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THE LEAF-COLLECTOR'S HAND-BOOK AND HERBARIUM

AN AID IN THE PRESERVATION AND IN THE CLASSIFICATION OF SPECIMEN LEAVES OF THE TREES OF NORTHEASTERN AMERICA

BY

CHARLES S. NEWHALL

AUTHOR OF "THE TREES OF NORTHEASTERN AMERICA," ETC.

ILLUSTRATED

G. P. PUTNAM'S SONS

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PREFACE.

The leaves described and pictured in the following pages represent all the native trees, and the most important introduced and naturalized trees of Northeastern America,*—with the few exceptions named on page 213.

Those species are considered trees (in distinction from shrubs) which, as a rule, spring from the ground with a single branching trunk.†

How to use the book will be readily understood by consulting the following directions.

* The names of introduced and naturalized species are enclosed in brackets.

† "Trees of Northeastern America," page 4.

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2. have be
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DIRECTIONS.

1. *How to find the names of specimens.*—Compare any given specimen, first with the descriptions in the "Guide," on pages xiv and xv, and then with the illustrations to which the "Guide" directs.*

2. *How to mount specimens.*—When the specimens have been pressed and *thoroughly dried*, and all their thick stems removed or pared, they should be fastened in their places opposite the corresponding illustrations, with strips of gummed paper an eighth of an inch or less in width.†

The compound leaves and the simple leaves, when they are larger than the allotted space, should be represented by sections of the leaf.

3. *How to preserve specimens.*—If the collection is attacked by insects, each leaf should be brushed lightly with a *saturated solution of corrosive sublimate and alcohol, increased by two thirds more of alcohol.*

4. *Notes.*—Interest and value will be added to the collection if full memoranda are kept of dates, localities, name of the finder, incidents, characteristics of the tree, etc.

5. It should be remembered that leaves from vigorous young sprouts are not usually the best specimens. It is seldom that two leaves, even upon the same mature branch, exactly agree, but they follow the type, while often the younger growth varies from it.‡

* If fuller descriptions and comments are desired, they can be found in the author's work on "The Trees of Northeastern America."

† A supply of gummed paper will be found at the end of the volume.

‡ "The Trees of Northeastern America," page 4.

A-

Magnolia . . .
Asimina . . .
Cercis . . .
Nyssa . . .
Diospyros . . .
Sassafras . . .

Z

Tilia . . .
Ilex . . .
Prunus . . .
Pyrus . . .
Crataegus . . .
Amelanchier . . .
Oxydendrum . . .
Ulmus . . .
Celtis . . .
Morus . . .
Broussonetia . . .
Platanus . . .
Betula . . .
Ostrya . . .
Carpinus . . .
Castanea . . .
Fagus . . .
Salix . . .
Populus . . .

LIST OF GENERA.

A—I		III (a)			
	PAGE		PAGE		PAGE
Magnolia	3	Liriodendron	85	Larix	155
Asimina	7	Quercus	87	Chamaecyparis	157
Cercis	9			Thuja	157
Nyssa	11	(b)		Juniperus	159
Diospyros	13	Liquidambar	115		
Sassafras	15				
II		B—I		D—I	
Tilia	19			Ailanthus	163
Ilex	21	Cornus	119	Robinia	165
Prunus	23	Chionanthus	123	Gymnocladus	167
Pyrus	27	Catalpa	125	Gleditschia	169
Crataegus	29			II	
Amelanchier	35			Rhus	173
Oxydendrum	37	III		Pyrus	127
Ulmus	39	Viburnum	120	Juglans	179
Celtis	41			Hicoria	181
Morus	43				
Broussonetia	43	Acer	133		
Platanus	45			E—I—II	
Betula	47			Negundo	193
Ostrya	53	C		Fraxinus	195
Carpinus	55				
Castanea	57	Pinus	145		
Fagus	59	Picea	149	F	
Salix	69	Tsuga	153		
Populus	71	Abies	155	Esculus	207

GUIDE.

Leaves, simple : *	{	alternate†	{	edge entire.	Go to A—I	
				" toothed.	" A—II	
				" lobed	Lobes, entire.	Go to A—III (a
					Lobes, toothed.	" A—III (b
				opposite	{	{
" toothed.	" B—II					
" lobed	Lobes, entire.	Go to B—III (a				
	Lobes, toothed.	" B—III (b				
Indeterminate.						

Leaves, compound :	{	feather-shaped †	{	alternate,	edge	{	entire.	Go to D—I			
							toothed.	" D—I			
							opposite,	edge	{	entire.	Go to E—I
										toothed.	" E—I
							hand-shaped §	{	opposite,	edge	toothed.

* The leaflets of a compound leaf can be distinguished from a simple leaf by absence of leaf-buds from the base of their stems.

† Referring to the arrangement of the leaves on the branch.

‡ *E. g.*, as in the hickories, sumachs, etc.

§ *E. g.*, as in the horse-chestnut, etc.

Magnolia
Papaw
Gum, sou
Judas-tre
Persimmon
Sassafras
Oak, will
Dog-woo
Willow,

Basswood
Hollies
Cherries
Plum .
Crab-app
Thorns
Shad-bus
Sorrel-tre
Elms .
Hackberry
Mulberry
Mulberry
Button-w
Birches
Hornbear
Hornbear
Chestnut
Beech .
Willows
Poplars
Oaks, che

GUIDE (*Continued*).

NOTE.—Names in *italics* are given also under another division.

A—I		III (a)		D—I	
	PAGE		PAGE		PAGE
Magnolias	6-8	Tulip-tree	98	Ailanthus	186
Papaw	10	Oaks	101	Locusts	188-190
Gum, sour	12	<i>Sassafras</i>	18	Coffee-tree, Kentucky, .	190
Judas-tree	12	<i>Button-wood</i>	53	Locust, honey	192
Persimmon	16			Sumach, poison	198
<i>Sassafras</i>	18	(b)			
Oak, willow	126	Gum, sweet	130	II	
Dog-wood, alt. leaved .	136	Poplar, silver-leaf . .	94	Sumach, staghorn . . .	196
<i>Willow, long-beaked</i> .	78	<i>Mulberry</i>	50	Ash, mountain	200
II		<i>Mulberry, paper</i> . . .	52	Walnut, black	203
Basswoods	22-24	<i>Oaks</i>	101	Butternut	204
Hollies	24-26	B—I		Hickories	206-214
Cherries	27-28	Dog-wood, flowering .	134	<i>Locust, honey</i>	192
Plum	30	Fringe-tree	138		
Crab-apple	32	Catalpa	140	E—I	
Thorns	34-38	II		<i>Ash, red and white,</i> .	220-222
Shad-bush	40	Black haw	144	II	
Sorrel-tree	42	Viburnum, sweet . . .	146	Ash-leaved maple . . .	218
Elms	44-47	III (a)		Ash, black, blue, green,	
Hackberry	48	(b)		red, and white	220-228
Mulberry	50	Maples	148-156		
Mulberry, paper . . .	52	C—I		F—I	
Button-wood	53	Pines, cedars, spruce,		Buckeyes	232-234
Birches	55-62	etc.	160	Horse-chestnut	234
Hornbeam, Hop . . .	64				
Hornbeam	66				
Chestnut	68				
Beech	70				
Willows	72-83				
Poplars	84-94				
Oaks, chestnut	101				

from a simple leaf by

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LEAVES

A (

I (e

Magnolias

Papaw .

Gum, sour

Judas-tree

Persimmon

Sassafras .

Oak, willow

Dogwood, a

Willow, lon

II (e

Basswoods

Hollies .

Cherries .

Plum . .

Crab-apple

Thorns .

Shad-bush

Sorrel-tree

Elms . .

Hackberry

Mulberry .

Buttonwood

Birches .

Hornbeam, l

Hornbeam

Chestnut .

Beech . .

Willows .

Poplars .

Oaks, chestn

Guide.

XV

GUIDE (Continued).

NOTE.—Names in *italics* are given also under another division.

LEAVES—SIMPLE		III (edge lobed)		LEAVES—COMPOUND	
A (alternate)		(a) (lobes entire)		I feather-shaped	
I (edge entire)		PAGE		D (edge alternate)	
PAGE		Tulip-tree		I (entire)	
Magnolias	3	Oaks		PAGE	
Papaw	7	Sassafras		Ailanthus	163
Gum, sour	11	Buttonwood		Locusts	165
Judas-tree		(b) (lobes toothed)		Coffee-tree, Kentucky .	167
Persimmon	13	Gum, sweet		Locust, honey	169
Sassafras	15	Poplar, silver-leaf . .		Sumach, poison	175
Oak, willow	111	Mulberry		II (edge toothed)	
Dogwood, alt.-leaved .	121	Oaks		Sumach, staghorn . . .	173
Willow, long-beaked .	67	B (opposite)		Ash, mountain	177
II (edge toothed)		I (edge entire)		Walnut, black	179
Basswoods	19	Dogwood, flowering .		Butternut	179
Hollies	21	Fringe-tree		Hickories	181
Cherries	23	Catalpa		Locust, honey	169
Plum	25	II (edge toothed)		E (opposite)	
Crab-apple	27	Black haw		I (edge entire)	
Thorns	29	Viburnum, sweet . .		Ash, red and white . .	
Shad-bush	35	III (edge lobed)		II (edge toothed)	
Sorrel-tree	37	(a) (lobes entire)		Ash-leaved maple . . .	
Elms	39	(b) (lobes toothed)		Ash, black, blue, green,	
Hackberry	41	Maples		red, and white, 195-203	
Mulberry	43	C (indeterminate)		2 hand-shaped	
Buttonwood	45	I		F (opposite)	
Birches	47	Pines, cedars, spruce,		I (edge toothed)	
Hornbeam, Hop	53	etc.		Buckeyes	
Hornbeam	55	PAGE		Horse-chestnut	
Chestnut	57	145			
Beech	59				
Willows	61				
Poplars	79				
Oaks, chestnut	95				

TR

TREES WITH SIMPLE LEAVES

LEAVES ALTERNATE

(EDGE ENTIRE)

A I

Fig. 1.—Cucumber Tree. (*M. acuminata*, L.)

Fig. 2.—Sweet Bay. (*M. glauca*, L.)

NATURAL SIZE.

Fig. 3.—Umbrella Tree. (*M. tripetala*, L.)
ONE THIRD NATURAL SIZE.

LEAF,

Fig. 4.—Papaw. *A. triloba* (L.), Dunal.
LEAF, NATURAL SIZE. FRUIT, TWO THIRDS NATURAL SIZE.

Fig. 5.—Red Bud. (*C. Canadensis*, L.)
NATURAL SIZE.

Fig. 6.—Sour Gum. (*N. sylvatica*, M_s sh.)
NATURAL SIZE.

Fig. 7.—Persimmon. (*D. Virginiana*, L.)
NATURAL SIZE.

Fig. 8.—Sassafras. (*S. officinale*, Nees.)
NATURAL SIZE.

TRI

TREES WITH SIMPLE LEAVES

LEAVES ALTERNATE

CONTINUED

(EDGE TOOTHED)

A II

Fig. 9.—Basswood. (*T. Americana*, L.)
NATURAL SIZE.

Fig. 10

Fig. 11

Fig. 10.—American Holly. (*I. opaca*, Ait.)

Fig. 11.—*I. monticola*.

NATURAL SIZE.

Fi
Fig

Fig. 12

Fig. 13

Fig. 12.—Wild Black Cherry. (*P. serotina*, Ehr.)
 Fig. 13.—Wild Red Cherry. (*P. Pennsylvanica*, L.)
 NATURAL SIZE.

Fig. 14.—Wild Plum. (*P. Americana*, Marsh.)
NATURAL SIZE.

Fig. 15.—Crab-Apple. (*P. coronaria*, L.)
NATURAL SIZE.

Fig

Fig. 16

Fig. 17

Fig. 16.—White Thorn and Fruit. (*C. coccinea*, L.)
 Fig. 17.—Black Thorn. (*C. tomentosa*, L.)
 NATURAL SIZE

Fig. 18.—Common Thorn. (*C. punctata*, Jac.)
NATURAL SIZE.

Fig. 19.—Cockspur Thorn. (*C. crus-galli*, L.)
NATURAL SIZE.

Fig.

Fig. 29.—Shad-bush. *A. Canadensis* (L.), Medik.
NATURAL SIZE.

Fig. 21.—Sorrel Tree. *O. arborea* (L.), D. C.
NATURAL SIZE.

F

Fig. 22

Fig. 23

Fig. 22.—White Elm. (*U. Americana*, L.)
Fig. 23.—Slippery Elm. (*U. fulva*, Michaux.)

NATURAL SIZE.

Fig. 24.—Hackberry. (*C. occidentalis*, L.)
NATURAL SIZE.

Fig. 25.—Red Mulberry. (*M. rubra*, L.)
NATURAL SIZE.

Fig. 26.—Buttonwood. (*P. occidentalis*, L.)
NATURAL SIZE.

Fig. 27

Fig. 28

Fig. 27.—White Birch. (*B. populifolia*, Marsh.)
Fig. 28.—Paper Birch. (*B. papyrifera*, Marsh.)

NATURAL SIZE.

Fig. 29

Fig. 30

Fig. 29.—Red Birch. (*B. nigra*, L.)

Fig. 30.—Yellow Birch. (*B. lutea*, Michaux, f.)

NATURAL SIZE.

Fig. 31.—Sweet Birch. (*B. lenta*, L.)
NATURAL SIZE.

Fig. 32.—Hop-Hornbeam. *O. Virginiana* (Mill), Willd.

a. Leaves. *b.* Fruit.

NATURAL SIZE.

(a)

(b)

Fig. 33.—Hornbeam. (*C. Caroliniana*, Walt.)

a. Fruit scales. b. Leaves.

NATURAL SIZE.

Fig. 34.—Chestnut. *C. Sativa* (L.), var. *Americana* (Michaux), Sarg.
NATURAL SIZE.

Fig. 35.—Beech. (*F. ferruginea*, Ait.)
NATURAL SIZE.

Fig. 36.—Black Willow. (*S. nigra*, Marsh.)
a. Commonest form. b. Large form.
NATURAL SIZE.

Fig.

Fig. 37.—Scythe-leaved Willow. (*S. n.*, var. *falcata*, Torr.)

a. Stipules. A. Leaves.

NATURAL SIZE.

Fig. 33.—Shining Willow. (*S. lucida*, Muhl.)
NATURAL SIZE.

Fig. 39.—Long-beaked Willow. (*S. rostrata*, Richards.)
NATURAL SIZE.

Fig.

Fig. 4

Fig. 40.—White Willow. [*S. alba*, L.]

Fig. 41.—Yellow Willow. [*S. a.*, *vitellina*, S. and B.]

a. Young leaf. b. Mature leaf.

Fig. 42.—Weeping Willow. [*S. Babylonica*, Torr.]

Fig. 43.—Crack Willow. [*S. fragilis*, L.]

NATURAL SIZE.

Fig. 44.—Aspen. (*P. tremuloides*, Michx.)
NATURAL SIZE.

Fig

Fig. 45.—Large Toothed Aspen. (*P. grandidentata*, Michx.)
NATURAL SIZE.

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Fig. 46.—Downy-leaved Poplar. (*F. heterophylla*, L.)
NATURAL SIZE.

Fig. 47.—Cottonwood. (*P. monillifera*, Ait.)
NATURAL SIZE.

Fig. 48

Fig. 49

Fig. 48.—Balsam Poplar. (*P. balsamifera*, L.)
 Fig. 49.—Balm of Gilead. *P. b. candicans* (Ait.), Gray.
 NATURAL SIZE.

Fig. 50

Fig. 51

Fig. 50.—Lombardy Poplar. [*P. dilatata*, Ait.]

Fig. 51.—Silver-Leaf Poplar. [*P. alba*, L.]

NATURAL SIZE.

TREES WITH SIMPLE LEAVES
LEAVES ALTERNATE

CONTINUED

(EDGE LOBED)

A III

(a) and (b)

Fig. 52.—Tulip Tree. (L., tuliplifera, L.)
NATURAL SIZE.

Fig. 53.—White Oak. (*Q. alba*, L.)
LEAVES AND FRUIT REDUCED ONE FOURTH.

Fig. 54.—Post Oak. *Q. minor* (Marsh), Sarg.
LEAVES AND FRUIT REDUCED ONE FOURTH.

Fig. 55.—Burr Oak. (*Q. macrocarpa*, Michx.)
LEAVES AND FRUIT REDUCED ONE FOURTH.

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Fig. 56.—Swamp White Oak. (*Q. bicolor*, Willd.)
NATURAL SIZE.

Fig. 57.—Chestnut Oak. (*Q. prinus*, L.)
NATURAL SIZE.

Fig. 58.—Yellow Chestnut Oak. *Q.* (Muhl.), Engel.
NATURAL SIZE.

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NATURAL SIZE.

Fig. 60.—Spanish Oak. (*Q. cuneata*, Wang.)
NATURAL SIZE.

11 11 11

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NATURAL SIZE.

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FRUIT AND LEAVES REDUCED ONE FOURTH.

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NATURAL SIZE.

Fig. 64.—Pin Oak. (*Q. palustris*, D. Roi.)
NATURAL SIZE.

Fig. 65.—Willow Oak. (*Q. Phellos*, L.)
NATURAL SIZE.

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Fig. 66.—Shingle Oak. (*Q. imbricaria*, Michx.)
NATURAL SIZE.

Fig. 67.—Sweet Gum. (*L. styraciflua*, L.)
NATURAL SIZE.

TREES WITH SIMPLE LEAVES

CONTINUED

LEAVES OPPOSITE

(EDGE ENTIRE)

B I

Fig. 68.—Flowering Dogwood. (*C. florida*, L.)
NATURAL SIZE.

Fig. 69.—Alternate-leaved Dogwood. (*C. alternifolia*, L. f.)
NATURAL SIZE.

Fig. 70.—Fringe Tree. (*C. Virginica*, L.)
NATURAL SIZE.

Fig. 71.—*Catalpa*. (*C. bignonioides*, Walt.)
LEAF AND FRUIT REDUCED ONE THIRD.

TREES WITH SIMPLE LEAVES

LEAVES OPPOSITE

CONTINUED

(EDGE TOOTHED)

B II

Fig. 72

Fig. 73

Fig. 72.—Black Haw. (*V. prunifolium*, L.)
 Fig. 73.—Sweet Viburnum. (*V. lentago*, L.)
 NATURAL SIZE.

TREES WITH SIMPLE LEAVES

LEAVES OPPOSITE

CONTINUED

(EDGE LOBED)

B III

Fig. 74.—Striped Maple. (*A. Pennsylvanicum*, L.)
NATURAL SIZE.

Fig. 75.—Sugar Maple. (*A. saccharum*, Marsh.)
NATURAL SIZE.

Fig. 76.—Black Maple. (*A. s.*, var. *nigrum*.)
NATURAL SIZE.

Fig. 77.—Silver-Leaf Maple. (*A. saccharinum*, L.)
NATURAL SIZE.

Fig. 78.—Red Maple. (*A. rubrum*, L.)
NATURAL SIZE.

TREES WITH SIMPLE LEAVES

CONTINUED

LEAVES INDETERMINATE

C 1

Fig. 79

Fig. 80

Fig. 81

Fig. 82

Fig. 79.—Gray Pine. (*P. Banksiana*, Lam.)

Fig. 80.—Scrub Pine. (*P. Virginiana*, Mill.)

Fig. 81.—Table Mountain Pine. (*P. pungens*, Michx.)

Fig. 82.—Red Pine. (*P. resinosa*, Ait.)

NATURAL SIZE.

Fig. 83

Fig. 84

Fig. 85

- Fig. 83.—Yellow Pine. (*P. ecpinata*, Mill.)
 Fig. 84.—Pitch Pine. (*P. rigida*, Mill.)
 Fig. 85.—White Pine. (*P. Strobus*, L.)

NATURAL SIZE

Fig. 86

Fig. 87

Fig. 86.—Black Spruce. *P. Mariana* (Mill), B. S. P.
 Fig. 87.—White Spruce. *P. Canadensis* (Mill), B. S. P.
 NATURAL SIZE.

Fig. 88.—Norway Spruce. [*P. excelsa*.]
NATURAL SIZE.

Fig. 89.—Hemlock. *T. Canadensis* (L.), Carr.
NATURAL SIZE.

Fig. 90

Fig. 91

Fig. 90.—Balsam Fir. *A. balsamea* (L.), Miller.
 Fig. 91.—Larch. *L. laricina* (Du Roi), Koch.
 NATURAL SIZE.

Fig. 92

Fig. 93

Fig. 92.—White Cedar. *C. thyoides* (L.), B. S. P.

Fig. 93.—Arbor Vitæ. (*T. occidentalis*, L.)

NATURAL SIZE.

Fig. 94.—Red Cedar. (*J. Virginiana*, L.)
 a. Young. b. Old.
 NATURAL SIZE.

TREES WITH COMPOUND LEAVES
(FEATHER-SHAPED)

LEAVES ALTERNATE

(EDGE ENTIRE)

D I

Fig. 95.—*Ailanthus*. [*A. glandulosa*, Desf.]
NATURAL SIZE.

Fig. 96.—Locust. (*R. pseudacacia*, L.)
NATURAL SIZE.

Fig. 97.—Kentucky Coffee Tree. *G. discus* (L.), Koch.
NATURAL SIZE.

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Fig. 98.—Honey Locust. (*G. triacanthos*, L.)
NATURAL SIZE.

TREES WITH COMPOUND LEAVES
(FEATHER-SHAPED)

LEAVES ALTERNATE

CONTINUED

(EDGE TOOTHED)

D II

Fig. 99.—Stag-horn Sumach. (*R. typhina*, L.)
NATURAL SIZE.

Fig. 100.—Poison Sumach. (*R. venenata*, D. C.)
NATURAL SIZE.

Fig. 101.—Mountain Ash. (*P. Americana*, D. C.)
REDUCED ONE FOURTH.

Fig. 102

Fig. 103

Fig. 102.—Black Walnut. (*J. nigra*, L.)

Fig. 103.—Butternut. (*J. cinerea*, L.)

LEAFLETS AND FRUIT REDUCED ONE THIRD.

Fig. 104.—Shag-bark. *H. ovata* (Mill), Britton.
LEAF AND FRUIT REDUCED ONE THIRD.

Fig. 105.—Mocker-nut. *H. alba* (L.), Britton.
LEAF AND FRUIT REDUCED ONE THIRD.

Fig. 106.—Small-fruited Hickory. *H. microcarpa* (Nutt), Britton.
LEAF AND FRUIT REDUCED ONE THIRD.

Fig. 107, *a* and *b*.—Pig-nut. *H. glabra* (Mill), Britton.
LEAF AND FRUIT REDUCED ONE THIRD.

Fig. 108.—Bitter-nut. *H. minima* (Marsh), Britton.
LEAF AND FRUIT REDUCED ONE THIRD.

TREES WITH COMPOUND LEAVES
(FEATHER-SHAPED)

CONTINUED

LEAVES OPPOSITE
(EDGE ENTIRE OR TOOTHED)

E I, II

Fig. 109.—Ash-leaved Maple. (*N. aceroides*, M.)
NATURAL SIZE.

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LEAF AND FRUIT REDUCED ONE THIRD.

Fig. III.—Red Ash. (*F. pubescens*, Lam.)
LEAF AND FRUIT REDUCED ONE THIRD.

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LEAF AND FRUIT REDUCED ONE THIRD.

Fig. 113.—Blue Ash. (*F. quadrangulata*, Michx.)
LEAF AND FRUIT REDUCED ONE THIRD.

Fig. 114.—Black Ash. (*F. sambucifolia*, Lam.)
LEAF AND FRUIT REDUCED ONE THIRD.

TREES WITH COMPOUND LEAVES
(HAND-SHAPED)

LEAVES OPPOSITE
(EDGE TOOTHED)

F i

Fig. 115.—Sweet Buckeye. (*Æ. flava*, Ait.)
REDUCED ONE THIRD.

Fig. 116.—Ohio Buckeye. (*Æ. glabra*, Willd.)
REDUCED ONE THIRD.

NAMES OF OMITTED AND COMPARATIVELY UNIM- PORTANT TREES.

Tilia heterophylla. Vent.
pubescens. Ait.

Pyrus angustifolia. Ait.

Crataegus coccinea, L. var. *mollis*.

crus-galli, L. *pyracanthifolia*.

Amelanchier Canadensis, L. var. *T.* and
G.

Ulmus racemosa. Thomas.

Celtis occidentalis, L. var. *crassifolia*.

Salix amygdaloides. Anders.

Quercus macrocarpa, Michx. var. *olivæ-*
förmis.

Quercus coccinea, Wang. var. *ambigua*,
Gray.

(Of nine hybrid oaks, most are outside our
limits or entirely local.)

Catalpa speciosa. Ward.

Robinia viscosa. Vent.

Gleditschia triacanthos, L. var. *inermis*,
and var. *brachycarpus*.

Rhus typhina, L. var. *laciniata*.

Pyrus sambucifolia

Hicoria sulcata (Willd). Britton.

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The names of genera are given in SMALL CAPITALS, of species and varieties in Roman type. The names of introduced species are enclosed by brackets.

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