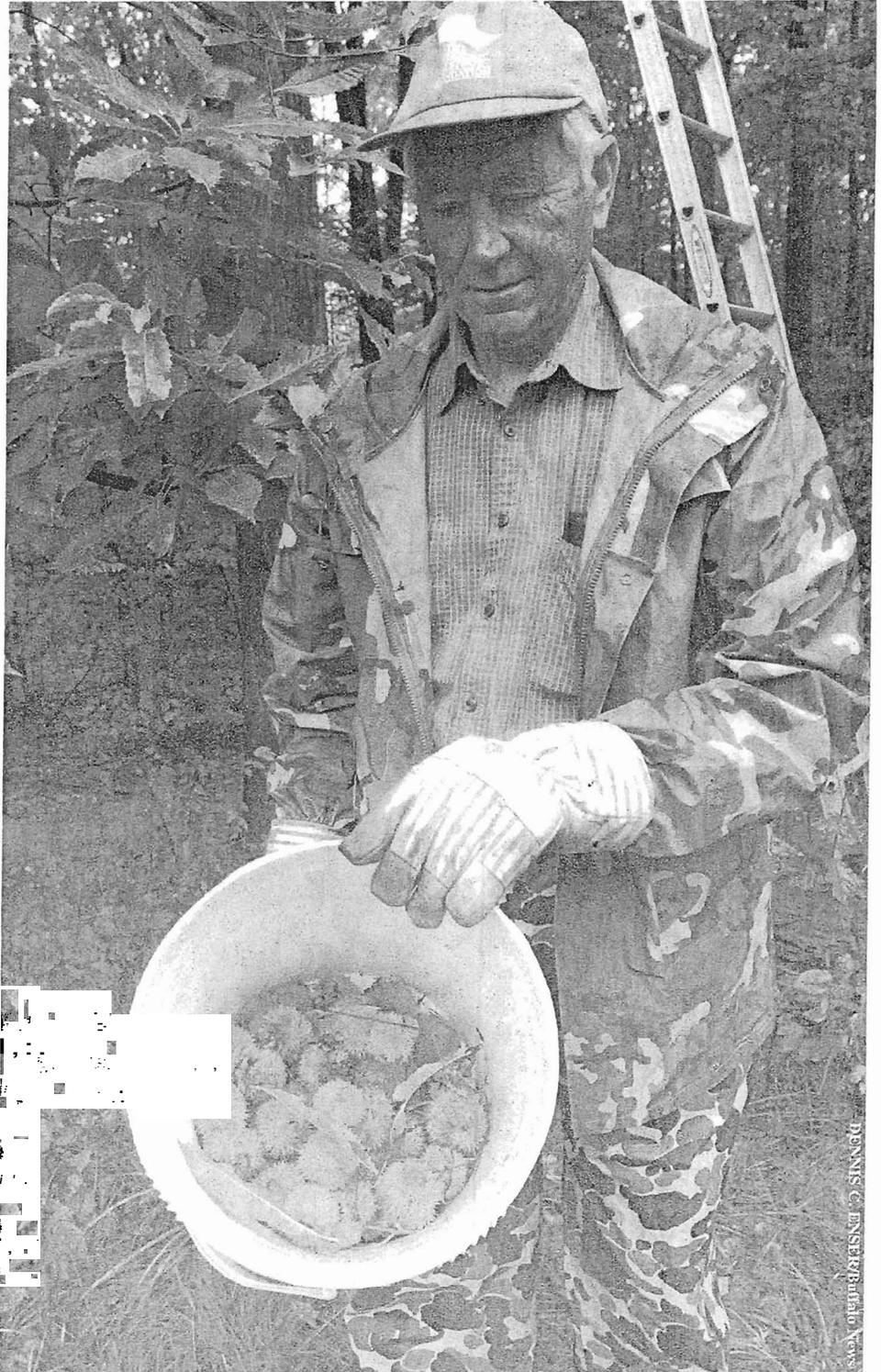
Not only did we find the big trees we are looking for, but we learned the wonderful character of two of our "Supertree" finders. Mr. Peter Durham of Depew, NY said to please hold the \$50 reward check as it wasn't necessary for the 14.1" DBH tree he found. Peter, thank you. Also Peter Lindner of Colden, NY, to the total surprise of our Treasurer, Arlene Wirsig, returned his reward check and stated he wanted the dollars to go into the TACFNY program to benefit the American chestnut. Peter, we also thank you.

The finding of the "Supertrees" is so important for the future of our program and needs to be continued. It will become harder and harder to find more large trees, but we really need to keep them coming as we have already lost the original two "Supertrees" and the blight is unforgiving in its devastation of our existing trees. Keep up the good work.

LONG LIVE THE AMERICAN CHESTNUT!



Herb Darling



Herb Darling, President of both TACFNY and TACF, shows off chestnuts collected from the Ackerman tree near Freedom, NY. Until recently it was New York's "Supertree", the largest in the state, an 18.5" DBH confirmed American chestnut.

TACFNY Annual Meeting 2002 Activities

The research activities at the College of Environmental Science and Forestry at Syracuse, supported in part by our New York Chapter, are reported in a separate article by the principle researchers Dr. Charles Maynard, Dr. William Powell, and Dr. Danilo Fernando. This is a summary of their presentations at the Annual Meeting on October 26, 2002.

The TACFNY Science Report given at the Annual Meeting included the Chapter's involvement in helping with this research. There are many plantings in the districts yearly, and maintenance work done in the seed orchards to prepare enough mature trees for pollinating by the blight resistant trees when it is accomplished.

There are many things happening world-wide in the biotechnology field. Genomics and proteomics are emerging aspects which we hope to report on as more information becomes available. Also, just a few weeks ago Governor Pataki announced a 20 million dollar grant for biotechnology programs in the medical and environmental fields plus a building to be built to house this research in Syracuse. That means the American chestnut will be a part of it when it happens.

Our field crews work hard. In the past they have provided embryos at just the right stage for research needs. This year they watched for just the right stage of development of pollen sometimes checking every day- and then rushing a shoebox full to Syracuse. One gatherer drove his shoebox to Syracuse to personally give it to Dr. Fernando to make sure that it was available as fresh as possible.

And of course the Harvesters' contribution of harvest exchange nuts is invaluable providing diversification and conservation of the gene pool. If and when the needs of New York planters are met, nuts are shared with other chapters and national projects. This year's 2002 harvest of 4267 nuts were distributed according to requests, to NY planters, CESF for research, Greg Miller for national projects, some for a Pennsylvania planting, and the DEC Nursery in Saratoga Springs

which provides numbered seedlings for TACFNY district planting projects on request.

In the Science Report given at the morning session of the Annual Meeting, plans for 2003 included the need for an updated survey of all seed orchards and the possibility of using volunteer teams in each district, plus the development of an updated, consistent standardization of criteria for use in the evaluation.

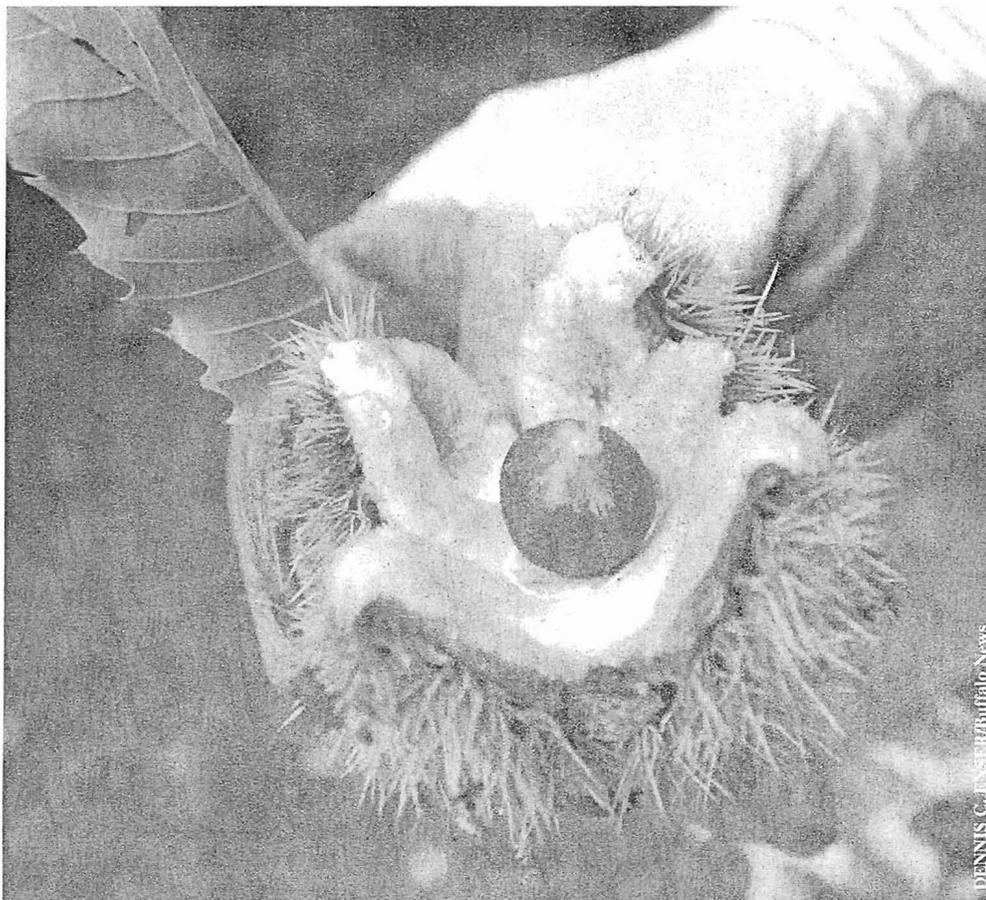
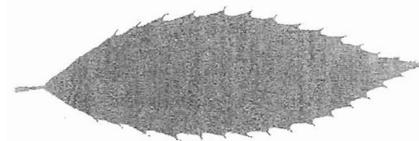
Later in the day, it happened! Mr. Frank Munzer, District 3 Director, volunteered to chair this work. His much appreciated offer will make it possible to more quickly update our information. More details are listed in a separate article.

Other 2003 plans include seeking out special sites which will have the ideal features to meet the needs of the American chestnut tree, then planting and giving TLC maintenance. If any - or all- of these interest you, please let us know*. It's needed work to prepare for the restoration, and it's a joy to work together on our common goal.

"Stan Wirsig,
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"Herb Darling,
e-mail: hdarling@hfdarling.com

"Frank Munzer,
phone 1-845-266-5138 (H)



DENNIS C. FISHER/Buffalo News

**Accomplishments From The
Tissue Culture Lab Of
DR. MAYNARD**

This year we made major strides towards our goal of producing a transgenic American chestnut tree containing resistance genes. In two different experiments, Rosy Mukherjee, succeeded in transforming approximately 40 somatic embryo clusters with two different marker genes. This is by far the largest number of transformation events we have seen up to this time. The down side is that, in the process of sorting out the cells that had incorporated the new genes, they lost the ability to grow back into whole plants. We plan to expand this work in the coming year to see if we can get transformation and still retain embryo-forming ability.

Our second breakthrough came when Linda Polin achieved transient expression using the Gene Gun. Before Linda took over that phase of the project, we had occasionally seen limited gene expression. Linda conducted a series of optimization experiments, steadily improving her success rate. By the Annual Meeting in October she had at least a ten-fold improvement over where we were a year ago.

One of the keys to this year's progress was a new marker gene. Marker genes won't make the chestnut trees blight resistant, but they are extremely useful in sorting out which of the plant cells have taken up new DNA. The new marker gene, called Green Fluorescent Protein (GFP), causes plant cells to glow a beautiful green when exposed to blue or ultraviolet light. Our old method often took months, but now with the new GFP marker gene we can get a preliminary idea if a newly forming clump of cells is transgenic by simply checking if it glows green. It should cut months off of the transformation process.

**From The Gene
Construction Lab Of
DR. POWELL**

Currently in the gene lab we have obtained 10 different putative resistance genes, 9 promoters (i.e. the genetic switches for genes), 2 reporter genes and 2 selectable markers. From these building blocks we have made 7 constructs to date that are ready to be tested in tissue. The putative resistance gene that we are most interested in comes from wheat and encodes an enzyme, oxalate oxidase, which will detoxify oxalic acid produced by the blight fungus. Oxalic acid (or oxalate) is one of two major weapons the fungus uses to attack the tree. Therefore, we predict that the production of this enzyme will help disarm the fungus. The byproducts of detoxification are carbon dioxide and hydrogen peroxide (H₂O₂).

In plants, H₂O₂ is used in the formation of lignin, a major part of the wound periderm that walls off infections. It also has been linked to enhanced gene expression when a plant is under stress or is infected with a pathogen. Therefore, H₂O₂ might enhance the chestnut's own defense genes.

We do not wish to rely on a single gene product for blight resistance, therefore we have been working on a way to produce more than one gene product from a single gene. Based on Dr. Roger Beechy's published work, a previous graduate student, Hongyu Goa, and more recently, Dr. Haiying Liang, have produced a gene construct that can produce a chitinase, proteinase, and to oxalate oxidase from a single gene. To date, our tests have detected the oxalate oxidase expression and have shown that the splicing appears to be working. Dr. Liang is now confirming the expression of the other two genes.

The final gene construct will be driven by a promoter that is highly regulated. In this way, we can be sure that the gene products are in the tissues that are likely to be infected and not in tissues where they are not needed.

**From The Pollen
Transformation Lab Of
DR. FERNANDO**

The focus of this lab is to genetically transform pollen grains of American chestnut that can be used to pollinate female flowers and recover fully transformed seeds. A graduate student (Ms. Javonna Richards) is currently developing a new gene construct that would carry a resistance gene (the one encoding the enzyme oxalate oxidase) into the pollen. This construct would also allow detection of the gene in the pollen through the visualization of the expression of green fluorescent protein.

Our previous results, using an electroporation technique to incorporate the plasmid DNA in the pollen, was found to be too inconsistent, so another method of introducing gene constructs into pollen grains was tried through particle bombardment or gene gun. So far, this strategy is working well, gives consistent

results, and is simpler to perform. Although the number of transformed pollen is still quite low, we were getting transformation most of the time. This protocol still needs to be improved to get a greater number of transformed pollen grains and we are optimistic that this can be achieved, especially if freshly collected pollen grains are used.

Through the funds given by the New York Chapter of the American Chestnut Foundation, we recently acquired a microinjection facility. This equipment will be used to individually pick the transformed pollen from the hundreds of pollen grains around them that are not transformed. We will also be using this to physically inject plasmid DNA into pollen tubes. The isolated transformed pollen grains can be used to pollinate flowers of American chestnuts.

**New York State "Supertree"
Located
In District 6**

As pointed out elsewhere in the BUR, the largest American chestnut in New York State becomes the reigning "Supertree". Recently Craig Hibben, TACFNY Director learned from a friend, Art Saltford, about an American chestnut tree on the campus of Saint Lawrence University in Canton, NY. Saltford and a St. Lawrence staff member reported the following specs: at 4 1/2 feet above ground level, the circumference is 77 inches. Its height is 54 feet and its canopy diameter is 28 feet. Craig verified it as an American chestnut with several sources and recently examined it himself confirming the species and measurement, a whopping 24.06 inches DBH - making it the new NYS "Supertree".

**District 3:
Charlie Chestnut
In The Classroom**

Craig Hibben, TACFNY Board of Directors member, introduced the Charlie Chestnut program to Nancy Casewell* of the Cornell Cooperative Extension (CCE) of Westchester County. Nancy felt strongly about the advantages of the program and wrote an article for the Summer 2002 issue of TACF's BARK.

Nancy wrote: "Through the 4-H Youth Development area a few groups of cub scouts, junior girl scouts, classrooms and after school programs have participated in the restoration project. The seedlings are planted on school grounds, in back yards and in NY District 3 at the American chestnut seed orchard in the Lasdon Park and Arboretum in Somers. The students are shocked by the video when they see the devastation brought by the blight. Some classrooms plant the nut, while others receive new sprouts to mature. They all benefit from being able to actually DO something about preserving this great tree".

She continues: "Our office makes the kit containing the video, cross sections, burs, nuts and the teacher's lesson binder available to borrow. They take two nuts

per student to plant. We plan to make the on-line material known in our fall programming brochure. The specific state educational standards met by the lessons in the binder will be listed next fall".

One of the enthusiastic teachers using the program plans to expand her class participation using the on-line offering** and a class visit to District 3's Lasdon Arboretum.

*Nancy Casewell is a Community Educator in the 4-H Development at Cornell Cooperative Extension in Valhalla, NY. If you would like more information about her work with Charlie Chestnut, contact her at 914-284-4632.

**For TACF's interactive web site, go to www.charliechestnut.org. It builds on the program originated by TACFNY and developed for the web in cooperation with a specialized internet curriculum developer .

**Good Luck-
John Potente**

District 1 is open for a new District Director! John Potente is stepping down at the end of 2002 after seven years of service.

In that time, the Long Island District was activated, regional presentations were given, flowering American chestnut

trees were identified on Long Island, and they were cross-pollinated. Seeds from upstate Districts were germinated and planted in an orchard at Caleb Smith State Park in Smithtown. Additional planting space is available in Planting Fields Arboretum in Nassau County. Those interested in succeeding John should contact either Herb Darling (716-632-1125) or John Potente at (631-361-2102).

**District 8: American Chestnut
Seedlings Available**

Chip Leavy, Director of District 8, reports he has an abundance of one year (8" to 14") American chestnut seedlings that he must move before selling his home this coming spring or summer. They are available to members for \$1.00 each, plus shipping.

"As always," Chip writes, "they are available free plus shipping to civic-type groups (Boy Scouts, Girl Scouts, Conservation groups, etc.)"

If interested, contact Chip Leavy at 457 Palmer Rd., Churchville, NY 14428, phone 585-2932540, e-mail ccnurs@eznet.net.



John Potente (left) is presented with an artistic wood carving of a whale made of American chestnut. The memento was given by Herb Darling, TACFNY president in recognition of John's seven years of service as District 1 Director. The carving was created by William Sutor, a well known artist from Youngstown, NY

Seed Orchard Survey Teams Needed

An update of the orchard surveys begun in 2000 is needed and it is hoped that it can be expedited by having volunteer teams in each district visit all orchards in their area.

There are 55 seed orchards of more than 20 trees on our data base, and we need to know if they are still alive, plus other information.

Mr. Frank Munzer has volunteered to chair this survey work and will welcome volunteers to help on this project. Call him or write to him at the address/phone number below to discuss the plans and offer input.

The first step will be to review the information needed and the criteria to be used so that there is a consistent standard for all to use and consistent methods for recording for our data base. A file of some GPS records is being kept if they are sent in, and it is hoped that the long visualized full map of New York State's American seed orchards can be produced from the work of these volunteer teams.

This is an exciting project, and we hope you can participate.

Frank Munzer, 32 Anderson Rd., Clinton Comers, NY 12514, phone 1-845-266-5138 (H).

Update On "Supertree" Rewards

In 2001, TACFNY began a wider search for a NY State "Supertree" by offering rewards to anyone who located an American chestnut over 14" DBH (\$50 for one 14" to 18" and \$100 for one over 18" DBH, with certain conditions applying). The search and reward was repeated for a second year during 2002.

At this writing the accumulated results for both years amounted to 146 total replies. Of these 84 proved not to be American chestnuts, mostly ornamental buckeyes or Chinese chestnuts. Twenty seven American chestnuts were identified, but were too small to qualify for reward money. Nevertheless, these smaller trees, if they do not die from the blight,

may provide sources for future seed collection. Of the remaining trees, 13 have been proven as American chestnuts, while 8 require leaves, etc. for final positive identification. So far ten reward checks have been sent, of which 2 were for an American chestnut over 18" DBH. A 20.5" DBH was found by Tom Karpovage of the Town of Tonawanda and a check also goes to Stanley Zerniak for his 19.1" DBH tree. These are great finds and may someday grow in size to claim the title of largest "Supertree" in NY State.

WATCH FOR.....

the National Annual Meeting notes from Lacrosse, Wisconsin in the next "BARK". The big 100 feet tall trees were spectacular and the description is worth reading.

Newspaper Clippings Collected By John Ellis, ATACFNY Director

From "The Walton Reporter" 100 years ago, Saturday, Nov. 1, 1902

No Chestnuts This Year

Great Call for the Nut, But Frost Ruined the Crop

There has been a great call in Sidney Centre from other localities for chestnuts this fall, as well as for other nuts. So far as we know there is a total failure of this crop of which there was such an abundance last year. The fact is ascribed to the late frosts of last spring as well as the cold wet season. We would think squirrels and chipmunks would have a small store laid up for the winter.

From "The Deposit Courier" 100 years ago, October 27, 1898

Looking Back

A Windsor boy, while forging in a forbidden chestnut grove on the farm of George Gray was treed by a vicious dog, which had been put on guard. Never was sentry more faithful in the performance of duty. When Mr. Gray returned home at night he was informed the dog had been barking all day and upon investigation found a very tired boy up a tree.



Brian Greenwald (left) receives a \$50 check for finding a 15" DBH American chestnut in a woodlot at his home in Lakewood, NY. Presenting the check are Tom Deacon (center) of Randolph, NY and Bill White (right) of Little Valley, NY. Both are members of TACFNY's Board of Directors.

"Better Than a House Party"...

...that's what someone said at the 12th annual TACFNY Meeting. Small groups were scattered everywhere around the Chestnut Inn at Lake Oquaga in Deposit, NY in late October. They were all talking chestnuts around the fireplaces, in the sunroom and the dining room.

Friday evening was gathering and socializing. Saturday began at 8:00AM with browsing the exhibits and nibbling roasted chestnuts. The meeting began with reports from the Treasurer (we're in the black, but need grants for research); Membership (594 plus 3 new members joining at the meeting); Public Relations (regular media releases); Science (see separate article); and Elections (see list).

A special report on the Supertree Reward Project showed great interest with over 146 responses resulting in 13 new mother trees. This was followed by the always interesting presentations by researchers from the College of Environmental Science and Forestry at Syracuse. (See separate article).

Workshops were given by Dr. Richard Zander on "Field Identification of American chestnuts"; and John "Nut tree" Gordon, well known nurseryman, on "A New Possibility: Discussion of a white fungus which nature may provide as a defense mechanism to counter the blight".

Luncheon included a presentation of plaques to Dr. Craig Hibben, District 3, and Chip Leavy, District 8 Director, in appreciation of their long service and many contributions. An original wood carving was given to Dr. John Potente, District 1 Director, as a farewell gift. Lunch also included a luscious cheesecake with caramel chestnut sauce as dessert.

Our featured luncheon speaker, Dr. Herbert Aldwinckle, Chairman of the Department of Plant Pathology at Cornell University, described the work he is doing on blight resistance

in the apple tree. Some of the approaches relate to the chestnut research, but deal with a different pathogen.

In spite of the rain Saturday afternoon, several went on the field trip to the Windsor Seed Orchard to see the American chestnuts planted in 1996 with our own Harvest Exchange nuts. Everyone then gathered at the Tioga Excursion Train Depot to board the 1930's train for dinner and scenic tip. The food was good, the hilly scenery colorful and the conversations lively. Guitar music, a sing-a-long, and perky waitresses in railroad caps and overalls all added to the enjoyment. During the ride a raffle drawing was conducted by super salesman Beth White.

Back at the Inn, the Harvest Exchange was completed by the very efficient crew plus Member Sharing and more chestnut talk on into the night.

The Sunday AM open Board Meeting included a directive to the Executive Committee to update the Strategic Plan and develop goals for 2003. The Board

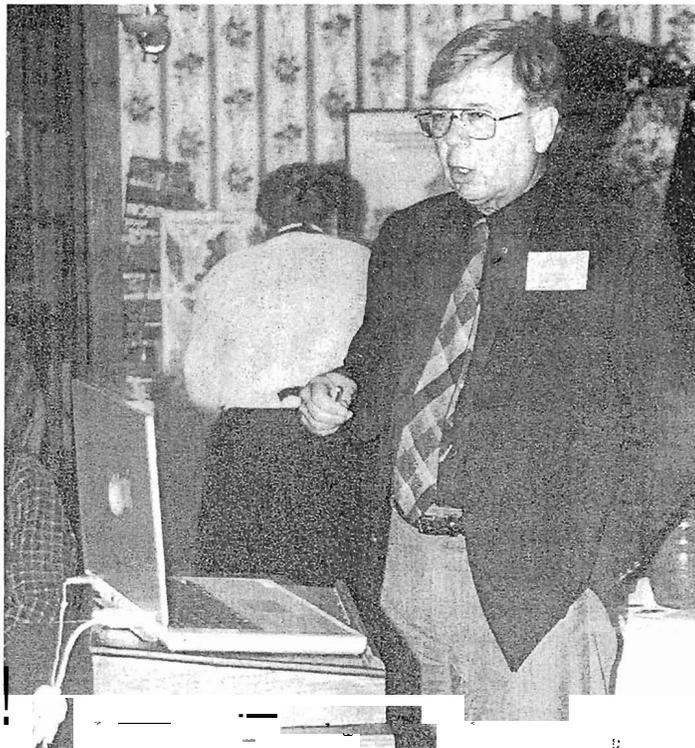
meeting and 12th Annual Meeting were adjourned at 11 :30 AM.

A heart-warming after note: Shortly after the meeting we received a letter beginning.. " I recently attended the TACFNY meeting at the Chestnut Inn in Deposit NY. I "tagged along" with my biology professor husband thinking it would be a nice weekend at Oquaga Lake. I came away inspired and energized to help...I want to educate my adult children about the situation, and encourage them to plant...it's my vision that they in turn will educate our grandchildren...".

That's the spirit that makes the trees grow, and, our Chestnut Family.

Annual Meeting "Thank You"

To our District 7 hosts, especially Roy Hopke, District Director, and John Ellis and Jim Donowick for their much appreciated time and help with the Annual Meeting arrangements . • To the many hard working helpers at the Annual Meeting. It wouldn't have worked without you! • To Mr. Chip Leavy, C&C Nursery, for his donation of American chestnut seedlings. (Two of them will be planted on the grounds of the Chestnut Inn, site of our 12th Meeting.) • To Mr. John Spagnoli for his donation of chestnut honey for the raffle: • To Mr. Bernie Monahan, California Group, friend of NY Chapter, for his donation of a chestnut print for the raffle. • To Mr. John Ellis for the handmade chestnut bird house for the raffle. • To Mr. Herb Darling for the hand made rocking horse for bid. • To Mr. John Gordon for providing and roasting chestnuts for our nibbles. **YOU'RE APPRECLATED!**



The featured speaker at the Annual Meeting Saturday luncheon was Herb Aldwinckle, Professor in the Department of Plant Pathology, Cornell University at Geneva, NY. He was educated in both England and the USA, and he spoke about his research and development of disease resistant apple cultivars and rootstock using biotechnology . In many ways his research parallels TACFNY's gene transfer research.

Ben Weaver, who is 10 years old, wrote the following for a school project:

Defending The Chestnut From The Blight!

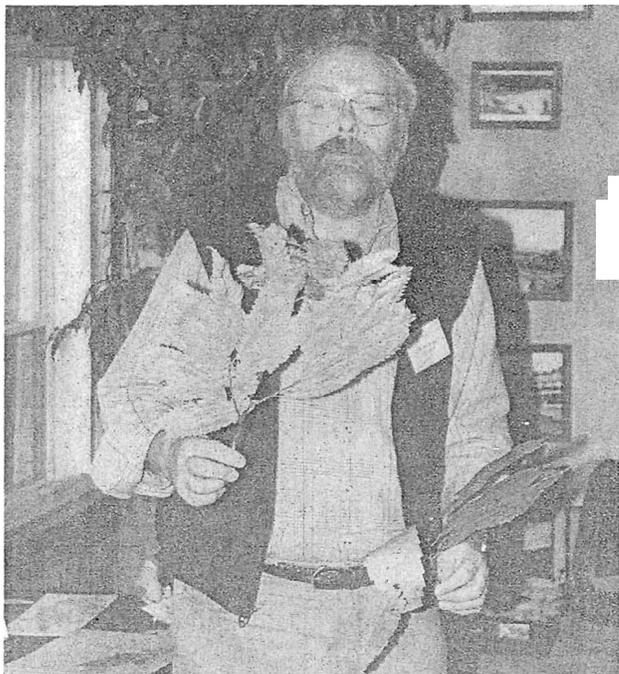
By Ben Weaver

The blight is a chestnut killing virus that was brought over here from China. The blight is a orange powder that is carried by the wind from one tree to another. Once the blight infects a tree it dies slowly. Unless it is a young tree then it dies more quickly.

Now researchers have found a cure for the blight called Jenny gene that came from a chestnut called Charlie. It will be awhile before the first blight resistant tree in planted.

A chestnut comes in a ball sized bur. Do not touch them with out gloves! Ouch! I, Ben Weaver have planted over thirteen trees in the past two years and I have seventeen chestnuts ready to be planted.

If you have opened a bur and have found a fat chestnut inside then put it in a bag with moistened moss and then put it in the refrigerator. When you want to plant it cut two holes in a milk carton, fill it up with dirt and then put the chestnut in root side down. Then water it and watch it grow!



American chestnut identification is no easy task with several competing species from Europe and Asia plus their hybrids. Here, Dr. Richard Zander discusses the nuances of identification at an Annual Meeting workshop. He continues as TACYS taxonomist although he recently moved from Buffalo to St. Louis where he is Taxonomist and Curator at the Missouri Botanical Gardens.

New York State Chapter American Chestnut Foundation

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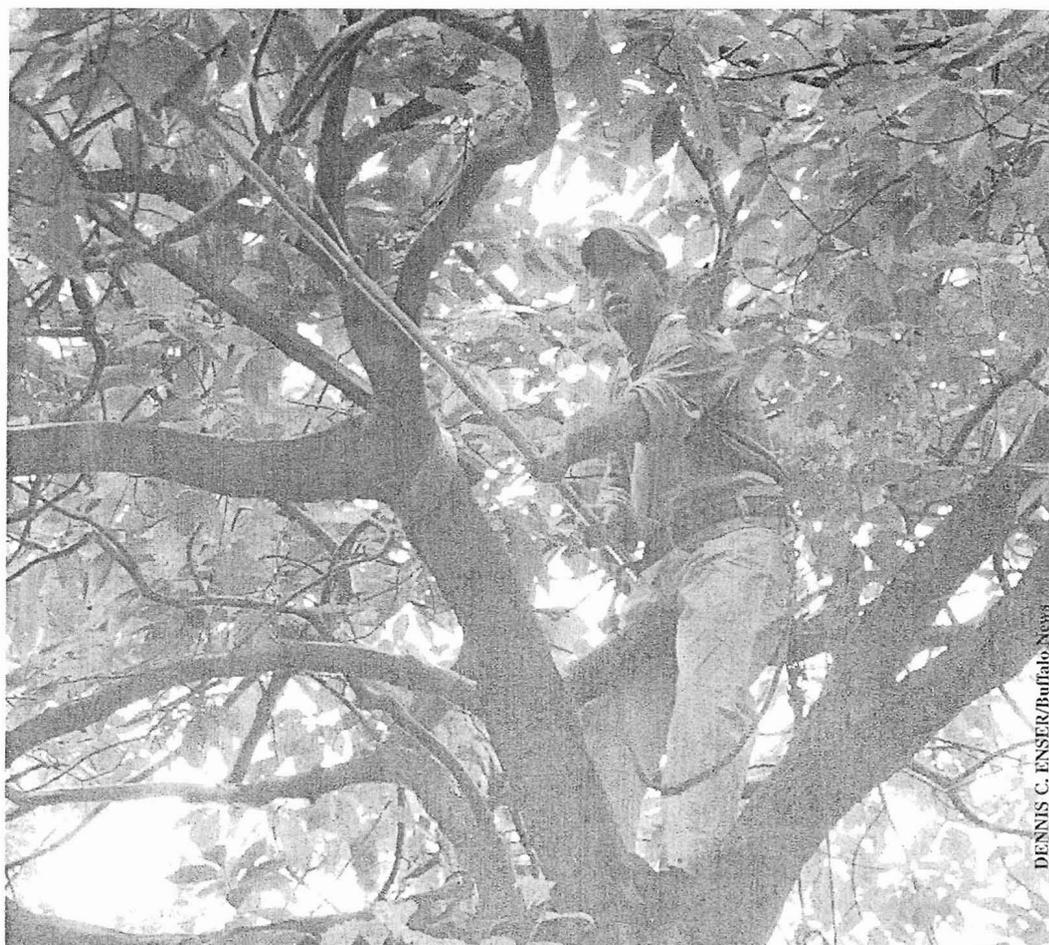
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The Bur
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Chris Bihl extends a long trimming pole to cut burs that contain chestnuts some 40 feet above ground. The nuts were pollinated using catkins collected from trees too far distant for natural fertilization. The nuts will be grown in NYS seed orchards to preserve the genetic line.

DENNIS C. ENSER/Bufalo, N.Y. 88