

# Canadian Chestnut Council (CCC)

... on the Chestnut Trail

Rural Route # 1  
Orangeville, ON., L9W 2Y 8

NEWSLETTER # 24  
October 2000

## The NEWSLETTER of the CANADIAN CHESTNUT COUNCIL (CCC)

The CCC is a non-profit organization with the important mission to restore a threatened species. Since the council's inception in 1988 membership has quadrupled. In other areas it has shown evidence of strong growth and leadership.

The Newsletter has attempted to be a memory of the Council's activities and achievements. It also tries to keep readers informed of its future.

Because the written word may not always be adequate, the CCC annual meeting held every autumn strives to arouse interest in why this once important forest tree should be restored.

Hopefully through these two publicity channels, and the web page on the internet, concerns and needs of the chestnut enthusiasts are met.

Let our motto be - alone each of us can do a little - together we can do much more!

Colin D. McKeen, Editor  
62 Westmorland Ave.  
Orangeville, Ont. L9W 2Y8  
Tel. 1-519-941-9513.

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## LETTERS to the EDITOR

Dear Sir: I have two *Castanea dentata* trees purchased from the Wexford Soil and Water Conservation District, near Cadillac, MI.

One tree is setting its third crop and the other its first. Twenty-four nuts were harvested in 1998 and 27 in 1999. The trees are growing in a fence row in original soil. The two trees are about 20 feet apart and are approximately 7' and 8' high, respectively. I hand pollinate twice a week.

I am growing trees from seed obtained from Virginia and also from locally produced seed. Saplings from these seedlings are being planted at schools in LaSalle, ON and Belle River, ON, and in woodlots.

John Moore,  
540 Road, 34 W  
RR#1, Essex, ON.

## The Canadian Chestnut Council

- Chairman - Dr. Colin D. McKeen  
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### LETTERS to the EDITOR (cont'd)

Mr. Leslie Corkum, 41 Back Road, Falmouth, Nova Scotia, reports that he has successfully made grafts from the two large historical American chestnut trees in the province. These trees have been estimated to be 175 years old. The taller, more stately, tree is located in a wooded area of the Mount Uniacke Museum Estate about 30 km from Halifax. The Ashdale chestnut, a roadside specimen in Hants County was first reported in 1965. Because it grows in the open, it has developed a large spreading crown and is only slightly more than half the height of the Mount Uniacke tree.

[Leslie Corkum is to be congratulated on his efforts to preserve the germplasm of these two blight-free trees - the oldest chestnuts trees in Canada. As a senior citizen, he is admired by his many friends and associates for his abiding interest in the chestnut and for documenting the existence and whereabouts of C. dentata in Nova Scotia --- the Editor]

Word has recently come to the CCC that chestnut outplantings were made in 1999 at several locations in the province of New Brunswick. The seedlings have been grown from nuts obtained from mother trees in Maine, US. These plantings are under the supervision of Professor Rod Savidge, Faculty of Forestry, University of New Brunswick, Fredericton, N.B.

We hope to have a more extended report of the success of the plantings of C. dentata in Nova Scotia and New Brunswick in an upcoming Newsletter.----The Editor

### TWO MATURE TREES in BRUCE COUNTY, ON

Don Price, 21 Dean Ave. Guelph, ON. reported to Council the finding of two mature chestnut trees growing in the Bruce County Forest on Lot 15, Conc. 2, Township of Carrick. This site is on the 44th degree parallel not far from the southeast corner of the County.

Both trees are about 24m (75 feet) tall. The larger tree has a trunk girth at breast height of 184cm (72") and the smaller one of 133cm (52.5"). Both trees support an excellent crown of branches slightly above the canopy of surrounding deciduous and coniferous trees. The age of the trees has been estimated at between 40 and 50 years.

Leaf characteristics suggest that these trees are not true

### C. dentata.

The precious nature of these trees has been made known to Bruce County Forest managers.

**13TH ANNUAL MEETING OF THE CCC**

**Canadian Chestnut Council**

will be held on

SATURDAY, NOVEMBER 4th, 10:30 AM to 4:00 PM

at the

Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA) building

Highway # 59, about 1/2 km north of

Woodstock, Ontario

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**MORNING SESSION**

10:45 - 11:45 Business Meeting

Opportunity to view exhibits made from chestnut.

Lunch break

Some light refreshments

**AFTERNOON SESSION**

1:00 - 4:00

1:00 - 2:00 Dr. Sandra Anagnostakis

Connecticut Agricultural Experiment Station, New Haven, CT.

'Growing Chestnuts and their Problems'

2:00 - 2:30 Questions

Break

2:40 - 3:15 Dr. Adam Dale

University of Guelph, Research Station, Simcoe, ON.

'A Blight Resistance Breeding Program for Ontario'

3:15 - 4:00 Questions and Comments from the Public

4:00 Adjournment

**\*\* You are urged to bring a friend who may be interested in seeing the American Chestnut restored.**

### CHESTNUT HARVEST UPON US

Early reports are at hand to indicate that the current nut crop will not be a bountiful one. Variability probably reflects the situation. Many burrs contain only one nut which indicates poor pollination.

Harvesting and nut storage are important aspects of chestnut growing. Much could be written about it.

Immature unopened burrs may be cut from a branch ten days to two weeks before normal nutfall.

Excised burrs should then be allowed to mature in a rodent-free, cool shelter. By excising the burrs in advance the harvest loss to squirrels, chipmunks and bluejays is minimized. Burrs with unpollinated seeds fall first. These burrs contain only shrivelled, flattened seeds.

Time of nutfall is a characteristic behaviour of individual trees; so also is nut size. Some trees shed their nuts soon after mid - September in S. Ontario; whereas others do so several days later and some up until mid - October.

Most areas of S. Ontario received abundant rainfall this past growing season, consequently, tree growth was good, and the nuts should be well filled and perhaps of a larger than normal size.

At ten days to two weeks after harvesting the nuts should be removed from opened burrs and placed in appropriately labelled heavy plastic bags. Other moisture - proof containers may be used. Refrigerator storage is required immediately. Do not freeze. Handle nuts as little as possible. By excessive handling, a natural preservative is removed from the nut and penicillium mold may develop in storage.

Remember also that nuts losing more than 30% of their moisture, previous to or in storage are unlikely to germinate at planting time.

Many people have had great success by embedding the nuts in a peat moss / sand / vermiculite medium, damp to the touch. Sphagnum moss provides an ideal storage medium.

If dissiccation occurs in storage, it may be necessary to add a small amount of water to the embedding medium to return it to its original moisture content.

Well stored chestnuts may show signs of sprouting by late February and during March. While in storage the sprout grows slowly and should not be a cause for concern even though planting may not take place until May or even June.

As experienced chestnut enthusiasts have come to realize, nut storage is not an exact science. Like cooking, it is somewhat of an art and one needs a bit of luck.

### A LOST BONANZA for WILDLIFE FEASTING

Before its demise, the American chestnut provided a tasty treat to wildlife in the Eastern U.S. Large American chestnut trees were known to produce as many as 6000 nuts every fall. In comparison, white and red oaks were known to produce only 1000 to 2000 acorns. Moreover, acorn crops were produced sporadically.

[The above information was taken from "The Chestnut Tree", September 2000, Pennsylvania Chapter of the American Chestnut Foundation. ---- The Editor

Several of our Canadian forefathers have talked about showers of chestnuts falling in the autumn after a heavy frost and aided by a light wind. The noise of nutfall was particularly memorable when chestnut limbs overhung the roofs of farm buildings.

### INTERESTING EARLY HISTORICAL FACTS about the BLIGHT

In 1904, Dr. H.H. Merkel of the Bronx Zoological Park, N. Y. reported a lethal disease in the Park's American chestnut trees. He reported it to Professor W. A. Murrill of the Bronx Botanical Gardens. Murrill isolated the disease - causing fungus and described it as a new species named Diaporthe parasitica, later renamed Endothia parasitica and now called Chryphonectria parasitica.

The disease spread rapidly within the immediate region of its discovery, over Long Island, up the Hudson River Valley and into Rhode Island, Connecticut and New Jersey. Dr. Murrill and Dr. G. P. Clinton of the Connecticut Agricultural Experiment Station were witness to its rapid spread. Dr. Clinton claimed that the pestilence was temporary and would soon self correct. Others thought differently. Dr. Murrill concluded that no workable plan was available to control or limit the spread of this devastating disease.

The blight was evident in Pennsylvania in 1907. The PA State Forestry Department became active and by 1908 dedicated serious efforts to control the disease. In April 1911, the PA State Legislature authorized the expenditure of \$275,000. to control the disease. A Chestnut Tree Blight Commission was appointed and given broad powers to attempt to eradicate the blight.

Starting with a field force of 30 men, the Commission began its field investigation in August 1911 employing the cut and removal method described in USDA Farmer's Bulletin 467. The Farmer's Bulletin was prepared a year earlier by the US Department of Agriculture at Washington, DC. The plan was to cooperate with owners for the removal of the trees and the eradication of the disease. This broad disease control plan included intensive blight monitoring, cutting and removal of diseased trees, inspection of nursery stocks and extensive public information releases.

Information related to the foregoing was presented at a 2 - day conference in February 1912 at Harrisburg, PA. Invitations had gone out to all the states (24) comprising the natural range of the chestnut, including Canada. The well-attended conference began and ended with optimistic addresses by the Governor of Pennsylvania. However, he was not assured of much support, other than moral, from the other states.

The conference brought to light much new knowledge about the blight fungus. However, it was not settled at that time whether the canker fungus was, or was not, a foreign invader. The evidence that it was a foreign invader came a year later, in 1913 when the disease was found in China. The evidence was clear that it had entered the country through nursery stock importations.

The disease was spreading at an alarming rate of up to thirty miles a year. There was not a single instance where an individual tree or a group of diseased trees was being saved.

The Commission had been given a life span of three years. It had ceased its field operations by the end of 1913. For several reasons it was obvious why the chestnut blight eradication plan was not going to be effective. For certain the Commission prepared with care and planned for the long haul. It was simply overwhelmed by the fungus.

[The foregoing report was summarized from an article prepared by Bill Lord, History Committee Coordinator PA Chapter TACF ---- The Editor]

### COSEWIC STUDY

To obtain government funding (Federal or Provincial) for research re: restoring threatened and endangered wildlife species enabling legislation insists on a Recovery Plan. The Chestnut Recovery Plan as drafted for COSEWIC (Committee on the Status of Endangered Wildlife in Canada) is moving through its final review channels. The study report has been co-chaired by Drs. Greg Boland and John Ambrose. Its final acceptance will give political sanction to the restoration program for the threatened American chestnut.

Blight resistance breeding is put forth as one of the important tools in chestnut restoration.

## Breeding Blight Resistant American Chestnuts for Ontario

Adam Dale  
Department of Plant Agriculture- Simcoe  
University of Guelph,

Over the last year the directors of the Canadian Chestnut council and I have been discussing the feasibility of breeding blight resistant chestnuts for Canada. We have now agreed on a plan which we feel is practical and meets the concerns that people have about the genetic purity of the Canadian populations of the American chestnut (*Castanea dentata*).

Our plan is to breed Canadian adapted, blight resistant chestnuts which are at least 88% derived from Canadian trees, within 20 years. We can set a goal that is this ambitious because researchers elsewhere have been able to identify blight resistant trees, and modern genetic molecular marker techniques will allow us to accurately assess pedigrees of selected trees.

To achieve our goal we will be using three generations of intercrossing involving blight resistant hybrids of which one parent in the F1 ( first generation) will be a Canadian tree. All hybrids in the first generation will be 50% Canadian. These hybrids will be intercrossed and trees ( the F2 or second generation) selected which will be at least 75% Canadian. The F2 hybrids will then be intercrossed and trees selected which will be at least 87.5% Canadian.

This year we will be selecting at least twenty suitable *C. dentata* trees in Ontario to be the female trees for the first crosses. Twenty trees are a large enough sample to maintain the genetic diversity in the breeding population, and few enough to be handled feasibly when they need to be pollinated.. Remember, these trees could be anywhere in southern Ontario. We will be using them as the female parent as this way we will maintain the Canadian non-nuclear genes, since they are inherited maternally.

For the blight resistant parents, we will be using trees which are derived from Chinese (*C. mollissima*) or Japanese (*C. crenata*) chestnuts. These have a high level of resistance that is inherited by 2 or 3 genes which are partially dominant in their expression. Researchers feel that there may be low level resistance in the American chestnut, but resistant trees have not been identified by resistance tests and the inheritance characterized.

We have been offered known, back-crossed trees which are intermediate in their blight resistance, derived from chestnuts native to the northern US, and are thought to be at least 90 % American *C. dentata*. We will be using only trees which have been tested for their blight resistance as the resistant parent. Since we will be using resistant trees that already contain *C. dentata* germplasm we will end up with trees that will be almost pure *C. dentata*.

In the first generation, we will be selecting trees that are moderately resistant and this will take 7 or 8 years. We will need to test between 250-500 five year-old trees to obtain the 20 moderately resistant trees needed for the F2 generation. The exact number depends on whether we use the two or three gene model for blight resistance. Because we will be selecting only moderately resistant trees, they will need to be planted 20ft x 7ft apart and this will require 1-2 acres of land.

In the F2 generation, we will be selecting both for high levels of blight resistance and trees which are at least 75%. To meet these goals we will have to test 1500 trees to have a 95% chance of picking one tree which meets our requirements, or 30,000 trees to get the 20 we require. As we will be selecting trees with high levels of resistance, they can be planted closer together and tested for blight resistance after only two years. To handle this number of trees requires about 15 acres of land, although this can be reduced if we use genetic marker techniques to identify the trees with high Canadian content before we plant them. However, we should be able to select the trees from this generation in half five years.

This is an ambitious project which will require much effort from many dedicated people. It is true that a large number of trees will be screened in the F2 generation. But there is a trade-off between number of plants and time, and the directors feel that the aim should be to introduce blight resistant trees as quickly as we can. Fortunately, few trees are needed in the F1 generation, so there is time to get organized for the F2 generation.

This coming year, the following tasks need to be accomplished:

- locate surviving trees in Ontario that can be used as parents and obtain whatever permissions we need
- locate pollen parents for the F1 generation
- collect all the materials needed to do the crosses
- start negotiations for a land base, and
- start planning to obtain the funding needed.

I feel sure that this can be done to give the project a strong start.

IN MEMORIAM:  
JOHN BLAKE GARTSHORE BSA, MC.  
1914 - 2000

John B. Gartshore, a charter member of the Canadian Chestnut Council (CCC), passed away quietly at his home in Ancaster, Ontario on 13 August 2000.

John was a graduate of Ridley College, St. Catharines. Then he attended the Ontario Agricultural College, Guelph and obtained a BSA degree in 1937.

He served as an officer in the Royal Hamilton Light Infantry in WW II. For his brave action in the Dieppe Raid in 1942 he was awarded the Military Cross. After a post-war responsibility with the Department of Veterans' Affairs he took possession of his ancestral property, Auchinburn Farm, at Ancaster. His abiding love of nature was reflected in the Carolinian Floral species growing on the farm. Many of the hardwood trees existing on the property today, he had planted.

As a young lad he had gathered chestnuts every autumn from the farm's good supply of trees. He never lost his love for the American chestnut and all its rich bounties available to mankind. Periodically he operated his sawmill on the farm and prized the fine qualities of the chestnut lumber.

He was one of the first directors appointed to the CCC in 1988, and for ten years brought to the directorate his abiding interest and enthusiasm for restoration of the tree. In 1997, he was named an Honorary Director.

John maintained that if much of the research conducted in the USA to develop resistance to chestnut blight had not been discontinued from 1950 to 1970, seeds of a blight-resistant forest tree would be available for planting before the turn of the century.

For the CCC, the spirit of John will live on in its undertakings to restore this former forest monarch.



Photographed in 1996 is John Gartshore kneeling behind a coffee table he had made from chestnut lumber.

The Editor



**CCC MEMBERSHIP RENEWAL an APPEAL for NEW MEMBERS**

The membership in the CCC has reached a total of **189**. Thirty one new members have been added during the first six months of the current year. This is encouraging to our directorate.

Your suggestions and enquiries are appreciated. You might have some particular talent that you might offer to help our project on its way. Let us know.

If you haven't submitted your annual dues or made a financial contribution, please do so at your earliest convenience. Your membership status is shown beside your name on the address label on the mailing envelope in which you received this Newsletter. The two numbers following your name are the last two numbers of the year that you have paid up to and including Dec. 31 of that year.

For example:

John Smith **00**  
123 Chestnut Street  
Ourtown, ON

Would mean that John is paid up until Dec. 31, 2000

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*The Canadian Chestnut Council*

Membership            Regular \$10.00 \_\_\_\_\_ ,            Contributing \$25.00 \_\_\_\_\_ .

Make cheque payable to; Canadian Chestnut Council, c/o R. Pamenter, RR# 1, Orangeville, ON., L9W 2Y8.

Name \_\_\_\_\_

Do you know of any unrecorded chestnut trees? \_\_\_\_\_

Address \_\_\_\_\_

If yes, please give location, size and condition.

Telephone \_\_\_\_\_

Other comments and suggestions re; aiding and promoting the Council's objectives. \_\_\_\_\_

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