

ARNOLDIA



A continuation of the BULLETIN OF POPULAR INFORMATION of the Arnold Arboretum, Harvard University

VOLUME 14

SEPTEMBER 24, 1954

NUMBER 8

HURRICANE "CAROL" IN THE ARNOLD ARBORETUM

THE morning of August 31 dawned with rain-laden clouds and moderate winds. By 9 A.M. the hurricane warnings were coming over the radio, but in the Arnold Arboretum the winds did not build up until near noon. At 11 A.M. a quick trip through driving rain disclosed little damage. A half hour later a few branches were noted as broken and one or two trees were blown over. During the next hour, the lights in the administration building went out and telephone connection was severed. Once again I took a quick trip about the grounds shortly after noon. This time there were many trees blown over and the Arboretum road became blocked during the few minutes I drove around. Most of the serious damage to the Arboretum plantings occurred at about this time for shortly after 12.30 the sun appeared for a few minutes and the winds, although strong, were not the previous heavy hurricane gusts of about 125 miles per hour.

There had not been much rain prior to this storm for the soil under the roots of fallen trees was very dry. This was just the reverse of the situation in the 1938 hurricane when heavy rains of nearly a week had preceded the storm and trees were easily blown over because of the muddy soil about the roots.

Hurricane "Carol" did a great deal of damage to the trees in the Arboretum and it will take many months of pruning to correct the damage done to trees still left standing. The "whipping" damage done to branches of standing trees seems to have been greater this time than it was in 1938, but otherwise the statistics concerning the fallen trees are heartening.

Approximately 300 trees were blown over or otherwise irreparably damaged in the Arboretum in Jamaica Plain, as compared with 1490 in the 1938 hurricane. An additional 43 trees were blown down (with roots exposed) but were replanted, staked, watered, pruned and fertilized within three days after the storm. An additional 63 trees were tilted over by the high winds, but had no roots exposed. All these were staked and watered within ten days after the storm. Consequently,

of approximately 400 trees severely damaged, 25% were salvaged and properly cared for by the regular Arboretum crew of eight men within ten days, and all should live. These were all it was possible to salvage.

Other figures are even more heartening. Seven of the downed trees that were not duplicated in the collections, were propagated at once so that the clonal line would not be lost. Of all the trees which must be removed, only 7 are not duplicated in the collections and none of these are valuable clones. Duplicates, or propagation material can be found in other arboretums if we want to grow them again.

Trees that grow with dense branching, and in exposed situations were most susceptible to the freak gusts. Most trees were blown down in a northerly or northeasterly direction. Trees with rotted trunks or poor crotches were of course susceptible to injury. Firs, spruces and lindens seemed to suffer most because of their dense branching habit, and the poplars were badly injured, not because of their weak wood but also because the areas in which they were growing were exposed to the south. One interesting fact appeared however, and that was that in the *Malus* collection, in the same exposed area where poplars, firs and spruces were blown over, few of the *Malus* were broken off or blown down. Many had their roots loosened but were saved by the prompt attention of the grounds force.

It is impossible to estimate the damage done in the Arboretum in dollars and cents. Suffice it to say that with the purchase of two additional chain saws and a brush chipper, it is estimated that the fallen trees and branches can be removed by the present grounds force of eight men, within the current year's budget. It is true that many beautiful trees have been destroyed, but it is most fortunate that no valued species and varieties have been lost, and that the immediate damage can be repaired by the present grounds force and within current Arboretum funds available.

The removal of this debris will take most of the time of the grounds force during the next weeks, and battered trees left standing will be evident for months to come, so that other work planned for this fall must be put off. However, the damage could have been far worse. No beautiful vistas have been irreparably damaged, and after the debris has been cleared away the Arboretum will still remain America's greatest garden.

DONALD WYMAN

P. S. Since writing the above, Hurricane "Edna" has blown through but did only 15% of "Carol's" damage.

Note—The next bulletin will contain information on the caring for injured trees, and a list of some which seem to be more resistant to wind breakage than others.

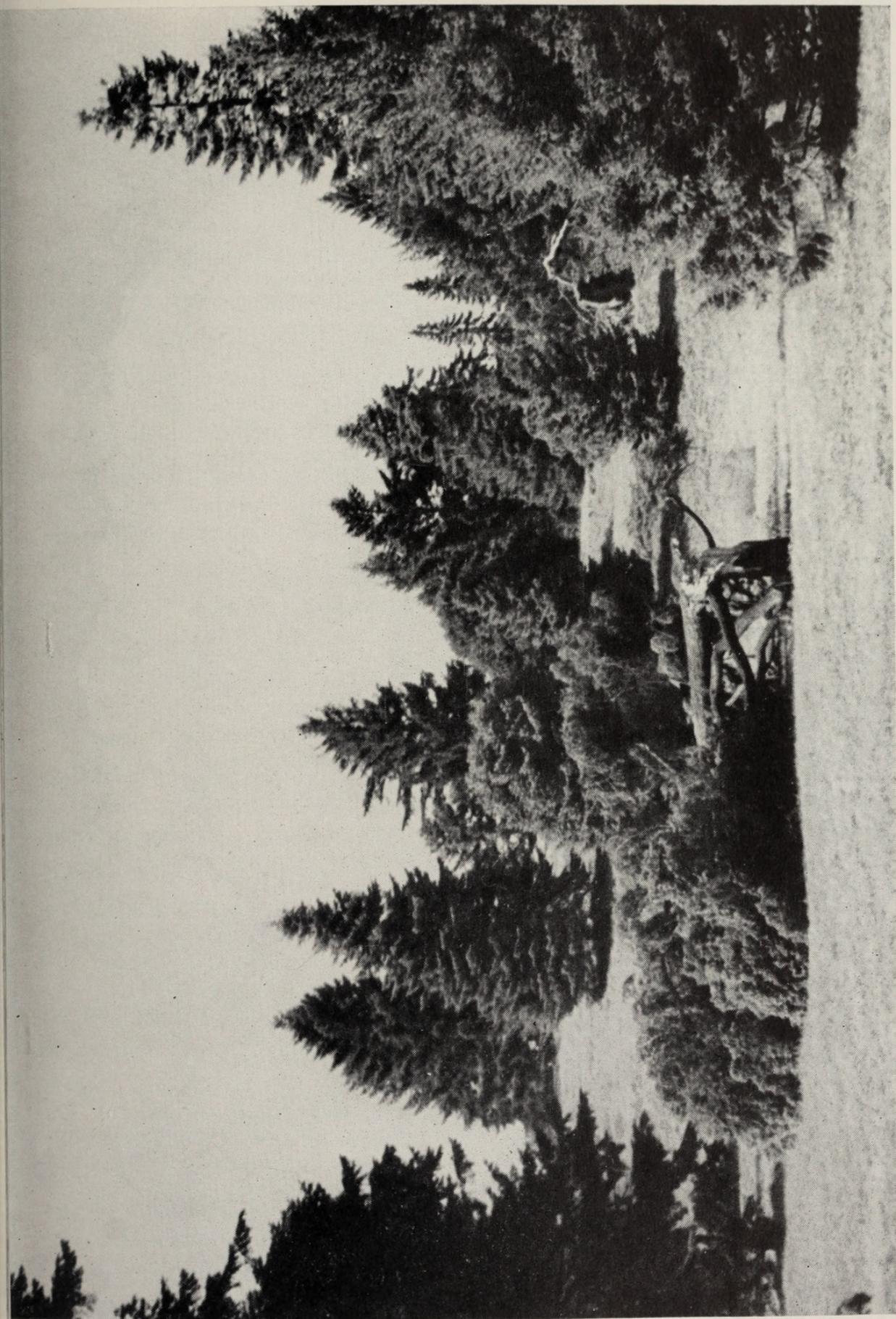


PLATE VII

A white fir (*Abies concolor*) the trunk of which was 36'' in diameter, broken off in the Arnold Arboretum by hurricane "Carol," August 31, 1954.

HURRICANE LOSS

Some of the trees blown over or so badly damaged they will have to be removed

<i>Abies amabilis</i> (1)	<i>Picea pungens</i> (1)
<i>Abies cilicica</i> (2)	<i>Picea rubens</i> (1)
<i>Abies concolor</i> (10)	<i>Pinus echinata</i> (2)
<i>Abies nephrolepis</i> (1)	<i>Pinus lambertiana</i> (1)
<i>Abies sachalinensis</i> (2)	<i>Pinus nigra</i> (1)
<i>Acer grandidentatum</i>	<i>Pinus resinosa</i> (1)
<i>Acer platanoides</i> vars. (3)	<i>Pinus strobus</i> (1)
<i>Acer rufinerve</i> (1)	<i>Populus acuminata</i> (1)
<i>Acer</i> "Weir Maple" (1)	<i>Populus alba</i> (1)
<i>Aesculus hippocastanum</i> (2)	<i>Populus berolinensis</i> (1)
<i>Amelanchier canadensis</i> (1)	<i>Populus canadensis</i> (4)
<i>Carya buckleyi arkansana</i> (2)	<i>Populus canadensis regenerata</i> (1)
<i>Carya cordiformis</i> (1)	<i>Populus candicans</i> (2)
<i>Carya glabra</i> (1)	<i>Populus generosa</i> (4)
<i>Carya tomentosa</i> (1)	<i>Populus jacki</i> (1)
<i>Carya</i> "Small Nut" (1)	<i>Populus nigra</i> (1)
<i>Carya</i> "Weiker Hickory" (1)	<i>Populus robusta</i> (2)
<i>Castanea mollissima</i> (1)	<i>Populus trichocarpa</i> (1)
<i>Catalpa speciosa</i> (2)	<i>Prunus padus alberti</i> (1)
<i>Cedrus libani</i> (1)	<i>Pseudotsuga taxifolia glauca</i> (3)
<i>Celtis bungeana</i> (1)	<i>Ptelea trifoliata aurea</i> (1)
<i>Cercis canadensis</i> (1)	<i>Pyrus ussuriensis ovoidea</i> (1)
<i>Cladrastis lutea</i> (1)	<i>Quercus alba</i> (1)
<i>Cornus controversa</i> (1)	<i>Quercus bicolor</i> (2)
<i>Cornus florida</i> (1)	<i>Quercus heterophylla</i> (1)
<i>Cotinus americanus</i> (1)	<i>Quercus imbricaria</i> (2)
<i>Crataegus crus-galli</i> (2)	<i>Quercus lodoviciana microcarpa</i> (1)
<i>Crataegus phaenopyrum</i> (1)	<i>Quercus macrocarpa</i> (1)
<i>Crataegus punctata</i> (1)	<i>Quercus mongolica</i> (1)
<i>Elaeagnus multiflora ovata</i> (1)	<i>Quercus montana</i> (1)
<i>Eucommia ulmoides</i> (2)	<i>Quercus schuettei</i> (1)
<i>Evodia danielli</i> (our oldest plant)	<i>Quercus velutina</i> (2)
<i>Fagus sylvatica atropunicea</i> (1)	<i>Rhus copallina</i> (1)
<i>Fraxinus americana</i> (2)	<i>Robinia hispida x pseudoacacia</i> (1)
<i>Fraxinus pennsylvanica</i> (2)	<i>Robinia kelseyi floribunda</i> (1)
<i>Fraxinus tomentosa</i> (1)	<i>Sorbus hybrida</i> (1)
<i>Gymnocladus dioicus</i> (2)	<i>Syringa</i> "Ellen Willmott" (1)
<i>Hamamelis intermedia</i> (1)	<i>Tilia americana</i> (3)
<i>Juniperus virginiana</i> (1)	<i>Tilia amurensis</i> (1)
<i>Larix leptolepis</i> (1)	<i>Tilia flavescens spaethi</i> (1)
<i>Liriodendron tulipifera</i> (2)	<i>Tilia moltkei</i> (1)
<i>Magnolia acuminata</i> (1)	<i>Tilia oliveri</i> (1)
<i>Magnolia fraseri</i> (1)	<i>Tilia petiolaris</i> (1)
<i>Malus fusca integrifolia</i> (1)	<i>Tilia platyphyllos sphaerocarpa</i> (1)
<i>Malus</i> "Excellenz Thiel" (1)	<i>Tilia platyphyllos tortuosa</i> (1)
<i>Paulownia tomentosa</i> (2)	<i>Tilia tomentosa</i> (1)
<i>Picea abies</i> (3)	<i>Tsuga caroliniana</i> (5)
<i>Picea asperata</i> (1)	<i>Ulmus americana</i> (1)
<i>Picea glauca</i> (3)	<i>Ulmus parvifolia</i> (1)
<i>Picea mariana</i> (2)	<i>Viburnum</i> "Hahs" (1)
<i>Picea obovata fennica</i> (1)	<i>Salix</i> (15)
<i>Picea omorika</i> (2)	



Wyman, Donald. 1954. "Hurricane "Carol" in the Arnold Arboretum." *Arnoldia* 14(8), 37–40.

View This Item Online: <https://www.biodiversitylibrary.org/item/217483>

Permalink: <https://www.biodiversitylibrary.org/partpdf/249405>

Holding Institution

Harvard University Botany Libraries

Sponsored by

BHL-SIL-FEDLINK

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Arnold Arboretum of Harvard University

License: <http://creativecommons.org/licenses/by-nc-sa/4.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.