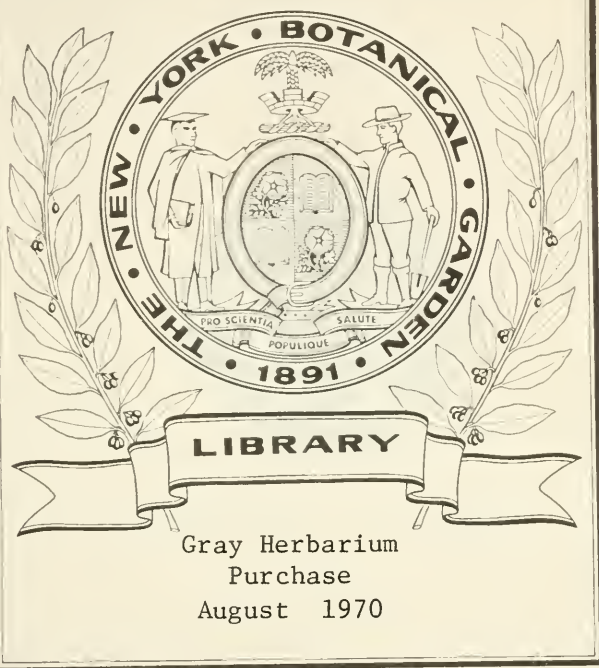


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GRAY HERBARIUM

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THE FLORA OF SCOTT AND MUSCATINE
COUNTIES.

BY W. D. BARNES, MORGAN PARK, ILLINOIS.

FRED REPERT, MUSCATINE, IOWA.

A. A. MILLER, DAVENPORT, IOWA.

This enumeration of plants is compiled from a herbarium collected during ten years of field work ending with the year 1889.

As the woods of Scott county have nearly all been pastured, plants of a retiring disposition are fast disappearing, though occasionally found in Princeton township, Allen's Grove, Hickory Grove, and along the Wapsipinicon.

The change is not so noticeable in Muscatine county. The flora of Wild Cat Den is of special interest as it includes many rare species, some of which have not been reported from any other part of the state. As ponds are numerous near Muscatine and along the Cedar, aquatic plants are more abundant in this county than in Scott.

In both the native prairie plants and many introduced species are found along railroad tracks.

The authors wish to make grateful acknowledgments of the valuable assistance freely given by Prof. L. H. Bailey of Cornell, who determined the Carices; Prof. L. H. Pammel of Iowa Agricultural College, who determined the Grasses; Prof. E. J. Hill of Chicago, who determined troublesome Asters and furnished descriptions of his new oak and thistle; and also of the timely helps given in various ways by Professors McBride and Shimek of the State University of Iowa, C. R. Ball of Iowa Agricultural College, R. I. Cratty of Armstrong, Iowa, Agnes Chase of Chicago, Dr. Radenhausen of the Davenport High School, Supt. F. M. Witter of Muscatine, and other co-workers.

The nomenclature of the Sixth Edition of Gray's Manual has been followed throughout, except in the genus *Carex*, in which the names given by Prof. Bailey have been retained.

1900.

THE AUTHORS.

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RANUNCULACEA.

Clematis, L. Virgin's Bower.

1. *C. Virginiana*, L.
River banks and borders of thickets; infrequent.
2. *C. Pitcheri*, Torr. & Gray.
Sandy soil along rivers; frequent. A form with cream-colored flowers grows at Moscow.

Anemone, Tourn.

3. *A. Caroliniana*, Walt.
Sandy, alluvial soil along Cedar and Wapsipinicon Rivers, Muscatine Island, Camp McClellan. Infrequent, though often abundant over small areas.
4. *A. cylindrica*, Gray.
Hilly woodlands; not common.
5. *A. Virginiana*, L.
Woods and river banks; common.
6. *A. Pennsylvanica*, L.
Rather common.
7. *A. nemorosa*, L.
Rich wood lands; infrequent.

Hepatica, Dill.

8. *H. acutiloba*, DC. Liver-leaf.
Rich, shady hillsides; abundant locally.

Anemonella, Spach.

9. *A. thalictroides*. Rue-Anemone.
Open woods; frequent.

Thalictrum, Tourn. Meadow-Rue.

10. *T. dioicum*, L.
Open woods; frequent at Allen's Grove.
11. *T. purpurascens*, L.
Common.

Myosurus, Dill. Mouse-tail.

12. *M. minimus*, L.
Locally abundant in sandy, alluvial soil along Cedar and Wapsipinicon Rivers; Muscatine Slough, Prof. Witter; Offerman's Island, Dr. Radenhausen.

Ranunculus, Tourn. Buttercup. Crowfoot.

13. *R. circinatus*, Sibth.
Ponds near Muscatine ; rare. (Fitzpatrick.)
14. *R. aquatilis*, L., var. *trichophyllus*, Gray.
Ponds ; Neels, Muscatine Slough.
15. *R. multifidus*, Pursh.
Shallow ponds along Cedar and Wapsipinicon Rivers, Muscatine Island, Eldridge ; frequent.
16. *R. abortivus*, L. Small-flowered C.
Damp woods ; common.
17. *R. recurvatus*, Poir. Hooked C.
With the last but less frequent.
18. *R. fascicularis*, Muhl.
Common in open woods.
19. *R. septentrionalis*, Poir.
Damp places ; common.
20. *R. repens*, L.
Wet places ; frequent.
21. *R. Pennsylvanicus*, L. f. Bristly C.
Wet grounds, Muscatine Island ; not common.

Isopyrum, L.

22. *I. biternatum*, Torr. & Gray.
Sandy, alluvial soil in woodlands along Cedar River. Border of woods near Fairport, near Davenport. Infrequent.

Caltha, L.

23. *C. palustris*, L. Marsh Marigold.
Marshy places ; common.

Aquilegia, Tourn.

24. *A. Canadensis*, L. Columbine.
Rocky places ; frequent.

Delphinium, Tourn.

25. *D. azureum*, Michx. Larkspur.
Sandy soil Muscatine Island and along Cedar River. Flowers whitish.

Actæa, L.

26. *A. alba*, Bigel. White Baneberry.
Rich woods ; rather uncommon.

AUG 28 1970

Gray to brown - perenn.

Hydrastis, Ellis.

27. *H. Canadensis*, L. Golden Seal.
Rich woodlands, Seventy-six Township, Muscatine county.
Scarce.

ANONACEÆ.**Asimina, Adans.**

28. *A. triloba*, Dunal. Papaw.
Near Drury's Landing. Less than a mile outside of our limits.

MENISPERMACEÆ.**Menispermum, L.**

29. *M. Canadense*, L. Moonseed.
Woods and river banks; frequent.

BERBERIDACEÆ.**Berberis, L.**

30. *B. vulgaris*, L. Barberry.
In woods, two miles west of Montpelier.

Caulophyllum, Michx.

31. *C. thalictroides*, Michx. Blue Cohosh.
Deep, rich woods; abundant locally.

Podophyllum, L.

32. *P. peltatum*, L. May-apple. Mandrake.
Rich woods; common.

NYMPHÆACEÆ.**Brasenia, Schreber.**

33. *B. peltata*, Pursh. Water-Shield.
In a pond on the sand hills along Cedar River. Lake T'w'p,
Muscatine county. Found in flower, October, 1878; in
1872 a few young plants were found. The pond is now
permanently dry.

Nelumbo, Tourn.

34. *N. lutea*, Pers. Water Chinquapin.
Ponds along the Mississippi River; not infrequent.

Nymphæa, Tourn.

35. *N. reniformis*, DC. Tuber-bearing Water Lily.
Ponds and slow-flowing water along rivers; frequent.

Nuphar, Smith.

36. *N. advena*, Ait. f. Yellow Pond Lily. Spatter-Dock.
With the last.

PAPAVERACEÆ.**Sanguinaria, Dill.**

37. *S. Canadensis*, L. Blood root.
Rich woods ; frequent.

Argemone, L.

38. *A. Mexicana*, L. Mexican Poppy.
Escaped from gardens ; Blue Grass, Moscow, Eldridge, old
field near Muscatine.

FUMARIACEÆ.**Dicentra, Borkh.**

39. *D. cucullaria*, DC. Dutchman's Breeches.
Rich woods ; frequent.
40. *D. Canadensis*, DC. Squirrel Corn.
Hilly woods, Drury's Landing, Ill. (Witter, Mackenzie.)

Corydalis, Vent.

41. *C. flavula*, DC.
Sandy, alluvial soil opposite Muscatine. (Mackenzie.)
42. *C. micrantha*, Gray.
Banks of Cedar River, near Moscow Bridge.
43. *C. curvisiliqua*, Engelm.
Sandy embankments of the C., R. I. & P. R. R. between Dav-
port and Muscatine ; frequent. Determined at the Missouri
Botanical Garden.

CRUCIFERÆ.**Dentaria, Tourn. Toothwort.**

44. *D. laciniata*, Muhl.
Rich woods ; frequent.

Cardamine, Tourn.

45. *C. rhomboidea*, DC. Spring Cress.
Wet meadows ; common.
46. *C. rhomboidea*, DC., var. *purpurea*, Torr.
Moist woods along Wapsipinicon River.

47. *C. hirsuta*, L. Small Bitter Cress.
Wet places ; frequent.

Arabis, L. Rock Cress.

48. *A. hirsuta*, Scop.
Rocky places ; Muscatine county ; infrequent. Big Rock and Devil's Glen, Scott county.
49. *A. lævigata*, Poir.
Rocky soil at Wild Cat Den, Big Rock and Le Claire.
50. *A. Canadensis*, L. Sickie-pod.
Le Claire ; rare.
51. *A. confinis*, Watson.
Sandy soil, Cedar River region, Noels ; infrequent.
52. *A. dentata*, Torr. & Gray.
Sandy alluvial soil and borders of woods along Cedar River.
Muscatine Island.

Draba, Dill. Whitlow Grass.

53. *D. Caroliniana*, Walt.
Dry sandy soil ; Noels, Camp McClellan, Muscatine.

Nasturtium, R. Br. Water-Cress.

54. *N. sessiliflorum*, Nutt.
Banks of Mississippi River ; frequent.
55. *N. palustre*, DC. Marsh Cress.
Wet places ; common.
56. *N. lacustre*, Gray. Lake Cress.
Sloughs along Cedar River in the vicinity of Salisbury Bridge, Muscatine county. Ponds near Noels. Leaves fall off early and take root in the mud.
57. *N. Armoracia*, Fries. Horseradish.
Moist ground ; frequent.

Barbarea, R. Br.

58. *B. vulgaris*, R. Br. Winter Cress. Yellow Rocket.
Grain field near Fairport. Railroad track, Blue Grass.

Hesperis, Tourn.

59. *H. matronalis*, L. Rocket. Dame's Violet.
Escaped to roadsides. Blue Grass, Locust Street, Davenport.

Erysimum, Tourn.

60. *E. cheiranthoides*, L. Worm-seed Mustard.
Banks of streams ; infrequent.

Sisymbrium, Tourn. Hedge Mustard.

61. *S. canescens*, Nutt. Tansy Mustard.
Railroad tracks, Buffalo and Fairport.
62. **S. Sophia**, L.
Railroad tracks and waste places in West Davenport and Blue Grass.
63. **S. officinale**, Scop. Hedge Mustard.
Waste places ; common.
64. **S. altissimum**, L. Tumble Mustard.
Railroad track, Blue Grass, May, 1895 (single plant). Waste ground near B., C. R. & N. tracks in West Davenport (in quantity). Rock Island, 1896, (with *Salsola Kali*, L., var. *Tragus*, DC.) Eldridge, 1897. Becoming frequent.

Thelypodium, Endl.

65. *T. pennatifidum*, Watson.
Alluvial soil along the Mississippi and Cedar Rivers ; not common.

Brassica, Tourn.

66. **B. Sinapistrum**, Boiss. English Charlock.
Railroad tracks ; frequent.
67. **B. nigra**, Koch. Black Mustard.
Waste places ; common.
68. **B. campestris**, L.
Railroad tracks : infrequent.

Capsella, Medic.

69. **C. Bursa-pastoris**, Moench. Shepherd's Purse.
Waste places ; very common.

Thlaspi, Tourn.

70. **T. arvense**, L.
River front, Muscatine.

Lepidium, Tourn. Peppergrass.

71. *L. Virginicum*, L.
Frequent.
72. *L. intermedium*, Gray.
Common.

Raphanus, Tourn.

73. **R. sativus**, L.
Found with the several species of *Brassica* on railroad tracks but not persisting for more than a year or two.

CAPPARIDACEÆ

Cristatella, Nutt.

- 74.
- C. Jamesii*
- , Torr. & Gray.

Rather frequent along sandy shores of the Cedar near the B., C. R. & N. railroad bridge. This plant has been reported as a narrow-leaved form of *Polanisia graveolens*, Raf.

Polanisia, Raf.

- 75.
- P. graveolens*
- , Raf.

Sandy soil along Cedar River ; infrequent.

- 76.
- P. trachysperma*
- , Torr. & Gray

Sandy soil, especially along the Mississippi and Wapsipinicon Rivers ; frequent. More widely distributed than the last species.

CISTACEÆ.

Helianthemum, Tourn. Rock Rose.

- 77.
- H. Canadense*
- , Michx. Frost-weed.

Dry, gravelly soil ; frequent.

Lechea, Kalm. Pinweed.

- 78.
- L. tenuifolia*
- , Michx.

Dry soil ; infrequent.

- 79.
- L. stricta*
- , Leggett.

Prairies on dry, sandy soil ; infrequent.

VIOLACEÆ

Viola, Tourn.

- 80.
- V. pedata*
- , L. Bird-foot Violet.

Borders of woods, hillsides and sand prairies. Not of general occurrence but sometimes abundant locally.

- 81.
- V. pedata*
- , L. var.
- bicolor*
- , Pursh.

Border of sandy woods, Lake T'w'p., Muscatine county ; with the type but infrequent or rare. May, 1891. Near Columbus Junction, Louisa county, 1890 (Prof. Witter).

- 82.
- V. pedatifida*
- , G. Don.

Dry prairies ; rather frequent.

- 83.
- V. palmata*
- , L.

Not common in Scott county. In Muscatine county limited

mostly to the Cedar River region. Very variable; some forms early in the season are not readily distinguishable from *V. sagittata*, Ait.; others again, are much like *V. pedatifida*, G. Don.

84. *V. palmata*, L., var. *cucullata*, Gray.
Low grounds; common in nearly all soils.
85. *V. sagittata*, Ait. Arrow-leaved Violet.
Dry soil; not common.
86. *V. blanda*, Willd. Small White Violet.
Wet places, Cedar River region.
87. *V. primulaefolia*, L. Primrose-leaved Violet.
Damp ground, Lake T'w'p., Muscatine county. Confined to a small area.
88. *V. lanceolata*, L. Lance-leaved Violet.
Wet places and margins of ponds, Lake T'w'p., Muscatine Co.
89. *V. pubescens*, Ait. Downy Yellow Violet.
Woods; common.

CARYOPHYLLACEÆ.

Saponaria, L.

90. *S. officinalis*, L. Soapwort. Bouncing Bet.
Railroad tracks and near dwellings; common.
91. *S. Vaccaria*, L.
Railroad tracks; Davenport, Blue Grass.

Silene, L. Catch fly. Campion.

92. *S. stellata*, Ait. Starry Campion.
River banks and open woods; common.
93. *S. nivea*, Otth.
Wild Cat Den. Railroad tracks near Montpelier and near Park Place on the Wilton Branch of the C. R. I. & P. Ry.
94. *S. antirrhina*, L. Sleepy Catchfly.
Dry soil; frequent.
95. *S. noctiflora*, L. Night-flowering Catchfly.
Streets, East Davenport. Along railroad tracks, Muscatine Island.

Lychnis, Tourn.

96. *L. Githago*, Lam. Corn Cockle.
Grain fields and railroad tracks; frequent.

Arenaria, L.

97. *A. lateriflora*, L. Sandwort.
Sandy soil ; rather common.

Stellaria, L.

98. *S. media*, Smith. Chickweed.
Moist, shady places in towns.
99. *S. longifolia*, Muhl. Long-leaved Stitchwort.
Noels, Allen's Grove, Wild Cat Den.

Cerastium, L. Mouse-ear Chickweed.

100. *C. viscosum*, L.
Sandy soil ; Noels. Abundant locally.
101. *C. vulgatum*, L.
Frequent.
102. *C. nutans*, Raf.
Moist places ; common.

PORTULACACEÆ.**Portulaca, Tourn.**

103. *P. oleracea*, L. Purslane.
Cultivated and waste grounds ; common.

Claytonia, Gronov.

104. *C. Virginica*, L. Spring Beauty.
Moist wooded hillsides ; abundant locally.

HYPERICACEÆ.**Hypericum, Tourn. St. John's-Wort.**

105. *H. Ascyron*,
Banks of streams and ditches ; not common.
106. *H. cistifolium*, Lam.
Dry soil ; common.
107. *H. maculatum*, Walt.
Moist soil ; infrequent.
108. *H. mutilum*, L.
Low ground ; frequent.
109. *H. gymnanthum*, Engelm. & Gray.
Low ground ; frequent.

110. *H. nudicaule*, Walt. Orange-grass. Pine-weed.
Sandy soil ; Lake T'w'p, Muscatine county, 1890, and Noels,
Scott county. Muscatine Island, 1898, (Miss Hoffmann).

Elodes, Adans. Marsh St. John's-Wort.

111. *E. campanulata*, Pursh.
Wet grounds along Cedar River. Noels.

MALVACEÆ.

Malva, L. Mallow.

112. *M. rotundifolia*, L.
Yards and waste places ; frequent.
113. *M. sylvestris*, L.
Escaped from gardens near old habitations ; infrequent.
114. *M. crispa*, L.
Sparingly escaped at Pleasant Prairie, Muscatine county.

Callirrhœ, Nutt.

115. *C. triangulata*, Gray.
Sandy soil ; local. Moscow. Near Davenport (Shimek).

Malvastrum, Gray.

116. *M. angustum*, Gray.
Government Island, August, 1865 (Dr. C. C. Parry). Rocky
roadside east of Gilbert, 1898. Abundant locally.

Sida, L.

117. *S. spinosa* L.
Rather frequent in dry soil ; Muscatine county ; Buffalo.

Abutilon, Tourn.

118. *A. Avicennæ*, Gaertn. Velvet Leaf.
Common and locally abundant in waste places and cultivated
fields.

Hibiscus, L. Rose Mallow.

119. *H. militaris*, Cav. Halberd-leaved R.
Frequent in wet grounds along rivers.
120. *H. Trionum*, L. Bladder Ketmia.
Roadsides ; frequent. Abundant along many roadsides in
Blue Grass T'w'p., Scott county.

TILIACEÆ.

Tilia, Tourn.

121. *T. Americana*, L. Basswood.
Rich woods ; common.

LINACEÆ.

Linum, Tourn.

122. *L. sulcatum*, Riddell. Yellow Flax.
Dry sterile soil; Cedar River region, Montpelier.
123. *L. usitatissimum*, L. Common Flax.
Railroad tracks; common.

GERANIACEÆ.

Geranium, Tourn. Cranesbill.

124. *G. maculatum*, L.
Open woods; common.
125. *G. Carolinianum*, L.
Sandy soil; along Cedar River; Muscatine Island and Noels.

Oxalis, L. Wood Sorrel.

126. *O. violacea*, L.
Open woods; common.
127. *O. corniculata*, L., var. *stricta*, Sav.
Common.

Impatiens, L. Balsam. Jewel-weed.

128. *I. pallida*, Nutt. Pale Touch-me-not.
Moist shady places; not infrequent.
129. *I. fulva*, Nutt. Spotted Touch-me-not.
Habitat same as that of preceding species. Rather common.

ZYGOPHYLLACEÆ.

Tribulus, L.

130. *T. terrestris*, L.
Railroad track near Muscatine and Fruitland. Infrequent.
Fruit greatly resembles common sand-burr.

RUTACEÆ.

Xanthoxylum, L.

131. *X. Americanum*, Mill. Prickly Ash.
Dry woods, especially along rivers; frequent.

Ptelea, L.

132. *P. trifoliata*, L. Hop-tree.
Dry soil, borders of woods, etc.; frequent.

SIMARUBACEÆ.

Ailanthus, Desf.

133. *A. glandulosus*, Desf. Tree of Heaven.
Escaped to roadside near Oak Hill School, Buffalo T'w'p.,
Scott county.

CELASTRACEÆ.

Celastrus, L.

134. *C. scandens*, L. Waxwork. Climbing Bitter-Sweet.
Woods; frequent.

Euonymus, Tourn.

135. *E. atropurpureus*, Jacq. Burning Bush. Wahoo.
Woods and sandy alluvial soil; infrequent.

RHAMNACEÆ.

Rhamnus, Tourn.

136. *R. lanceolata*, Pursh.
Cedar River region; Princeton; infrequent.

Ceanothus, L.

137. *C. Americanus*, L. New Jersey Tea
Dry woodlands and prairies; common.

VITACEÆ.

Vitis, Tourn. Grape.

138. *V. cinerea*, Engelm. Downy Grape.
Along the Mississippi River, and less frequent along the
Cedar.
139. *V. riparia*, Michx.
River bottoms and along streams; common. Frequent in
woods.

Ampelopsis, Michx.

140. *A. quinquefolia*, Michx. Virginian Creeper.
River banks and woods; common.

SAPINDACEÆ.

Æsculus, L.

141. *A. glabra*, Willd. Ohio Buckeye.
One native tree in vicinity of Le Claire; formerly frequent.

Acer, Tourn.

142. *A. saccharinum*, Wang.
Hilly woods; infrequent.
143. *A. saccharinum*, Wang., var. *nigrum*, Torr. & Gray.
Wild Cat Den; Le Claire; infrequent.
144. *A. dasycarpum*, Ehrh.
River banks and low grounds; common.

Negundo, Moench.

145. *N. aceroides*, Moench.
Along streams; frequent.

Staphylea, L.

146. *S. trifolia*, L. Bladder-nut.
Hilly woodlands; not frequent.

ANACARDIACEÆ.**Rhus, L. Sumach.**

147. *R. glabra*, L.
Open woods and clearings; common.
148. *R. Toxicodendron*, L. Poison Oak.
River banks and woods; common.
149. *R. Canadensis*, Marsh.
Sand along Cedar and Wapsipinicon Rivers, and on Muscatine Island; frequent.

POLYGALACEÆ.**Polygala, Tourn. Milkwort.**

150. *P. Senega*, L. Seneca Snake-root.
Dry soil; frequent
151. *P. incarnata*, L.
Dry sandy soil, Lake T'w'p., Muscatine county; scarce.
152. *P. sanguinea*, L.
Sandy and moist ground; common.
153. *P. cruciata*, L.
Mossy borders of a pond, Lake T'w'p., Muscatine county;
scarce.
154. *P. verticillata*, L.
Dry hills; infrequent.

LEGUMINOSÆ.

Baptisia, Vent. False Indigo.

155. *B. leucophaea*, Nutt.
Prairies; less frequent than the next.
156. *B. leucantha*, Torr. & Gray.
Dry soil; frequent.

Crotalaria, L.

157. *C. sagittalis*, L. Rattle-box.
Sandy soil along rivers; not common.

Trifolium, Tourn. Clover.

158. **T. arvense**, L. Rabbit-foot Clover.
Sandy soil; Cedar River region, Muscatine Island, vicinity
of Buffalo and Follets.
159. **T. pratense**, L. Red Clover.
Common.
160. *T. reflexum*, L. Buffalo Clover.
Sandy soil; Cedar River region, Muscatine Island, vicinity
of Buffalo and Follets.
161. *T. repens*, L. White Clover.
Fields and waste places; common.
162. **T. hybridum**, L. Alsike.
Roadsides, etc.; becoming frequent.

Melilotus, Tourn. Melilot. Sweet Clover.

163. **M. officinalis**, Willd. Yellow M.
Roadsides and waste places; infrequent.
164. **M. alba**, Lam. White M.
Common in waste places.

Medicago, Tourn.

165. **M. sativa**, L. Alfalfa.
Along railroads; not common.

Amorpha, L.

166. *A. canescens*, Nutt. Lead-Plant.
Dry sterile soil; common.
167. *A. fruticosa*, L. False Indigo.
Along streams; frequent.

Petalostemon, Michx. Prairie Clover.

- 168.
- P. violaceus*
- , Michx.

Dry prairies; rather common.

- 169.
- P. candidus*
- , Michx.

Same habitat as that of the last species but less common.

Tephrosia, Pers.

- 170.
- T. Virginiana*
- , Pers. Goat's Rue. Catgut.

Dry sterile soil; infrequent.

Robinia, L.

- 171.
- R. Pseudacacia*
- , L. Locust.

Roadsides; frequent.

Astragalus, Tourn.

- 172.
- A. Canadensis*
- , L.

Prairies; common.

- 173.
- A. distortus*
- , Torr. & Gray.

Sandy soil of Cedar River region and Muscatine Island; not frequent.

Desmodium, Desv. Tick-Trefoil.

- 174.
- D. nudiflorum*
- , DC.

Wooded hillsides at Wild Cat Den; scarce.

- 175.
- D. acuminatum*
- , DC.

Rich woods; common.

- 176.
- D. canescens*
- , DC.

Damp grounds; frequent.

- 177.
- D. canescens*
- , var.
- villosissimum*
- , Torr. & Gray.

Woodlands, Moscow. Near Follets along the Wapsipinicon River.

- 178.
- D. cuspidatum*
- , Torr. & Gray.

Rich woods; infrequent.

- 179.
- D. Illinoense*
- , Gray.

Prairies and dry sandy soil; infrequent.

- 180.
- D. paniculatum*
- , DC.

Borders of woods; frequent.

- 181.
- D. Canadense*
- , DC.

Borders of woods; common.

Lespedeza, Michx. Bush Clover.

182. *L. violacea*, Pers.
Dry soil, borders of woods and banks; frequent.
183. *L. reticulata*, Pers.
Dry sterile hillside at Wild Cat Den.
184. *L. capitata*, Michx.
Dry soil; common.
185. *L. capitata*, Michx., var. *longifolia*, Torr. & Gray.
Dry soil; frequent.

Vicia, Tourn. Vetch. Tare.

186. *V. sativa*, L.
Railroad track and adjacent waste grounds at Blue Grass.

Lathyrus, Tourn.

187. *L. palustris*, L.
Moist places; frequent.

Apios, Boerhave.

188. *A. tuberosa*, Moench. Ground-nut.
Climbing on bushes in low rich soil; infrequent.

Strophostyles, Ell.

189. *S. angulosa*, Ell.
River banks; common.
190. *S. pauciflorus*, Watson.
Cedar River region and Muscatine Island; frequent.

Amphicarpæa, Ell. Hog Pea-nut.

191. *A. monoica*, Nutt.
Rich damp woodlands; not common.
192. *A. Pitcheri*, Torr. & Gray.
Damp woods; frequent.

Cercis, L.

193. *C. Canadensis*, L. Red-bud.
Woods along Mississippi and Cedar Rivers; not uncommon.

Cassia, Tourn. Senna.

194. *C. Marilandica*, L.
Alluvial soil; frequent.
195. *C. Chamæcrista*, L. Partridge Pea.
Dry soil; common.

Gymnocladus, Lam.

196. *G. Canadensis*, Lam. Kentucky Coffee-tree.
Alluvial soil along the Mississippi River; not uncommon.

Gleditschia, L.

197. *G. triacanthos*, L. Honey-Locust.
Rich woods, especially along rivers; frequent.

ROSACEÆ.**Prunus**, Tourn.

198. *P. Americana*, Marshall. Wild Plum.
Woods; common.
199. *P. Chicasa*, Michx. Chickasaw Plum.
Muscatine Island, near the upper end of the "Big Timber;"
also on the Illinois side opposite this point.
200. *P. Virginiana*, L. Choke-Cherry.
Borders of woods and banks of streams; frequent.
201. *P. serotina*, Ehrh. Wild Black Cherry.
Woods; frequent.

Spiræa, L. Meadow-Sweet.

202. *S. salicifolia*, L.
Low grounds; rather common.
203. *S. lobata*, Jacq. Queen of the Prairie.
Moist prairies and boggy places of the Cedar River region;
infrequent.
204. *S. Aruncus*, L. Goat's-Beard.
Rich soil at Wild Cat Den and Wyoming Hill.

Physocarpus, Maxim.

205. *P. opulifolius*, Maxim. Nine-bark.
Moist places in hilly woods; not frequent.

Rubus, Tourn. Bramble.

206. *R. occidentalis*, L. Black Raspberry.
Fence-rows and open woods; common.
207. *R. villosus*, Ait. High Blackberry.
Borders of woods, open thickets, etc.; common.
208. *R. Canadensis*, L. Dewberry.
Dry fields and borders of woods; frequent.

209. *R. cuneifolius*, Pursh. Sand Blackberry.
Dry sterile hillside, Wild Cat Den.

Geum, L. Avens.

210. *G. album*, Gmelin.
Borders of woods; common.
211. *G. Virginianum*, L.
Low grounds; rather common.

Fragaria, Tourn. Strawberry.

212. *F. Virginiana*, Mill., var. *Illinoensis*, Gray.
Meadows, fence-rows, etc. Common.
213. *F. vesca*, L.
Rocky soil at Wild Cat Den. Our plant is *Fragaria Americana* (Porter) Britton.

Potentilla, L. Cinque-foil. Five-finger.

214. *P. arguta*, Pursh.
Dry soil; not common.
215. *P. Norvegica*, L.
Moist rich soil; common.
216. *P. rivalis*, Nutt., var. *pentandra*, Watson.
Sandy soil near Salisbury Bridge, Muscatine county. Davenport (A. S. Hitchcock in Cat. of *Anthophyta* and *Pteridophyta* of Ames, Iowa).
217. *P. Canadensis*, L.
Dry soil; common.

Agrimonia, Tourn. Agrimony.

218. *A. Eupatoria*, L.
Borders of woods; common.
219. *A. parviflora*, Ait.
Moist woods at Wild Cat Den. Along Cedar River.

Rosa, Tourn.

220. *R. blanda*, Ait.
Borders of woods and banks of streams; rather rare.
221. *R. Arkansana*, Porter.
Eroded hills and dry soils; common.
222. *R. rubiginosa*, L. Sweet-brier.
Escaped at Muscatine, Blue Grass, and Le Claire.

Pyrus, L.

223. *P. Ioensis*, Bailey.
Common in open woods. Typical *Pyrus coronaria*, L., has not yet been found within our limits.
224. *P. Americana*, DC. American Mountain Ash.
Three or four small trees in woods near Low's Run, Muscatine county.

Cratægus, L. Hawthorn.

225. *C. coccinea*, var. *flabellata*, (Spach), Britton.
Open woods; common. Often mistaken for the type.
226. *C. coccinea*, var. *macracantha*, Dudley.
Infrequent; Wyoming Hill.
227. *C. coccinea*, var. *mollis*, Torr. & Gray.
Open woods; common. Our species of this genus are all found in open woods and thickets.
228. *C. tomentosa*, L.
Infrequent.
229. *C. punctata*, Jacq.
Walnut Grove, Scott county; Muscatine.
230. *C. crus-galli*, L.
Frequent. On May 15, 1895, four species of *Cratægus* were observed in the woods at Walnut Grove, Scott county. *C. coccinea*, var. *mollis*, had small haws already formed; var. *flabellata* had lost all but a few petals, *C. crus-galli* was in full bloom and *C. tomentosa* had begun to show white in the bud. *C. punctata* blooms with *C. tomentosa*. This sequence of inflorescence appears constant, the intervals between succeeding species being about a week.

Amelanchier, Medic.

231. *A. Canadensis*, Torr. & Gray. Service-berry.
Woodlands of Muscatine county; frequent

SAXIFRAGACEÆ.**Saxifraga, L.**

232. *S. Pennsylvanica*, L. Saxifrage.
Low wet places; common.

Mitella, Tourn.

233. *M. diphylla*, L. Bishop's Cap.
Rich wooded hillsides; infrequent.

Heuchera, L.

234. *H. hispida*, Pursh. Alum-root.
Dry soil; common.

Parnassia, Tourn.

235. *P. Caroliniana*, Michx. Grass of Parnassus.
Boggy places in the Cedar River region. Wet meadows at Eldridge.

Ribes, L. Currant. Gooseberry.

236. *R. Cynosbati*, L.
Woods; less frequent than the next.
237. *R. gracile*, Michx. Missouri Gooseberry.
Woods; frequent.
238. *R. floridum*, L'Her. Wild Black Currant.
Rich woods; frequent.
239. *R. aureum*, Pursh. Buffalo Currant.
Escaped to roadside near Blue Grass.

CRASSULACEÆ.**Penthorum, Gronov.**

240. *P. sedoides*, L. Ditch Stone-crop.
Ditches and other wet places; common.

Sedum, Tourn. Stone-crop. Orpine.

241. *S. telephioides*, Michx.
Near old dwellings and cemeteries.
242. **S. Telephium**, L. Live-for-ever.
Habitat same as that of the last; less frequent.

HALORAGÆÆ.**Myriophyllum, Vaill. Water Milfoil.**

243. *M. spicatum*, L.
Pond near Salisbury Bridge in the Cedar River region, growing in water three or four feet deep.
244. *M. scabratum*, Michx.
Shallow ponds on Muscatine Island, Muscatine county; not infrequent.

Proserpinaca, L.

245. *P. palustris*, L. Mermaid-weed.
Borders of ponds along Cedar River; not common.

Callitriche, L.

246. *C. verna*, L. Water Starwort.
Stagnant slough near Cedar River in the vicinity of Salisbury Bridge.

MELASTOMACEÆ.**Rhexia, L.**

247. *R. Virginica*, L. Meadow Beauty.
In a wet depression on the sand hills of Cedar River, Lake T'w'p., Muscatine county; rare.

LYTHRACEÆ.**Didiplis, Raf.**

248. *D. linearis*, Raf. Water Purslane.
Bottom of shallow pond near Noels.

Rotala, L.

249. *R. ramosior*, Koehne.
Borders of ponds; frequent.

Ammania, Houston.

250. *A. coccinea*, Rottb.
Low wet ground; frequent.

Lythrum, L.

251. *L. alatum*, Pursh. Loosestrife.
Low wet grounds; common.

ONAGRACEÆ.**Ludwigia, L.**

252. *L. alternifolia*, L. Seed-box.
Borders of ponds; infrequent.
253. *L. polycarpa*, Short & Peter.
Ditches; frequent.
254. *L. palustris*, Ell.
In mud and water of shallow ponds, etc.; frequent.

Epilobium, L.

255. *E. coloratum*, Muhl. Willow-herb.
Wet grounds; common.

Œnothera, L. Evening Primrose.

256. *Œ. biennis*, L.
Fields and waste places; common.

257. *Æ. biennis*, L., var. *grandiflora*, Lindl.
Roadsides and waste places ; infrequent.
258. *Æ. rhombipetala*, Nutt.
Sandy soil along Cedar and Wapsipinicon Rivers ; common.
259. *Æ. sinuata*, L.
Near the Rolling Mills, Muscatine.
260. *Æ. fruticosa*, L. Sundrops.
Sandy soil of the Cedar River region ; Eldridge. Rare.

Gaura, L.

261. *G. biennis*, L.
River banks and waste places ; common.
262. *G. parviflora*, Dougl.
Front Street, Muscatine.

Circæa, Tourn. Enchanter's Nightshade.

263. *C. lutea*, L.
Rich woods ; common.
264. *C. alpina*, L.
In springy soil under cool dripping rocks at Wild Cat Den.
Rare.

CUCURBITACEÆ.**Sicyos**, L.

265. *S. angulatus*, L. One-seeded Burr Cucumber.
River banks ; common.

Echinocystis, Torr. & Gray.

266. *E. lobata*, Torr. & Gray.
River banks ; common.

Cucurbita, L.

267. *C. fatidissima*, HBK.
Railroad track near Muscatine ; one plant in 1898.

CACTACEÆ.**Opuntia**, Tourn.

268. *O. Rafinesquii*, Engelm. Prickly Pear.
Sandy soil along Cedar River in the vicinity of Moscow and
the B. C. R. & N. Railroad Bridge ; infrequent.

FICOIDEÆ.**Mollugo**, L.

269. *M. verticillata*, L. Carpet-weed
Sandy river banks and waste places ; common.

UMBELLIFERÆ.

Daucus, Tourn.

270. **D. Carota**, L. Carrot.
Roadsides; infrequent.

Angelica, L.

271. *A. atropurpurea*, L.
Moist hillside near Low's Run, Muscatine Co. (Mackenzie).

Tiedemannia, DC.

272. *T. rigida*, Coult & Rose. Cowbane.
Swampy ground; infrequent.

Pastinaca, L.

273. **P. sativa**, L.
Waste places; common.

Polytænia, DC.

274. *P. Nuttallii*, DC.
Dry sterile soil; not frequent.

Fœniculum, Adans.

275. **F. officinale**, All. Fennel.
Marshy ground in West Davenport.

Pimpinella, L.

276. *P. integerrima*, Benth. & Hook.
Rocky hillsides, West Davenport; McCausland; Wilton
branch of the C. R. I. & P. near Muscatine.

Cryptotænia, DC.

277. *C. Canadensis*, DC.
Moist woods; infrequent.

Sium, Tourn.

278. *S. cicutæfolium*, Gmelin.
Swampy places; frequent.

Zizia, Koch.

279. *Z. aurea*, Koch.
Prairies; frequent. Blooms in April and May.

Cicuta, L. Water Hemlock.

280. *C. maculata*, L.
Sloughs; common.
281. *C. bulbifera*, L.
McCloud's Spring, near Bayfield, Muscatine county.

Leptocaulis, Nutt.

- 282.
- L. patens*
- , Nutt.

Sandy railroad embankment near Montpelier.

Chærophyllum, L.

- 283.
- C. procumbens*
- , Crantz.

Moscow; infrequent.

Osmorrhiza, Raf. Sweet Cicely.

- 284.
- O. brevistylis*
- , DC.

Rich woods; common.

- 285.
- O. longistylis*
- , DC.

With the preceding species.

Eryngium, Tourn.

- 286.
- E. yuccæfolium*
- , Michx. Rattlesnake Master.

Prairies; common.

Sanicula, Tourn.

- 287.
- S. Marilandica*
- , L. Black Snakeroot.

Woods; common.

ARALIACEÆ.**Aralia**, Tourn.

- 288.
- A. racemosa*
- , L. Spikenard.

Rich woodlands; infrequent.

- 289.
- A. nudicaulis*
- , L. Wild Sarsaparilla.

Moist rich woods at Wild Cat Den.

- 290.
- A. quinquefolia*
- , Descne. & Planch. Ginseng.

Rich woods; infrequent.

CORNACEÆ.**Cornus**, Tourn. Cornel. Dogwood.

- 291.
- C. circinata*
- , L'Her.

Rocky woods along Sweetland Creek (Mackenzie).

- 292.
- C. sericea*
- , L. Kinnikinnik.

Wet places; not frequent.

- 293.
- C. asperifolia*
- , Michx.

Dry soil; frequent.

- 294.
- C. stolonifera*
- , Michx. Red-Osier Dogwood.

Wet places; infrequent.

295. *C. paniculata*, L'Her.
Open woods ; common.
296. *C. alternifolia*, L. f.
Woods ; infrequent.

CAPRIFOLIACEÆ.

Sambucus, Tourn.

297. *S. Canadensis*, L. Elder.
Open woods ; frequent.

Viburnum, L.

298. *V. Lentago*, L. Sheep-berry.
Woods and banks of streams ; infrequent.

Triosteum, L.

299. *T. perfoliatum*, L. Fever-wort. Horse Gentian.
Woods ; frequent.

Symphoricarpus, Dill.

300. *S. vulgaris*, Michx. Coral-berry.
Dry bank on border of woods above Muscatine ; infrequent.

Lonicera, L.

301. *L. glauca*, Hill.
Woods ; infrequent.

Diervilla, Tourn.

302. *D. trifida*, Moench.
Woods ; infrequent.

RUBIACEÆ.

Houstonia, L.

303. *H. minima*, Beck.
Dry sandy soil along Cedar and Wapsipinicon Rivers ; Camp
McClellan, near Davenport. Very abundant locally.

Cephalanthus, L.

304. *C. occidentalis*, L. Button-bush.
Swampy grounds and river banks.

Galium, L. Bedstraw. Cleavers.

305. *C. Aparine*, L.
Moist woods ; frequent.
306. *G. circæzans*, Michx.
Rich woods ; not common.

307. *G. trifidum*, L., var. *latifolium*, Torr.
Low wet grounds ; common.
308. *G. asprellum*, Michx.
Woods ; common.
309. *G. triflorum*, Michx.
Moist woods ; not common.

VALERIANACEÆ.

Valeriana, Tourn.

310. *V. edulis*, Nutt. Valerian.
Wet prairies near Maysville and Eldridge ; rare.

COMPOSITÆ.

Vernonia, Schreb. Iron-weed.

311. *V. fasciculata*, Michx.
Low grounds ; common. In Lake T'w'p., Muscatine county,
there is a white-flowered form of this species.
312. *V. altissima*, Nutt., var. *grandiflora*, Nutt.
Near Davenport ; rare.

Eupatorium, Tourn. Thoroughwort.

313. *E. purpureum*, L. Joe-Pye Weed.
Low grounds ; frequent.
314. *E. serotinum*, Michx.
Low grounds ; common.
315. *E. altissimum*, L.
Dry soil ; infrequent.
316. *E. perfoliatum*, L. Boneset.
Low grounds ; common.
317. *E. ageratoides*, L. White Snake-root.
Rich woods ; common.

Kuhnia, L.

318. *K. eupatorioides*, L.
Dry soil ; common.

Liatris, Schreb. Blazing Star.

319. *L. cylindracea*, Michx.
Sandy prairies ; infrequent.
320. *L. scariosa*, Willd.
Dry soil ; common.

321. *L. pycnostachya*, Michx.
Dry soil ; common.

Grindelia, Willd.

322. *G. squarrosa*, Dunal.
Railroad tracks, Fruitland, 1894 ; Wilton, 1895. Evidently
of recent introduction.

Chrysopsis, Nutt.

323. *C. villosa*, Nutt. Golden Aster.
Sandy soil near Wapsipinicon River.

Solidago, L. Golden-rod.

324. *S. latifolia*, L.
Moist wooded hillsides ; frequent.
325. *S. speciosa*, Nutt.
Dry soils, borders of woods and along railroads ; frequent.
326. *S. speciosa*, Nutt., var. *angustata*, Torr. & Gray.
West Davenport ; Muscatine.
327. *S. patula*, Muhl.
Boggy places along Cedar River ; infrequent.
328. *S. ulmifolia*, Muhl.
Hilly woodlands ; frequent.
329. *S. Missouriensis*, Nutt.
Dry prairies ; frequent. Our earliest goldenrod.
330. *S. serotina*, Ait.
Open woods and dry banks ; frequent.
331. *S. serotina*, Ait., var. *gigantea*, Gray.
Not frequent.
332. *S. Canadensis*, L.
Borders of woods and fence-rows ; common.
333. *S. nemoralis*, Ait.
Dry sterile soil ; frequent.
334. *S. rigida*, L.
Prairies and dry banks ; frequent.
335. *S. Riddellii*, Frank.
Wet prairies, Cedar River region ; Eldridge.
336. *S. lanccolata*, L.
Low grounds ; common.

Boltonia, L'Her.

337. *B. asteroides*, L'Her.
Low wet places ; abundant locally.

Aster, L.

338. *A. corymbosus*, Ait.
Woods ; infrequent.
339. *A. macrophyllus*, L.
Moist woodlands ; not infrequent.
340. *A. oblongifolius*, Nutt., var. *rigidulus*, Gray.
Dry sandy soil ; Cedar River region, Muscatine Island, and Wyoming Hill ; Mississippi River near Camp McClellan.
341. *A. Novae Angliæ*, L.
Moist grounds ; common. An albino of this species is frequent along several miles of roadside near Fairport.
342. *A. Novae Angliæ*, L., var. *roseus*, Gray.
Infrequent.
343. *A. sericeus*, Vent.
Dry sandy soil ; frequent.
344. *A. azureus*, Lindl.
Prairies ; frequent.
345. *A. Shortii*, Hook.
Dry banks and borders of woods ; frequent.
346. *A. cordifolius*, L.
Hilly woods, T'w'p. Seventy-six, Muscatine county. Not common. Frequent at Drury's Landing, Ill., just outside of our limits.
347. *A. sagittifolius*, Willd.
Open woods ; common.
348. *A. Drummondii*, Lindl.
Open woods ; frequent. When not growing with *A. sagittifolius*, quite distinct, frequently four or five feet high and of more vigorous growth than that species.
349. *A. lævis*, L.
Dry prairies ; frequent.
350. *A. ericoides*, L.
Dry soil ; frequent.
351. *A. ericoides*, L., var. *villosus*, Torr. & Gray.
Rocky banks of the Mississippi ; frequent.

352. *A. amethystinus*, Nutt.
Roadsides, Blue Grass ; rare.
353. *A. multiflorus*, Ait.
Dry soil in waste places ; common.
354. *A. vimineus*, Lam.
Damp, open grounds ; frequent.
355. *A. diffusus*, Ait.
Open woods and thickets ; frequent.
356. *A. diffusus*, Ait., var. *thyrsoides*, Gray.
Roadsides ; infrequent.
357. *A. diffusus*, Ait., var. *bifrons*, Gray.
Low grounds and shady places ; frequent.
358. *A. diffusus*, Ait., var. *hirsuticaulis*, Gray.
Roadsides ; common. This Aster seems to be midway between the varieties *hirsuticaulis*, Gray, and *pendulus* (Ait.) Burgess.—*E. J. Hill*
359. *A. Tradescanti*, L.
Frequent in low grounds.
360. *A. paniculatus*, Lam.
Common.
361. *A. paniculatus*, Lam., var. *bellidiflorus*, Britton.
Damp soil ; frequent.
362. *A. salicifolius*, Ait.
Open woods ; frequent.
363. *A. salicifolius*, Ait., var. *subasper*, Gray.
Blue Grass.
364. *A. prenanthoides*, Muhl.
Damp woods at Wild Cat Den.
365. *A. puniceus*, L.
Damp places ; common.
366. *A. puniceus*, L., var. *lucidulus*, Gray.
With the type ; infrequent.
367. *A. umbellatus*, Mill.
Moist ground, Allen's Grove and Cedar River region.
368. *A. linariifolius*, L.
Dry sandy soil, Bay field,

369. *A. ptarmicoides*, Torr. & Gray.

Dry sandy prairie, Bayfield.

Erigeron, L. Fleabane.

370. *E. Canadensis*, L. Butter-weed.

Waste grounds; common.

371. *E. divaricatus*, Michx.

Dry sandy soil, Cedar River region; frequent. Becoming a troublesome weed in pastures in Scott county.

372. *E. annuus*, Pers. Daisy Fleabane.

Fields and waste places; frequent.

373. *E. strigosus*, Muhl.

Similar places; common.

374. *E. bellidifolius*, Muhl.

Woods; frequent.

375. *E. Philadelphicus*, L.

Moist ground; frequent.

Antennaria, Gaertn.

376. *A. plantaginifolia*, Hook. Plantain-leaved Everlasting.

Dry sterile soil; common.

Gnaphalium, L.

377. *G. polycephalum*, Michx.

Dry fields and open woods; frequent.

Polymnia, L.

378. *P. Canadensis*, L., var. *radiata*, Gray. Leaf Cup.

Open rich woods along Cedar River; not infrequent.

Silphium, L. Rosin-weed.

379. *S. laciniatum*, L. Compass Plant.

Prairies; common.

380. *S. integrifolium*, Michx.

Prairies; common.

381. *S. perfoliatum*, L. Cup Plant.

Low grounds; frequent.

Parthenium, L.

382. *P. integrifolium*, L.

Dry sandy soil; infrequent.

Iva, L.

383. *I. xanthiifolia*, Nutt.

Dry waste grounds, Muscatine, Davenport.

Ambrosia, Tourn. Ragweed.

384. *A. trifida*, L.
Fields and waste places ; common.
385. *A. trifida*, L., var. *integrifolia*, Torr. & Gray.
Frequent.
386. *A. artemisiifolia*, L.
Fields and waste places ; common.
387. *A. psilostachya*, DC.
Dry sandy soil ; abundant locally.

Xanthium, Tourn. Cocklebur.

388. **X. strumarium**, L.
River banks, West Davenport ; frequent.
389. *X. Canadense*, Mill.
Fields and waste places ; common. Abundant along rivers.
390. *X. Canadense*, Mill, var. *echinatum*, Gray.
River bank at West Davenport, Rockingham, and Muscatine ; infrequent.

Eclipta, L.

391. *E. alba*, Hassk.
River banks ; common.

Heliopsis, Pers.

392. *H. laevis*, Pers.
Roadsides ; infrequent in Scott ; frequent in Muscatine.
393. *H. scabra*, Dunal.
Roadsides and waste places ; common.

Echinacea, Moench.

394. *E. purpurea*, Moench.
Collected in Louisa county, just outside our limits, in 1891.
395. *E. angustifolia*, DC.
Dry prairies ; common.

Rudbeckia, L. Cone-flower.

396. *R. laciniata*, L.
Along streams ; rather common.
397. *R. triloba*, L.
Dry soil ; frequent.
398. *R. subtomentosa*, Pursch.
Low prairies ; frequent.

399. *R. hirta* L.

Dry soil ; common.

Lepachys, Raf.

400. *L. pinnata*, Torr. & Gray.

Prairies and dry banks ; common.

401. *L. columnaris*, Torr. & Gray.

Railroad track, Blue Grass, 1896 ; Muscatine ; infrequent.

Helianthus, L.

402. *H. annuus*, L.

Railroad tracks and waste places ; frequent.

403. *H. petiolaris*, Nutt.

Frequent along railroad track from Fruitland to Montpelier.

404. *H. rigidus*, Desf.

Dry grounds ; common.

405. *H. latiflorus*, Pers.

Dry open places ; frequent.

406. *H. occidentalis*, Riddell.

Dry sterile soil ; frequent.

407. *H. mollis*, Lam.

Waste ground near railroad track, Muscatine.

408. *H. grosse-serratus*, Martens.

Low grounds and roadsides ; common.

409. *H. giganteus*, L.

Open woodlands, Muscatine, Pine Mill, Moscow.

410. *H. strumosus*, L.

Borders of woods.

411. *H. strumosus*, L., var. *mollis*, Torr. & Gray.

Fence rows, etc. ; frequent.

412. *H. tracheliofolius*, Willd.

Borders of woods in sandy soil ; infrequent.

413. *H. decapetalus*, L.

Frequent.

414. *H. tuberosus*, L. Jerusalem Artichoke.

Dry grounds and fence rows ; common.

415. *H. tuberosus*, L., var. *subcanescens*, Gray.

Dry soil, Blue Grass, Cedar River region.

Actinomeris, Nutt.

416. *A. squarrosa*, Nutt.
 Borders of woods, Muscatine county; infrequent. Near
 Davenport.

Coreopsis, L. Tickseed.

417. *C. tinctoria*, Nutt.
 Escaped from cultivation near Fruitland. (Mackenzie.)
418. *C. palmata*, Nutt.
 Dry hillsides and prairies; common.
419. *C. tripteris*, L. Tall Coreopsis.
 Frequent in vicinity of Cedar River; infrequent elsewhere.
420. *C. trichosperma*, Michx. Tickseed Sunflower.
 Low grounds; wet meadows; frequent.
421. *C. trichosperma*, Michx., var. *tenuiloba*.
 Maysville, Scott county, 1896.
422. *C. aristosa*, Michx., var. *mutica*.
 Low grounds near Wilton and Atalissa.
423. *C. involucrata*, Nutt.
 Low grounds near Walcott.
424. *C. discoidea*, Torr. & Gray.
 In low wet ground, West Davenport.

Bidens, L. Burr Marigold.

425. *B. frondosa*, L.
 Moist waste places; very common.
426. *B. connata*, Muhl.
 Infrequent in swampy grounds, West Davenport.
427. *B. connata*, Muhl., var. *comosa*, Gray.
 Moist waste places; common.
428. *B. cernua*, L.
 Low wet grounds; frequent.

Galinsoga, Ruiz & Pavon.

429. *G. parviflora*, Cav.
 Streets of Northwest Davenport near Fair Grounds. Abundant over a limited area.

Helenium, L.

430. *H. autumnale*, L.
 River banks and low ground; common.

Dysodia, Cav.

431. *D. chrysanthemoides*, Lag.
Dry sterile soil; frequent.

Anthemis, L. Chamomile.

432. **A. Cotula**, DC. Dog Fennel. Mayweed.
Roadsides and waste grounds; common.
433. **A. arvensis**, L. Corn Chamomile.
Waste ground, Muscatine; infrequent.

Achillæa, L.

434. *A. Millefolium*, L. Yarrow.
Fields, etc.; common. The rose-colored form is infrequent.

Chrysanthemum, Tourn.

435. **C. Leucanthemum**, L. Ox-eye Daisy.
Railroad tracks at West Davenport, Blue Grass, and Muscatine Island.

Tanacetum, L.

436. **T. vulgare**, L.
Roadsides near old gardens; frequent.

Artemisia, L. Wormwood.

437. *A. caudata*, Michx.
Dry sandy soil, Cedar River region; common.
438. *A. dracunculoides*, Pursh.
Dry soil; infrequent.
439. **A. Abrotinum**, L.
Near old gardens; not frequent.
440. *A. serrata*, Nutt.
Sandy banks of streams, etc.; frequent.
441. *A. Ludoviciana*, Nutt.
Dry ground; common.
442. *A. biennis*, Willd.
Waste grounds; common.
443. **A. annua**, L.
Streets and waste grounds of Davenport and Muscatine.

Senecio, Tourn.

444. *S. aureus*, L. Golden Ragwort.
Boggy place at Wild Cat Den; rare.
445. *S. aureus*, L., var. *Balsamita*, Torr. & Gray.
Dry prairies; common.

Cacalia, L. Indian Plantain.

446. *C. suaveolens*, L.
Banks of creeks along Cedar River; infrequent.
447. *C. reniformis*, Muhl.
Wild Cat Den: Cedar T'w'p.; rare.
448. *C. atriplicifolia*, L.
Borders of woods; frequent.
449. *C. tuberosa*, Nutt.
Wet prairies; common.

Erechtites, Raf.

450. *E. hieracifolia*, Raf. Fireweed.
Moist woods and waste places; common.

Arctium, L. Burdock.

451. **A. Lappa**, L.
Waste places; common.
452. **A. Lappa**, L., var. **majus**, Gray.
Eldridge; apparently rare.

Cnicus, Tourn.

453. **C. lanceolatus**, Hoffm.
Pastures and waste places; common.
454. *C. undulatus*, Gray.
Railroad track near Montpelier; a single plant.
455. *C. altissimus*, Willd.
Fields and open woods; infrequent.
456. *C. altissimus*, Willd., var. *discolor*, Gray.
Common.
457. *C. Hillii*, Canby. Garden and Forest, March 4, 1891
Dry prairies, pastures and open woodlands; infrequent. Although found in various localities within our limits, it seems to be most frequent in dry sandy soil along Cedar and Wapsipinicon Rivers. See plate and description.
458. **C. arvensis**, Hoffm. Canada Thistle.
Muscatine, Moscow, Valley City; rare.

Krigia, Schreber.

459. *K. amplexicaulis*, Nutt.
Rich woods; infrequent.

Cichorium, Tourn. Chicory.

460. **C. Intybus**, L.
Roadsides; frequent.

Hieracium, Tourn. Hawkweed.

461. *H. Canadense*, Michx.
Dry wooded hillsides ; infrequent.
462. *H. scabrum*, Michx.
Dry woodlands ; infrequent.
463. *H. longipilum*, Torr.
Sandy prairie near Bayfield Station ; not frequent.

Prenanthes, Vaill. Rattlesnake Root.

464. *P. racemosa*, Michx.
Prairies and along railroads ; frequent.
465. *P. aspera*, Michx.
Prairies, etc. ; frequent.
466. *P. alba*, L.
Borders of woods ; infrequent.

Troximon, Nutt.

467. *T. cuspidatum*, Pursh.
Dry prairie near Blue Grass. Lake T'w'p., near Cedar River,
May, 1893. (Mackenzie.)

Taraxacum, Haller.

468. **T. officinale**, Weber. Dandelion.
Fields, etc. ; common.

Lactuca, Tourn. Lettuce.

469. **L. Scariola**, L. Prickly Lettuce.
Railroad tracks and waste places ; becoming common.
470. *L. Canadensis*, L.
Rich soil ; common.
471. *L. Ludoviciana*, DC.
Rich soil ; infrequent.
472. *L. Floridana*, Gaertn.
Borders of woods ; frequent.
473. *L. leucophæa*, Gray.
Borders of woods in rich soil, Dixon, Blue Grass, Davenport,
Pine Creek.

Sonchus, L. Sow Thistle.

474. **S. oleraceus**, L.
Waste places ; common.
475. **S. asper**, Vill.
With the last species ; infrequent.

LOBELIACEÆ.

Lobelia, L.

476. *L. cardinalis*, L. Cardinal Flower.
Low grounds along rivers; frequent.
477. *L. syphilitica*, L.
Low grounds, common. White-flowered forms are occasionally met with.
478. *L. spicata*, Lam.
Prairies; infrequent.
479. *L. inflata*, L. Indian Tobacco.
Dry woods; common.

CAMPANULACEÆ.

Specularia, Heister.

480. *S. perfoliata*, A. DC. Venus's Looking-glass.
Dry banks and fields; frequent.

Campanula, Tourn. Bellflower.

481. *C. aparinoides*, Pursh.
Moist grounds; frequent in Muscatine county.
482. *C. Americana*, L.
Moist open woods; frequent.

ERICACEÆ.

Gaylussacia, HBK.

483. *G. resinosa*, Torr. & Gray. Black Huckleberry.
Dry sterile soil at Wild Cat Den and along Duck Creek.

Pyrola, Tourn. Shinleaf.

484. *P. elliptica*, Nutt.
Hillsides, Allen's Grove; Lake T'w'p., near Cedar River;
Seventy-six T'w'p.; infrequent.

Monotropa, L.

485. *M. uniflora*, L. Indian Pipe. Corpse Plant.
Rich woods, Wyoming Hill, 1878; Allen's Grove, 1892;
near Cedar River, 1895 (Witter); rare.

PRIMULACEÆ.

Dodecatheon, L.

486. *D. Meadia*, L. Shooting Star.
Prairies; common.

Androsace, Tourn.

- 487.
- A. occidentalis*
- , Pursh.

Dry sterile soil along Cedar and Wapsipinicon Rivers; Camp McClellan. Abundant locally.

Steironema, Raf.

- 488.
- S. ciliatum*
- , Raf.

Low grounds; common.

- 489.
- S. lanceolatum*
- , Gray.

Low grounds; frequent.

- 490.
- S. longifolium*
- , Gray.

Moist prairies; common.

Lysimachia, Tourn. Loosestrife.

- 491.
- L. stricta*
- , Ait.

Low grounds at Montpelier, Noels, and Muscatine. Now rare or extinct.

- 492.
- L. nummularia*
- , L. Moneywort.

Sparingly escaped from cultivation; Muscatine, Le Claire.

- 493.
- L. thyrsoiflora*
- , L.

Swampy grounds, Moscow, Muscatine Island, Eldridge. Probably extinct in these localities. Islands opposite Montpelier and bank of river near Buffalo; frequent.

OLEACEÆ.**Fraxinus**, Tourn. Ash.

- 494.
- F. Americana*
- , L. White Ash.

River banks and woods; frequent.

- 495.
- F. pubescens*
- , Lam. Red Ash.

River banks; infrequent.

- 496.
- F. viridis*
- , Michx. f. Green Ash.

River banks; common.

- 497.
- F. sambucifolia*
- , Lam. Black Ash.

Jamestown, Blue Grass, Wild Cat Der, Cedar T'w'p.; infrequent.

APOCYNACEÆ.**Apocynum**, Tourn. Dogbane

- 498.
- A. androsæmifolium*
- , L.

Borders of woods; infrequent.

499. *A. cannabinum*, L.
Moist or dry soil ; frequent.

ASCLEPIADACEÆ.

Asclepias, L. Milkweed. Silkweed.

500. *A. tuberosa*, L. Butterfly-weed. Pleurisy-root.
Dry prairies ; common.
501. *A. purpurascens*, L.
Along railroads ; not common. Dry hillside near Wild Cat Den.
502. *A. incarnata*, L.
Low wet grounds ; common.
503. *A. Cornuti*, Decaisne.
Fields and waste places ; common.
504. *A. Sullivantii*, Engelm.
Prairies ; infrequent.
505. *A. obtusifolia*, Michx.
Sandy soil ; frequent.
506. *A. phytolaccoides*, Pursh.
Moist woods of Muscatine county ; not rare.
507. *A. quadrifolia*, L.
Dry woods ; rare. Wild Cat Den, Weed's Woods, and T'w'p.
Seventy-six of Muscatine county.
508. *A. verticillata*, L.
Dry prairies ; common.

Acerates, Ell. Green Milkweed.

509. *A. longifolia*, Ell.
Prairies and roadsides ; common.
510. *A. viridiflora*, Ell.
Dry prairies ; common.

GENTIANACEÆ.

Gentiana, Tourn. Gentian.

511. *G. crinita*, Froel.
Boggy ravine, Lake T'w'p., and Cedar River region in Muscatine county.

512. *G. quinqueflora*, Lam., var. *occidentalis*, Gray.
Moist hillsides ; frequent.
513. *G. puberula*, Michx.
Prairies and barren places ; not rare. Muscatine county.
514. *G. Andrewsii*, Griseb. Closed G.
Low places ; infrequent.
515. *G. alba*, Muhl.
Moist wooded banks and copses ; frequent. Muscatine Co.

POLEMONIACEÆ.

Phlox, L.

516. *P. paniculata*, L.
Established near old gardens in Scott county.
517. *P. maculata*, L. Wild Sweet William.
Railroad tracks ; infrequent. Eldridge, Noels. Abundant
near Allen's Grove, where an albino occurs.
518. *P. pilosa*, L.
Prairies and dry open woods ; common.
519. *P. divaricata*, L.
Woods ; common.
520. *P. bifida*, Beck.
Sandy open woods along Cedar River near Moscow, Muscatine county ; local.

Polemonium, Tourn.

521. *P. reptans*, L. Greek Valerian.
Woods ; frequent.

HYDROPHYLLACEÆ.

Hydrophyllum, Tourn.

522. *H. Virginicum*, L.
Rich woods ; frequent.
523. *H. appendiculatum*, Michx.
Damp rich woods near streams ; infrequent. Muscatine Co.

Ellisia, L.

524. *E. Nyctelea*, L.
Moist woods ; frequent.

BORRAGINACEÆ.

Cynoglossum, Tourn.

525. *C. officinale*, L. Hound's Tongue.
Dry soil; rather infrequent.

Echinosperrum, Lehm. Stickseed.

526. *E. Virginicum*, Lehm. Beggar's Lice.
Open woods; common.

527. *E. Lappula*, Lehm.

Dry soil; infrequent. Abundant in the streets of Le Claire
and in Camp McClellan.

Mertensia, Roth.

528. *M. Virginica*, DC. Blue Bells.
Rich woods; frequent.

Myosotis, Dill. Forget-me-not.

529. *M. verna*, Nutt.
Sandy soil along Wapsipinicon and Cedar Rivers; infrequent.

Lithospermum, Tourn. Puccoon.

530. *L. arvense*, L.

On railroad near Fairport.

531. *L. hirtum*, Lehm.

Dry sandy hills; infrequent. Cedar and Wapsipinicon River
regions.

532. *L. canescens*, Lehm.

Prairies; common.

533. *L. angustifolium*, Michx.

Dry sandy hills; infrequent. River regions of Cedar and
Wapsipinicon, with *L. hirtum*. Rocky banks of Missis-
sippi near Camp McClellan.

Onosmodium, Michx.

534. *O. Carolinianum*, DC., var. *molle*, Gray.
Sandy ground; infrequent.

CONVOLVULACEÆ.

Ipomœa, L. Morning Glory.

535. *I. coccinea*, L.

Spontaneous near an old garden, Blue Grass, Scott county.

536. **I. hederacea**, Jacq.
River bank near Buffalo, Scott county.
537. **I. purpurea**, Lam. Common M.
Frequently escaping from old gardens.
538. *I. pandurata*, Meyer. Man-of-the-Earth.
Eroded hills and dry river banks ; infrequent.
539. *I. lacunosa*, L.
Islands and banks of the Mississippi ; frequent.

Convolvulus, Tourn. Bindweed.

540. *C. spithameus*, L.
Dry soil, Jamestown, Wild Cat Den, Low's Run ; rare.
541. *C. sepium*, L.
Cultivated and waste grounds ; common.
542. *C. sepium*, L., var. *repens*, Gray.
Devil's Glen, Scott county ; rare.
543. **C. arvensis**, L.
Cultivated and waste grounds ; becoming as troublesome in some localities as *C. sepium*.

Breweria, R. B.

544. *B. Pickeringii*, Gray.
Sandy soil along railroad at Fruitland ; local.

Cuscuta, Tourn. Dodder.

545. *C. chlorocarpa*, Engelm.
Low grounds along streams ; common. Often growing on *Xanthium* and low willows.
546. *C. tenuiflora*, Engelm.
On willows, *Compositæ*, and *Cephalanthus* ; frequent.
547. *C. inflexa*, Engelm.
On *Compositæ* and hazel ; infrequent.
548. *C. Gronovii*, Willd.
Low grounds ; infrequent. On *Compositæ*.
549. *C. cuspidata*, Engelm.
Sandy prairies near Fruitland. On Ambrosia, Erigeron, and Verbena, Sept., 1895, Sept., 1898.
550. *C. glomerata*, Choisy.
Low grounds ; frequent. On tall *Compositæ*.

SOLANACEÆ.

Solanum, Tourn. Nightshade.

- 551. **S. Dulcamara**, L. Bittersweet.
Waste places near old dwellings ; infrequent.
- 552. *S. nigrum*, L.
Shaded grounds ; common.
- 553. *S. Carolinense*, L. Horse Nettle.
Dry sandy soil ; frequent.
- 554. *S. rostratum*, Dunal.
Becoming frequent along railroad tracks. The first plants
within our limits were found in 1891.

Physalis, L. Ground Cherry.

- 555. *P. Philadelphica*, Lam.
Along river banks and railroad tracks ; infrequent.
- 556. *P. pubescens*, L.
Rich soil ; common.
- 557. *P. lanceolata*, Michx.
Railroads and waste places ; common.

Nicandra, Adans.

- 558. **N. physaloides**, Gaertn. Apple of Peru.
Escaped into a field near Muscatine, 1896.

Lycium, L.

- 559. **L. vulgare**, Dunal. Matrimony Vine.
Near old gardens ; common.

Datura, D. Jamestown Weed. "Jimsonweed."

- 560. **D. Stamonium**, L.
Waste places ; common in Muscatine county ; infrequent in
Scott county.
- 561. **D. Tatula**, L.
Waste places ; common in both counties.

SCROPHULARIACEÆ.

Verbascum, L. Mullein.

- 562. **V. Thapsus**, L. Common Mullein.
Waste places ; common.
- 563. **V. Blattaria**, L. Moth Mullein.
Woodland pastures, Muscatine county ; infrequent.

Linaria, Tourn.

564. *L. vulgaris*, Mill. Butter and Eggs.
Roadsides and railroad tracks ; frequent.

Scrophularia, Tourn. Figwort.

565. *S. nodosa*, L., var. *Marilandica*, Gray.
Woods and waste places ; common.

Chelone, Tourn. Turtle Head. Snake Head.

566. *C. glabra*, L.
Boggy places, Muscatine county ; infrequent.
567. *C. obliqua*, L. Purple Turtle Head.
Along Muscatine slough ; infrequent.

Penstemon, Mitchell. Beard-tongue.

568. *P. pubescens*, Solander.
Dry sandy soil ; frequent.
569. *P. lævigatus*, Solander, var. *Digitalis*, Gray.
Frequent in Cedar River region ; infrequent elsewhere.
570. *P. grandiflorus*, Nutt.
Sandy soil ; not rare, but confined to a limited area in Muscatine Island and Cedar River region.

Mimulus, L.

571. *M. ringens*, L. Monkey Flower.
Wet places ; common.

Conoclea, Aublet.

572. *C. multifida*, Benth.
Sandy soil, banks of Mississippi ; frequent.

Herpestis, Gaertn. f.

573. *H. rotundifolia*, Pursh.
Shallow pond near Muscatine.

Gratiola, L. Hedge Hyssop.

574. *C. Virginiana*, L.
Damp places ; rather frequent.

Ilysanthes, Raf.

575. *I. riparia*, Raf. False Pimpernel.
Wet places ; common.

Synthyris, Benth.

576. *S. Houghtoniana*, Benth.
Sandy soil in open woods, Cedar River region ; not rare.

Veronica, L. Speedwell.

577. *V. Virginica*, L. Culver's-root.
Prairies and woods ; common.
578. *V. scutellata*, L. Marsh Speedwell.
Low wet ground at Noels, Scott county.
579. *V. peregrina*, L. Neckweed. Purslane Speedwell.
Damp ground ; common.
580. *V. arvensis*, L. Corn Speedwell.
Dry soil, open woods ; infrequent.

Seymeria, Pursh.

581. *S. macrophylla*, Nutt. Mullein Foxglove.
Moist place near West Davenport ; Cedar River region.

Gerardia, L.

582. *G. grandiflora*, Benth.
Open woods ; infrequent.
583. *G. auriculata*, Michx.
Low grounds and prairies ; infrequent.
584. *G. aspera*, Dougl.
Cedar River region ; infrequent.
585. *G. purpurea*, L. Purple Gerardia.
Low grounds ; infrequent.
586. *G. tenuifolia*, Vahl. Slender Gerardia.
Low or dry ground ; frequent.
587. *G. tenuifolia*, var. *asperula*, Gray.
Dry hill at Wild Cat Den.

Castilleja, Mutis.

588. *C. coccinea*, Spreng. Scarlet-painted-Cup.
Dry sterile hills and sandy prairies ; becoming scarce.

Pedicularis, Tourn. Lousewort.

589. *P. Canadensis*, L. Wood Betony.
Damp hillsides, open woods, etc. ; frequent.
590. *P. lanceolata*, Michx.
Wet places, Cedar River region, Allen's Grove, Donahue.

OROBANCHACEÆ.**Aphyllon**, Mitchell. Naked Broom-rape.

591. *A. uniflorum*, Gray. One-flowered Cancer-root.
Richman's Woods near Muscatine. One plant, May, 1878.

LENTIBULARIACEÆ.

Utricularia, L. Bladder-wort.

592. *U. vulgaris*, L.
Ponds and slow-flowing water of Muscatine county; frequent.
593. *U. biflora*, Lam.
Collected in a pond near Cedar River, October, 1878.

BIGNONIACEÆ.

Tecoma, Juss.

594. *T. radicans*, Juss. Trumpet Creeper.
Near old dwellings, ; Fairport, Wyoming Hill.

Catalpa, Scop., Walt.

595. *C. bignonioides*, Walt.
Sparingly escaped ; Blue Grass.

PEDALIACEÆ.

Martynia, L.

596. *M. proboscidea*, Glox. Unicorn Plant.
Several plants were found growing in the bed of a creek
south of Pleasant Prairie, in 1894. Muscatine, 1878.

ACANTHACEÆ.

Ruellia, Plumier.

597. *R. ciliosa*, Pursh.
Dry grounds ; frequent.

VERBENACEÆ.

Verbena, Tourn.

598. *V. urticifolia*, L. White V.
Waste grounds ; common.
599. *V. angustifolia*, Michx.
Sandy river banks ; common.
600. *V. hastata*, L. Blue V.
Waste places ; common.
601. *V. stricta*, Vent. Hoary V.
Prairies and waste places ; common.

602. *V. bracteosa*, Michx.

Waste places ; common.

V. hastata x urticæfolia.

Frequent.

603. *V. hastata x bracteosa*.

Along Pine Creek, near Wild Cat Den. 1894.

604. *V. hastata x stricta*.

Common with the parent species.

605. *V. stricta x angustifolia*.

This hybrid is frequent wherever the parent species are contiguous, as on prairies bordering river banks.

606. *V. stricta x bracteosa*.

Frequent in the vicinity of Moscow.

Lippia, Houst.

607. *L. lanceolata*, Michx. Fog-fruit.

River banks ; common.

Phryma, L.

608. *P. Leptostachya*, L. Lopseed.

Open woods ; common.

LABIATÆ.

Isanthus, Michx.

609. *I. cæruleus*, Michx. False Pennyroyal.

Dry sandy soil ; frequent.

Teucrium, Tourn.

610. *T. Canadense*, L. Wood Sage.

Low grounds ; common.

Perilla, L.

611. *P. ocymoides*, L.

Has escaped from cultivation near Blue Grass and persisted for ten years.

Mentha, Tourn. Mint.

612. *M. viridis*, L. Spearmint.

Low grounds ; not frequent.

613. *M. Canadensis*, L. Wild Mint.

Low grounds ; common.

Lycopus, Tourn. Water Hoarhound.

614. *L. Virginicus*, L. Bugle-weed.

Low places ; common.

615. *L. rubellus*, Moench.

River banks ; frequent.

616. *L. sinuatus*, Ell.

Wet grounds ; common.

Pycnanthemum, Michx. Mountain Mint.

617. *P. lanceolatum*, Pursh.

Prairies and dry woods ; common.

618. *P. linifolium*, Pursh.

Dry prairies ; common.

619. *P. muticum*, Pers., var. *pilosum*, Gray.

Hillsides and dry grounds ; frequent.

Hedeoma, Pers.

620. *H. pulegioides*, Pers. American Pennyroyal.

Dry soils ; frequent.

621. *H. hispida*, Pursh.

Dry prairies and barrens , common.

Salvia, L. Sage.

622. *S. azurea*, Lam., var. *grandiflora*, Benth.

C. R. I. & P. railroad track, Muscatine.

623. *S. lanceolata*, Willd.

Sandy soil ; Muscatine Island, streets of Davenport and Muscatine. Infrequent.

Monarda, L. Horse Mint.

624. *M. fistulosa*, L. Wild Bergamot.

Borders of woods, fencerows, and roadsides ; common. Albinos are occasionally found.

625. *M. punctata*, L. Horse Mint.

Sandy soil along rivers ; common.

Blephilia, Raf.

626. *B. hirsuta*, Benth.

Damp woods ; frequent.

Lophanthus, Benth. Giant Hyssop.

627. *L. nepetoides*, Benth.

Thickets and borders of woods ; frequent.

628. *L. scrophulariaefolius*, Benth.

With the last ; infrequent.

Nepeta, L.

629. **N. Cataria**, L. Catnip.
Near dwellings and in open woods ; common.
630. **N. Glechoma**, Benth. Ground Ivy.
Shady places near dwellings ; frequent.

Scutellaria, L. Skullcap.

631. *S. lateriflora*, L.
Wet places ; common.
632. *S. versicolor*, Nutt.
Woods ; infrequent.
633. *S. canescens*, Nutt.
Banks of streams ; frequent.
634. *S. parvula*, Michx.
Gravelly hillsides ; rather common.
635. *S. parvula*, Michx., var. *mollis*, Gray.
River banks, Buffalo, Devil's Glen.
636. *S. galericulata*, L.
Wet shady places along rivers ; frequent.
637. *S. nervosa*, Pursh.
Shady woods along Wapsipinicon ; infrequent.

Brunella, Tourn.

638. *B. vulgaris*, L. Heal-all.
Moist woods ; common.

Physostegia, Benth.

639. *P. Virginiana*, Benth. False Dragon-head.
Low wet grounds ; infrequent.

Marrubium, Tourn.

640. **M. vulgare**, L. Common Hoarhound.
Waste places near dwellings ; infrequent.

Leonurus, L.

641. **L. Cardiaca**, L. Motherwort.
Waste places near dwellings ; frequent.

Lamium, L. Dead-Nettle.

642. **L. amplexicaule**, L.
Cultivated grounds near East Davenport.

Stachys, Tourn. Hedge Nettle.

643. *S. palustris*, L.
Moist grounds ; common.
644. *S. aspera*, Michx.
Moist grounds ; frequent.

PLANTAGINACEÆ.

Plantago, Tourn. Plantain. Ribwort.

645. *P. major*, L.
Railroad tracks and streets ; frequent.
646. *P. Rugelii*, Decaisne.
Waste grounds, yards, etc.; very common.
647. *P. lanceolata*, L. Ribgrass. English P.
Introduced with clover and grass seed ; infrequent.
648. *P. Patagonica*, Jacq., var. *aristata*, Gray.
Dry prairies ; infrequent.
649. *P. Virginica*, L.
Sandy soil ; Noels, Muscatine.

NYCTAGINACEÆ.

Oxybaphus, Vahl.

650. *O. nyctagineus*, Sweet.
Dry soil ; frequent on railroad tracks.

ILLECEBRACEÆ.

Anychia, Michx. Forked Chickweed.

651. *A. dichotoma*, Michx.
Dry wooded hillsides ; common.
652. *A. capillacea*, DC.
Sandy woods, Cedar River region.

AMARANTACEÆ.

Amarantus, Tourn.

653. *A. hypochondriacus*, L.
Railroad tracks in Davenport and Muscatine ; also an escape
near gardens.

654. *A. paniculatus*, L.
Waste places ; frequent.
655. *A. retroflexus*, L. Pigweed.
Cultivated and waste grounds ; very common.
656. *A. chlorostachys*, Will.
Frequent.
657. *A. albus*, L. Tumble Weed.
Waste and cultivated grounds ; common.
658. *A. blitoides*, Watson.
Waste places ; common.
659. *A. Torreyi*, Benth.
Railroad track from Fruitland to Fairport ; frequent. Introduced from the Southwest.

Acnida, Mitch. Water Hemp.

660. *A. tuberculata*, Moq.
River banks ; frequent.

Froelichia, Moench.

661. *F. Floridana*, Moquin.
Dry sandy places ; abundant locally.

CHENOPODIACEÆ.

Cycloloma, Moquin. Winged Pigweed.

662. *C. platyphyllum*, Moquin.
Usually found with *Froelichia*.

Chenopodium, Tourn.

663. *C. Boscianum*, Moquin.
Open woods ; frequent.
664. *C. album*, L. Lamb's Quarters. Pigweed.
Fields and waste places ; very common.
665. *C. urbicum*, L.
Streets of Davenport and Muscatine.
666. *C. murale*, L.
Streets of Muscatine.
667. *C. hybridum*, L. Maple-leaved Goosefoot.
Moist rich soil ; frequent.
668. *C. glaucum*, L.
Waste grounds of Davenport and Muscatine

669. **C. Botrys**, L. Jerusalem Oak. Feather Geranium.
Banks of Cedar River ; waste places in Davenport and Muscatine.

670. **C. ambrosioides**, L. Mexican Tea.
Waste places near habitations in Davenport and Muscatine.

Atriplex, Tourn.

671. *A. patulum*, L., var. *hastatum*, Gray.
Streets of Davenport and Eldridge.

Salsola, L.

672. **S. Kali**, L., var. *tragus*, DC. Russian Thistle.
Railroad tracks, Davenport and Muscatine ; becoming abundant at the latter place.

PHYTOLACCACEÆ.

Phytolacca, Tourn.

673. *P. decandra*, L. Pokeweed.
Near dwellings ; infrequent.

POLYGONACEÆ.

Rumex, L.

674. *R. Britannica*, L. Great Water Dock.
Wet places ; frequent.
675. *R. altissimus*, Wood. Pale Dock.
Moist soil ; not uncommon.
676. *R. verticillatus*, L. Swamp Dock.
Margins of ponds along rivers ; infrequent.
677. **R. crispus**, L. Curled Dock.
Waste places ; common.
678. **R. obtusifolius**, L. Bitter Dock.
Muscatine, Buffalo, Davenport.
679. **R. acetosella**, L.
Dry fields ; common. Becoming a pest in meadows and pastures.

Polygonum, Tourn. Knotweed.

680. *P. aviculare*, L.
Yards and waste places ; common.
681. *P. erectum*, L.
With the last ; common.

682. *P. ramosissimum*, Michx.
Sandy soil ; rather common.
683. *P. tenue*, Mickx.
Sandy soil, Cedar River, Muscatine Island.
684. *P. lapathifolium*, L., var. *incarnatum*, Watson.
Wet grounds ; common.
685. *P. Pennsylvanicum*, L.
Moist waste grounds ; common.
686. *P. amphibium*, L.
In water and mud, ponds along the Mississippi, Cedar, and Wapsie ; infrequent.
687. *P. Muhlenbergii*, Watson.
Low grounds ; common. A troublesome weed.
688. *P. Hartwrightii*, Gray.
Margins of ponds ; Eldridge, Noels, and islands of Mississippi River.
689. *P. orientale*, L. Prince's Feather.
Escaped from Gardens ; frequent along river bank in Muscatine and Davenport.
690. *P. Persicaria*, L.
Waste places ; common.
691. *P. Hydropiper*, L.
Wet grounds ; common.
692. *P. acre*, HBK.
Wet grounds ; common.
693. *P. Virginianum*, L.
Moist rich woodlands ; infrequent.
694. *P. sagittatum*, L. Arrow-leaved Tear-thumb.
Low grounds ; rather frequent.
695. *P. Convolvulus*, L. Black Bindweed.
Waste places ; frequent.
696. *P. dumetorum*, L., var. *scandens*, Gray.
Thickets ; frequent.
697. *P. cuspidatum*, Sieb. & Zucc.
Escaped from gardens at Wilton.

Fagopyrum, Tourn.

698. *F. esculentum*, Moench. Buckwheat.
Spontaneous in fields and roadsides.

ARISTOLOCHIACEÆ.

Asarum, Tourn.

699. *A. Canadense*, L. Wild Ginger.
Rich woods ; not rare.

Aristolochia, Tourn.

700. *A. Serpentaria*, L. Virginia Snakeroot.
Woodlands, Wyoming Hill, T'w'p. Seventy-six ; rare.

SANTALACEÆ.

Comandra, Nutt.

701. *C. umbellata*, Nutt. Bastard Toad-flax.
Dry grounds ; frequent.

EUPHORBIACEÆ.

Euphorbia, L. Spurge.

702. *E. Geyeri*, Engelm.
Common in sandy soil near Cedar River.
703. *E. glyptosperma*, Engelm.
Sandy soil ; frequent near Cedar River.
704. *E. maculata*, L.
Waste places ; common.
705. *E. Preslii*, Guss.
Waste places ; common.
706. *E. hexagona*, Nutt.
Sandy soil, Cedar River region.
707. *E. marginata*, Pursh.
Escaped ; streets of Davenport and Muscatine.
708. *E. corollata*, L.
Fields and waste places ; common.
709. *E. dentata*, Michx.
Sandy soil, Fruitland.
710. *E. heterophylla*, L.
Sandy soil along rivers ; frequent.
711. *E. dictyosperma*, Fischer & Meyer.
Sandy soil along rivers ; infrequent.
712. *E. Cyparissias*, L.
Escaped from gardens ; frequent.

713. **E. Peplus**, L.

Muscatine ; infrequent. Probably of recent introduction.

Croton, L.

714. *C. glandulosus*, L.

Sandy soil ; common.

715. *C. capitatus*, Michx.

Dry sandy soil ; abundant locally ; West Davenport, islands of the Mississippi, Camp McClellan.

716. *C. Texensis*, Muell.

Front street, Muscatine ; infrequent.

Acalypha, L.

717. *A. Virginica*, L. Three-seeded Mercury.

Fields, woods and waste places ; common.

718. *A. Virginica*, var. *gracilens*, Muell.

Dry sandy soil ; frequent and abundant locally.

URTICACEÆ.

Ulmus, L. Elm.

719. *U. fulva*, Michx. Slippery or Red Elm.

Woods ; rather uncommon.

720. *U. Americana*, L. River or White Elm

Along streams ; common.

Celtis, Tourn.

721. *C. occidentalis*, L. Hackberry.

Woods and river banks ; frequent.

Cannabis, Tourn.

722. **C. sativa**, L. Hemp.

Waste places ; common.

Humulus, L.

723. *H. Lupulus*, L. Hop.

Woods, roadsides, and near dwellings ; infrequent.

Maclura, Nutt.

724. *M. aurantiaca*, Nutt. Osage Orange.

Planted as hedge and very sparingly escaped.

Morus, Tourn.

725. *M. rubra*, L. Red Mulberry.

Rich woods ; infrequent.

Urtica, Tourn.

726. *U. gracilis*, Ait. Nettle.
Moist waste places; infrequent.

Laportea, Gaudichaud.

727. *L. Canadensis*, Gaudichaud. Wood Nettle.
Rich woods; infrequent.

Pilea, Lindl.

728. *P. pumila*, Gray. Richweed. Clearweed.
Moist shady woods; frequent.

Boehmeria, Jacq.

729. *B. cylindrica*, Willd. False Nettle.
Moist rich soil; rare. Wild Cat Den; Noels.

Parietaria, Tourn.

730. *P. Pennsylvanica*, Muhl.
Moist shady places; common.

PLATANACEÆ.**Platanus**, L.

731. *P. occidentalis*, L. Sycamore. Buttonwood.
River banks; common.

JUGLANDACEÆ.**Juglans**, L.

732. *J. cinerea*, L. Butternut. White Walnut.
Woods; frequent.
733. *J. nigra*, L. Black Walnut.
Woods; rather common.

Carya, Nutt. Hickory.

734. *C. olivæformis*, Nutt. Pecan.
Along rivers; rare within our limits. Islands of the Mississippi River.
735. *C. alba*, Nutt. Shell-bark or Shag-bark H.
Common.
736. *C. sulcata*, Nutt. Big Shell-bark. King Nut.
Infrequent in our limits. Along Wapsipinicon River, on islands of Mississippi, along Cedar River.
737. *C. tomentosa*, Nutt. Mocker Nut. White-heart H.
The most common hickory.

738. *C. amara*, Nutt. Bitter Nut or Swamp H.
Frequent in low grounds and not rare in hilly woodlands.
739. *C. olivæformis* \times *tomentosa*.
Big timber near Muscatine.
740. *C. olivæformis* \times *amara*.
Big timber near Muscatine.

CUPULIFERÆ.

Betula, Tourn.

741. *B. lutea*, Michx. f. Yellow or Gray Birch.
Along rivers ; common.

Corylus, Tourn.

742. *C. Americana*, Walt. Wild Hazelnut.
Thickets and open woods ; common.

Ostrya, Micheli.

743. *O. Virginica*, Willd. American Hop-Hornbeam.
Woods ; frequent.

Carpinus, L. Hornbeam. Ironwood.

744. *C. Caroliniana*, Walter. Blue or Water Beech.
Along creeks ; infrequent.

Quercus, L. Oak.

745. *Q. alba*, L. White Oak.
Common.
746. *Q. macrocarpa*, Michx. Burr Oak.
Common.
747. *Q. bicolor*, Willd. Swamp White Oak.
Along rivers ; frequent.
748. *Q. Muhlenbergii*, Engelm. Chestnut Oak.
Bluff woodlands below Muscatine. Several trees on hillside
by railroad cut near N. W. Davenport (Radenhausen).
749. *Q. rubra*, L. Red Oak.
Common.
750. *Q. coccinea*, Wang., var. *tinctoria*, Gray. Yellow-barked Oak.
Frequent.
751. *Q. ellipsoidalis*, E. J. Hill.
One tree near Big Rock. See description at end of list.

752. *Q. palustris*, Du Roi. Pin Oak.
Along rivers; frequent.
753. *Q. imbricaria*, Michx. Shingle Oak.
Cedar T'w'p. and Offerman's Island. Several trees at each place.

SALICACEÆ.

Salix, Tourn. Willow.

754. *S. nigra*, Marsh. Black Willow.
Along streams; common.
755. *S. amygdaloides*, Anders.
Along streams; rather common. One tree having hermaphrodite flowers grows near Blue Grass.
756. **S. Fragilis**, L. Crack Willow.
Several trees along stream near Blue Grass.
757. **S. alba**, L., var. *vitellina*, Kock.
Frequent.
758. **S. Babylonica**, Tourn. Weeping Willow.
Two trees near Muscatine and one northeast of Eldridge, apparently spontaneous.
759. *S. longifolia*, Muhl.
Low wet grounds; common.
760. *S. rostrata*, Richardson.
A single shrub in low ground at Eldridge.
761. *S. discolor*, Muhl. Glaucous Willow.
Banks of creeks; rather common.
762. *S. humilis*, Marsh. Prairie Willow.
Dry prairies; frequent.
763. *S. petiolaris*, Smith.
Low wet grounds; frequent.
764. **S. purpurea**, L.
Along Mud Creek, Muscatine.
765. *S. cordata*, Muhl. Heart-leaved Willow.
Wet places; common.
766. *S. cordata*, var. *angustata*, Anders.
With the type; infrequent.

Populus, Tourn. Poplar.

767. *P. alba*, L. Silver Leaf.
Roadsides; common.
768. *P. tremuloides*, Michx. American Aspen.
Woods; infrequent.
769. *P. grandidentata*, Michx. Large-toothed Aspen.
Open woods; frequent.
770. *P. monilifera*, Ait. Cottonwood.
Planted extensively.

CERATOPHYLLACEÆ.**Ceratophyllum**, L.

771. *C. demersum*, L. Hornwort.
Ponds and slow-flowing water; frequent.

CONIFERÆ.**Pinus**, Tourn.

772. *P. Strobus*, L. White Pine.
A few large trees grow on cliffs at Wild Cat Den.

Juniperus, L.

773. *J. Virginiana*, L. Red Cedar.
Rocky hillsides; infrequent.

HYDROCHARIDACEÆ.**Elodea**, Michx.

774. *E. Canadensis*, Michx. Water Weed.
Ponds and slow streams; frequent.

Vallisneria, L.

775. *V. spiralis*, L. Tape Grass. Eel Grass.
Ponds of Mississippi River islands.

ORCHIDACEÆ.**Microstylis**, Nutt.

776. *M. ophioglossoides*, Nutt. Adder's Mouth.
Woods along Millar's Creek in Bloomington Township.
Collected once, 1892. (Mackenzie.)

Liparis, Richard. Twayblade.

777. *L. liliifolia*, Richard.
Moist woods; Allen's Grove, Wild Cat Den., etc.; infrequent.

778. *L. Loeselii*, Richard.
Boggy places, Cedar River region ; rare.

Corallorhiza, Haller.

779. *C. odontorhiza*, Nutt. Coral-root.
Three plants in rich woods at Allen's Grove, Sept. 17, 1892.

Spiranthes, Richard. Ladies' Tresses.

780. *S. cernua*, Richard.
Wet meadows and boggy places ; infrequent.
781. *S. gracilis*, Bigelow.
Dry soil ; Wild Cat Den, Cedar River region, Muscatine ;
rare.

Goodyera, R. Br.

782. *G. pubescens*, R. Br. Rattlesnake Plantain.
Wooded ravine at Wild Cat Den ; also found sparingly in
the Cedar River region.

Calopogon, R. Br.

783. *C. pulchellus*, R. Br.
Boggy places in Cedar River region. With *Lechea tenuifolia*, *Helianthemum Canadense*, *Coreopsis palmata*, and *Viola pedata* on a dry gravelly hillside at Wild Cat Den!
Infrequent.

Orchis, L.

784. *O. spectabilis*, L. Showy Orchis.
Rich woods ; infrequent. Abundant at Allen's Grove,
Scott county.

Habenaria, Willd. Rein Orchis.

785. *H. tridentata*, Hook.
Borders of hilly woods in damp sandy soil along Cedar River ;
infrequent.
786. *H. virescens*, Spreng.
Meadow in vicinity of Salisbury Bridge, Cedar River region.
787. *H. bracteata*, R. Br.
Moist rich woodlands ; infrequent. In dry soil with *Asclepias quadrifolia* at Wild Cat Den.
788. *H. leucophæa*, Gray.
Moist prairies near Eldridge. First observed after the rainy
spring of 1898.

Cypripedium, L. Lady's Slipper.

789. *C. candidum*, Muhl. Small White Lady's Slipper.
Abundant in a swale near Eldridge, blooming in very wet years only. Muscatine; rare.
790. *C. parviflorum*, Salisb. Smaller Yellow L.
Rich woods; infrequent.
791. *C. pubescens*, Willk. Larger Yellow L.
Rich woods; more frequent than the preceding species.
792. *C. spectabile*, Swartz. Showy L.
Boggy places and wet hillsides in various localities in Muscatine county; now quite scarce.

IRIDACEÆ.**Iris**, Tourn. Flower-de-Luce.

793. *I. versicolor*, L. Larger Blue Flag.
Wet places; common.

Sisyrinchium, L.

794. *S. angustifolium*, Mill.
Meadows; common.

AMARYLLIDACEÆ.**Hypoxis**, L.

795. *H. erecta*, L. Star Grass.
Grassy places; common.

DIOSCOREACEÆ.**Dioscorea**, Plumier.

796. *D. villosa*, L. Wild Yam-root.
Woods; rather common.

LILIACEÆ.**Smilax**, Tourn. Green Brier. Cat Brier.

797. *S. herbacea*, L. Carrion Flower.
Moist woods and river banks; infrequent.
798. *S. cirrhata*, Watson.
Woods; frequent. In the low forms there are no tendrils, in taller plants the upper leaves are tendril-bearing.
799. *S. hispida*, Muhl.
Thickets and moist woods; frequent.

Allium, L.

800. *A. tricoccum*, Ait. Wild Leek.
Rich woods ; frequent.
801. *A. Canadense*, Kalm. Wild Garlic.
Prairies and open woods ; common.

Camassia, Lindl.

802. *C. Fraseri*, Torr. Wild Hyacinth.
Rich open woods and prairies ; infrequent.

Polygonatum, Tourn.

803. *P. giganteum*, Dietrich. Great Solomon's Seal.
Moist woods ; frequent.

Asparagus, Tourn.

804. *A. officinalis*, L.
Escaped from cultivation.

Smilacina, Desf. False Solomon's Seal.

805. *S. racemosa*, Desf. False Spikenard.
Moist woods ; common.
806. *S. stellata*, Desf.
With the last ; common.

Maianthemum, Wigg.

807. *M. Canadense*, Desf.
Steep rocky hillside at Wild Cat Den ; confined to small area.

Uvularia, L.

808. *U. grandiflora*, Smith. Bellwort.
Moist rich woods ; infrequent.

Oakesia, Watson.

809. *O. sessilifolia*, Watson.
Cedar River region, in woods ; infrequent.

Erythronium, L.

810. *E. albidum*, Nutt. White Dog's-tooth Violet.
Rich woods ; frequent.

Lilium, L. Lily.

811. *L. Philadelphicum*, L. Wild Orange-red Lily.
Dry prairies ; infrequent.
812. *L. Canadense*, L. Wild Yellow Lily.
Prairies, meadows, and borders of woods ; not infrequent.

Trillium, L. Wake Robin. Birthroot.

813. *T. recurvatum*, Beck.

Rich woods ; infrequent.

814. *T. erectum*, L.

Rich woods ; scarce. Flowers white, rather small.

PONTEDERIACEÆ.

Pontederia, L.

815. *P. cordata*, L. Pickerel-weed.

Ponds and slowly-flowing waters ; frequent in Muscatine Co.

Heteranthera, Ruiz. & Pav.

816. *H. graminea*, Vahl. Mud Plantain.

Mud and shallow water ; infrequent.

XYRIDACEÆ.

Xyris, Gronov.

817. *X. flexuosa*, Muhl. Yellow-eyed Grass.

Boggy places near Cedar River ; rare.

COMMELINACEÆ.

Commelina, Dill.

818. *C. Virginica*, L.

Dry sandy soil along railroad tracks near Fruitland.

Tradescantia, L. Spiderwort.

819. *T. Virginica*, L.

Railroad tracks ; common.

820. *T. Virginica*, var. *villosa*, Watson.

Sandy soil, Cedar River region. Flowers are often light rose-color.

JUNCACEÆ.

Juncus, Tourn. Rush.

821. *J. marginatus*, Rostk.

Muscatine county ; infrequent.

822. *J. tenuis*, Willd.

Fields, roadsides, etc. ; common.

823. *J. acuminatus*, Michx.

Muscatine county ; infrequent.

824. *J. nodosus*, L., var. *megacephalus*, Torr.
Wet grounds ; common.

825. *J. Canadensis*, J. Gay.
Muscatine county ; infrequent.

Luzula, DC. Wood Rush.

826. *L. vernalis*, DC.
Moist sandy soil at Wild Cat Den.
827. *L. campestris*, DC.
Woodlands ; infrequent.

TYPHACEÆ.

Typha, Tourn.

828. *T. latifolia*, L. Cat-tail.
Sloughs ; common.

Sparganium, Tourn. Burr-reed.

829. *S. eurycarpum*, Engelm.
Marshy places ; rather frequent.
830. *S. simplex*, Huds., var. *androcladum*, Engelm.
Marshy places. Along Cedar River in Lake T'w'p., Muscatine county, June, 1894. Atalissa, September, 1896. Infrequent in Scott county.

ARACEÆ.

Arisæma, Martins.

831. *A. triphyllum*, Torr.
Moist rich woods ; frequent.
832. *A. Dracontium*, Schott. Dragon-root.
Low grounds along rivers ; frequent.

Symplocarpus, Salisb.

833. *S. foetidus*, Salisb. Skunk Cabbage.
Swampy grounds ; infrequent.

Acorus, L.

834. *A. Calamus*, L.
Swampy grounds ; infrequent.

LEMNACEÆ.

Spirodela, Schleiden.

835. *S. polyrrhiza*, Schleiden.
Ponds ; common.

Lemna, L. Duckweed.

- 836.
- L. trisulca*
- , L.

Ponds near Cedar River ; abundant locally.

- 837.
- L. minor*
- , L.

Ponds ; frequent. Found in bloom along Cedar River near the B. C. R. & N. Railroad bridge, September 24, 1894.

Wolffia, Horkel.

- 838.
- W. Columbiana*
- , Karsten.

Growing with *L. trisulca*, *L. minor*, and *Spirodela* in Oeping's Pond, near Moscow.

- 839.
- W. Brasiliensis*
- , Weddell.

Ponds ; common.

ALISMACEÆ.**Alisma**, L.

- 840.
- A. Plantago*
- , L. Water Plantain.

Shallow water and margins of ponds ; common.

Sagittaria, L. Arrow-head.

- 841.
- S. variabilis*
- , Engelm.

Wet places ; common. The varieties, *obtus*a, *latifolia*, and *angustifolia* are also found.

- 842.
- S. heterophylla*
- , Pursh.

Sloughs and swampy places on Muscatine Island ; not rare.

- 843.
- S. graminea*
- , Michx.

Wet places ; frequent.

- 844.
- S. calycina*
- , Engelm.

In mud and shallow water along the Mississippi River. Muscatine Island.

Echinodorus, Richard.

- 845.
- E. rostratus*
- , Engelm.

Margins of ponds, etc. Muscatine Island ; infrequent.

NAIADACEÆ.**Potamogeton**, Tourn. Pondweed.

- 846.
- P. natans*
- , L.

Ponds along Cedar River ; infrequent.

- 847.
- P. Pennsylvanicus*
- , Cham.

Ponds along Cedar River, June, 1894. Infrequent.

848. *P. Spirillus*, Tuckerm.
Shallow pond on Muscatine Island, July, 1894. (Mackenzie.)
1896.
849. *P. fluitans*, Roth.
Rivers, sloughs and ponds. Plants in the Mississippi River
have the submersed leaves over a foot long.
850. *P. amplifolius*, Tuckerm.
Ponds and sloughs along Cedar River; infrequent. July,
1894.
851. *P. Illinoensis*, Morong.
Muscatine Slough and ponds on Muscatine Island; rather
frequent.
852. *P. zosteræfolius*, Schum.
Ponds along Cedar River; infrequent.
853. *P. pauciflorus*, Pursh.
Ponds and sloughs; rather frequent.
854. *P. pusillus*, L.
Ponds and sloughs along Cedar River; not frequent.
855. *P. mucronatus*, Schrad.
Muscatine Slough and sloughs along Cedar River.
856. *P. pectinatus*, L.
Ponds and sloughs; not infrequent.
- Zannichellia**, Micheli.
857. *Z. palustris*, L.
Ponds and sloughs of Muscatine county; frequent.
- Naias**, L.
858. *N. flexilis*, Rostk. & Schmidt.
Habitat and range of the preceding but less frequent.

CYPERACEÆ.

Cyperus, Tourn.

859. *C. diandrus*, Torr.
Low grounds along Cedar River; infrequent.
860. *C. diandrus*, Torr., var. *castaneus*, Torr.
Low grounds; common.
861. *C. aristatus*, Rottb.
Sandy soil along rivers; frequent.

862. *C. acuminatus*, Torr.
Low sandy soil ; Noels ; near Follets.
863. *C. Schweinitzii*, Torr.
Dry sandy soil along Cedar and Wapsipinicon Rivers.
864. *C. filiculmis*, Vahl.
With the last ; also on dry hillside at Wild Cat Den.
865. *C. erythrorhizos*, Muhl.
River shores ; frequent.
866. *C. esculentus*, L.
Cultivated grounds ; rather frequent.
867. *C. strigosus*, L.
Common in moist soil.
868. *C. strigosus*, L., var. *compositus*, Britton.
Wet grounds ; infrequent.
869. *C. speciosus*, Vahl.
Usually found with *C. erythrorhizos*, Muhl.

Dulichium, Pers.

870. *D. spathaceum*, Pers.
Margins of ponds ; Moscow ; Noels.

Eleocharis, R. Br. Spike Rush.

871. *E. atropurpurea*, Kunth.
Growing with *Fimbristylis capillaris*, Gray, in wet sand near
Fruitland. Determined by Britton.
872. *E. ovata*, R. Br.
In mud and wet sand ; rather frequent.
873. *E. palustris*, R. Br.
Common in low ground.
874. *E. palustris*, R. Br., var. *glaucescens*, (Willd.) Gray.
Low wet ground ; Davenport, Noels.
875. *E. tenuis*, Schultes.
Frequent.
876. *E. compressa*, Sullivant.
Frequent in low grounds.
877. *E. acicularis*, R. Br.
Common in wet grounds.

Fimbristylis, Vahl.

878. *F. autumnalis*, Roem. & Schult.

Wet sandy soil; infrequent. Two forms have been observed; the form found near the Wapsipinicon and Cedar Rivers has low, tufted culms, papillose hairy leaves, compound umbel, and smooth achene; the form found near Fruitland is erect, not tufted, with simple umbels, and sculptured achene smaller and more obovate.

878. *F. capillaris*, Gray.

Sandy soil; Fruitland, Noels.

Scirpus, Tourn. Bulrush. Club Rush.

879. *S. pungens*, Vahl.

Shores of Mississippi River; frequent.

880. *S. lacustris*, L.

Sloughs and river shores; common.

881. *S. supinus*, L., var. *Hallii*, Gray.

Fruitland; rare.

882. *S. atrovirens*, Muhl.

Common in wet places.

Eriophorum, L. Cotton Grass.

883. *E. lineatum*, Benth. & Hook.

Wet places; frequent.

884. *E. cyperinum*, L.

With the last but less frequent.

885. *E. polystachon*, L.

Swale near Eldridge (two plants); infrequent in boggy soil along Cedar River.

Hemicarpha, Nees.

886. *H. subsquarrosa*, Nees.

In sand along rivers; frequent.

Scleria, Berg. Nut Rush.

887. *S. triglomerata*, Michx.

Dry sterile hillside, Wild Cat Den.

Carex, Ruppius. Sedge.

888. *C. Grayii*, Carey.

River banks; frequent.

889. *C. lupulina*.
Borders of ponds and along rivers ; frequent.
890. *C. monile*, Tuckerm.
Swales. Moscow, Noels.
891. *C. hystricina*, Muhl.
Sloughs and creeks ; common.
892. *C. Pseudo-Cyperus*, L., var. *Americana*, Hochst.
Borders of ponds in the Cedar River region ; infrequent.
893. *C. squarrosa*, L.
With *C. Grayii*, Carey, but less frequent. Our plant is *C. typhinioides*, Schwein.
894. *C. Shortiana*, Dewey.
Marshy soil in a ravine at Wild Cat Den.
895. *C. filiformis*, L., var. *latifolia*, Boeckl.
Common. A form with narrow leaves is frequent.
896. *C. trichocarpa*, Muhl.
Margin of a pond, Little's Grove, Scott county.
897. *C. trichocarpa*, Muhl., var. *Deweyii*, Bailey.
Common on banks of Mississippi River. Noels.
898. *C. fusca*, All.
Swales near Noels and Eldridge.
899. *C. stricta*, Lam., var. *angustata*, Bailey.
Swales ; frequent.
900. *C. stricta*, Lam., var. *decora*, Bailey.
Swales ; frequent.
901. *C. longirostris*, Torr.
Cliff near Big Rock, with *Stipa spartea*, Trin. Abundant on Government Island.
902. *C. Davisii*, Schwein. & Torr.
Low grounds ; Noels, Moscow, West Liberty.
903. *C. grisea*, Wahl.
Banks of Wapsipinicon ; infrequent.
904. *C. grisea*, Wahl., var. *angustifolia*, Boot.
(*C. amphibola*, Stend.)
Moist soil, especially rich woodlands along rivers ; frequent.
905. *C. conoidea*, Schkuhr.
Low unbroken prairie near Noels ; rare.

906. *C. oligocarpa*, Schkuhr.
Rich woods ; frequent.
907. *C. laxiflora*, Lam.
Rich woods ; common.
908. *C. laxiflora*, Lam., var. *striatula*, Carey.
(*C. laxiflora blanda*, (Dew.) Boott.)
With the last ; common.
909. *C. laxiflora*, Lam., var. *latifolia*, Boott.
(*C. albursina*, Sheldon.)
Moist rich woods ; Wild Cat Den, Allen's Grove.
910. *C. digitalis*, Willd., var. *copulata*, Bailey.
Growing with the last in ravines at Wild Cat Den ; rare.
911. *C. tetanica*, Schkuhr., var. *Meadii*, Bailey.
Grass lands ; frequent.
912. *C. Pennsylvanica*, Lam.
Dry woodlands ; common.
913. *C. communis*, Bailey.
Large tufts of this species grow upon sides of cliffs at Wild
Cat Den ; rare.
914. *C. pubescens*, Muhl.
Rich woods ; infrequent.
915. *C. Jamesii*, Schwein.
Moist rich woods ; Wilton, Wild Cat Den ; rare.
916. *C. stipata*, Muhl.
Low wet ground ; not common.
917. *C. crus-corvi*, Shuttlew.
Borders of Muscatine Slough , rare.
918. *C. gravida*, Bailey.
Dry soil ; frequent.
919. *C. gravida*, Bailey, var. *laxifolia*, Bailey.
Dry sandy soil ; Buffalo, Noels.
920. *C. vulpinoidea*, Michx.
Common in low ground.
921. *C. xanthocarpa*, Bicknell.
(Bull. Torr. Club, XX, 22 (1896).)
Dry meadows ; Buffalo, Blue Grass.

922. *C. Sartwellii*, Dewey.
Low places ; infrequent.
923. *C. rosea*, Schkuhr.
Rich woods ; frequent.
924. *C. sparganioides*, Muhl.
Rich woods ; infrequent.
925. *C. cephaloidea*, Dewey.
Low ground near Valley City, Scott county ; rare.
926. *C. cephalophora*, Muhl.
Dry sterile soil ; frequent.
927. *C. sterilis*, Willd., var. *excelsior*, Bailey.
(Bull. Torr. Club, XX, 425, (1893). "Very like *C. Atlantica*."—Prof. Bailey.)
Low grass land ; Buffalo, Scott county. Abundant locally.
928. *C. interior*, Bailey.
(Bull. Torr. Club, XX, 426, (1893).)
Swale near Eldridge, Scott county. Abundant locally.
929. *C. Muskingumensis*, Schwein.
In woods along Mississippi and Wapsipinicon Rivers ; infrequent.
930. *C. tribuloides*, Wahl.
Low ground ; frequent.
931. *C. tribuloides*, Wahl., var. *cristata*, Bailey.
Moist ground ; rather common
932. *C. scoparia*, Schkuhr.
Low ground ; frequent.
933. *C. foenea*, Willd.
Dry grass land near Eldridge. "Very like *C. silicea*."—Prof. Bailey.
934. *C. foenea*, Willd., var. *perplexa*, Bailey.
Swales near Noels and Buffalo ; on a dry wooded hillside near Big Rock. Rare.
935. *C. straminea*, Willd.
Open woods along Wapsipinicon River and at Blue Grass.
936. *C. straminea*, Willd., var. ?.
Dry woods and prairies ; rather frequent.
937. *C. straminea*, Willd., var. *ferruginea*, Bailey.
In a swale near Walcott, Scott county ; rare.

GRAMINEÆ.

Spartina, Schreber.

938. *S. cynosuroides*, Willd. Fresh-water Cord-grass.
Banks of rivers and creeks; common.

Paspalum, L.

939. *P. setaceum*, Michx.
Our plant is the *P. ciliatifolium* of Michaux. Dry sandy soil;
infrequent.

Panicum, L. Panic Grass.

940. *P. filiforme*, L.
Dry sterile hillside, Wild Cat Den.
941. **P. glabrum**, Gaudin.
This and the next species are common in all soils; as
observed in our range *P. glabrum* thrives better in poor
soil than *P. sanguinale*.
942. **P. sanguinale**, L. Crab or Finger Grass.
943. *P. proliferum*, Lam.
Common. Abundant in rich waste places where the soil has
been disturbed, especially roadsides upon which "graders"
have been used and railroad tracks "surfaced" with loose
earth.
944. *P. capillare*, L. Old-witch Grass.
Common.
945. *P. autumnale*, Bosc.
Abundant over limited area of sand at Fruitland and Noels.
946. *P. virgatum*, L.
River banks and low grounds; common.
947. *P. latifolium*, L.
Rich woods; infrequent.
948. *P. scoparium*, Lam.
Moist grass lands; infrequent.
949. *P. depauperatum*, Muhl.
Dry soil, Wild Cat Den, Noels.
950. *P. dichotomum*, L.
Meadows, prairies and open woods; common.
951. *P. pubescens*, Lam.
Low prairies; frequent.

952. **P. Crus-galli**, L. Barnyard Grass.

Common in moist waste and cultivated grounds. Especially abundant in 1892. The awnless form (var. *muticum*, Vasey.) is frequent on the banks of the Mississippi River in Davenport and Muscatine.

Setaria, Beauv. Bristly Foxtail Grass.

953. **S. verticillata**, Beauv.

Streets and waste places of Davenport; Muscatine, West Liberty; common.

954. **S. glauca**, Beauv.

Common.

955. **S. viridis**, Beauv.

Common.

956. **S. Italica**, Kunth. "Hungarian."

A frequent escape into waste places.

Cenchrus, L. "Sand Burr." Hedgehog Grass.

957. **C. tribuloides**, L.

Sandy soil; common and abundant.

Leersia, Swartz.

958. **L. Virginica**, Willd. White Grass.

Moist woods; rather infrequent.

959. **L. oryzoides**, Swartz. Rice Cut-Grass.

Marshy places; frequent.

960. **L. lenticularis**, Michx. Catch-fly Grass.

Low grounds along Mississippi River; common.

Zizania, Gronov.

961. **Z. aquatica**, L. Indian Rice. Water Oats.

Shallow ponds of Muscatine Island and the Cedar River region; frequent.

Tripsacum, L. Gama-Grass. Sesame-Grass.

962. **T. dactyloides**, L.

A large clump on railroad near Wyoming Hill, Muscatine county.

Andropogon, Royen. Beard-Grass.

963. **A. furcatus**, Muhl.

Dry prairies; common.

964. **A. scoparius**, Michx.

Dry soil; common.

965. *A. Hallii*, Hackel.

Well established in several places on C. R. I. & P. Railroad
near Fairport.

Chrysopogon, Trin.

966. *C. nutans*, Benth. Indian Grass. Wood Grass.

Dry prairies; common.

Sorghum,

967. *S. Halapense*, L.

Railroad tracks, Wilton, Muscatine, Fairport.

Phalaris, L. Canary Grass.

968. *P. arundinacca*, L. Reed Canary Grass.

Shallow water; Eldridge, Walcott, Cedar River region.

969. *P. arundinacca*, L., var. *picta*, Gray. Ribbon Grass.

Street, Eldridge, Davenport.

Aristida, L. Triple-awned Grass.

970. *A. basiramca*, Engelm.

Dry sandy soil; Muscatine Island, Cedar River region, Noels.

971. *A. gracilis*, Ell.

With the last at Muscatine Island and Noels.

972. *A. oligantha*, Michx.

Becoming frequent in dense patches; Davenport, Buffalo,
Blue Grass.

973. *A. tuberculosa*, Nutt.

Sandy soil, Muscatine county; infrequent.

Stipa, L.

974. *S. spartea*, Trin. Porcupine Grass.

Dry prairies; frequent.

Oryzopsis, Michx. Mountain Rice.

975. *O. melanocarpa*, Muhl.

Rocky woods, Wild Cat Den.

Muhlenbergia, Schreber.

976. *M. sobolifera*, Trin.

Rocky woods, Wild Cat Den; rare.

977. *M. glomerata*, Trin.

Low grounds; common.

978. *M. Mexicana*, Trin.

Low grounds; common.

979. *M. sylvatica*, Torr. & Gray.
Frequent in low or rocky woods.
980. *M. Willdenovii*, Trin.
Dry woods ; frequent.
981. *M. diffusa*, Schreber. Drop Seed. Nimble Will.
Dry woods and waste places ; common.

Brachyelytrum, Beauv.

982. *B. aristatum*, Beauv.
Rocky woods, Wild Cat Den.

Phleum, L.

983. *P. pratense*, L. Timothy.
Common.

Alopecurus, L. Foxtail.

984. *A. geniculatus*, L.
Low moist places ; infrequent.

Sporobolus, R. Br. Drop-seed Grass.

985. *S. asper*, Kunth.
Dry sandy soil ; frequent.
986. *S. neglectus*, Nash.
(*S. vaginæflorus*, Vasey.—Manual.)
For nomenclature of this and the next species see Bull. Torr.
Club, XXII:464. 1895.
Dry soil ; frequent. Very abundant locally.
987. *S. vaginæflorus*, Wood.
(*S. minor*, Vasey.—Manual.)
Dry soil ; hardly less frequent than the preceding species.
988. *S. heterolepis*, Gray.
Dry prairies ; frequent.
989. *S. cryptandrus*, Gray.
Dry sand ; Muscatine Island, banks of Cedar River.

Agrostis, L.

990. *A. alba*, L. Fiorin. White Bent-Grass.
Meadows ; infrequent.
991. *A. alba*, L., var. *vulgaris*, Thurb. Red Top.
Meadows ; common.
992. *A. perennans*, Tuckerm. Thin-Grass.
Rich woods ; infrequent.

993. *A. scabra*, Willd. Hair Grass.
Dry soil ; frequent.

Cinna, L.

994. *C. arundinacea*, L. Wood Reed-Grass.
Moist woods ; Allen's Grove, Wild Cat Den.

Calamagrostis, Adans.

995. *C. Canadensis*, Beauv. Blue-Joint Grass.
Wet grounds ; rather common.

Avena, Tourn. Oat.

996. *A. fatua*, L.
B. C. R. & N. tracks, Blue Grass.

Danthonia, DC. Wild Oat-Grass.

997. *D. spicata*, Beauv.
Dry rocky soil ; Wild Cat Den, Wyoming Hill.

Bouteloua, Lagasca. Muskit-Grass.

998. *B. hirsuta*, Lag.
Sandy soil ; Muscatine Island and the Cedar River region ;
frequent.
999. *B. racemosa*, Lag., var. *aristosa*, Gray.
Sandy soil ; frequent.

Eleusine, Gaertn.

1000. *E. Indica*, Gaertn. Dog's-Tail Grass.
Street, Muscatine.

Triodia, R. Br.

1001. *T. cuprea*, Jacq. Tall Red Top.
Dry gravelly soil, Wycming Hill.
1002. *T. purpurea*, Hack. Sand-Grass.
Dry sand, Muscatine county ; frequent.

Phragmites, Trin. Reed.

1003. *P. communis*, Trin.
Borders of ponds ; infrequent.

Koeleria, Pers.

1004. *K. cristata*, Pers.
Dry hills and prairies ; rather common.

Eatonia, Raf.

1005. *E. obtusata*, Gray.
Dry prairies ; not common.

1006. *E. Pennsylvanica*, Gray.
Moist meadows; common.

Eragrostis, Beauv.

1007. *E. reptans*, Nees.
Moist soil along rivers; frequent.
1008. **E. major**, Host.
Common.
1009. *E. Frankii*, Meyer.
Moist soil; common. With the odor of *E. major*.
1010. *E. Purshii*, Schrader.
Common.
1011. *E. tenuis*, Gray.
Sandy soil; Fruitland.
1012. *E. pectinacea*, Gray.
Common in dry sandy soil along railroads.

Melica, L.

1013. *M. diffusa*, Pursh.
Muscatine county; rare.

Dactylis, L.

1014. **D. glomerata**, L. Orchard Grass.
Streets and waste places; frequent.

Poa, L. Meadow Grass. Spear Grass.

1015. **P. annua**, L. Low Spear Grass.
Sparingly escaped from lawns, Davenport.
1016. **P. compressa**, L. English Blue Grass.
Dry soil; common.
1017. *P. serotina*, Ehrhart. False Red Top.
Wet meadows; infrequent.
1018. *P. pratensis*, L. Bluegrass.
Common everywhere.
1019. *P. debilis*, Torr.
Rocky woods near base of cliff at Wild Cat Den; rare.

Glyceria, R. Br. Manna Grass.

1020. *G. nervata*, Trin. Fowl Meadow Grass.
Moist meadows; common.
1021. *G. fluitans*, R. Br.
Shallow water; infrequent.

Festuca, L. Fescue Grass.

1022. *F. tenella*, Willd.
Dry sterile soil ; common.
1023. *F. ovina*, L.
Escaped into waste places.
1024. *F. nutans*, Willd.
Rocky woods ; rather common.
1025. *F. Shortii*, Kunth.
(*F. nutans*, Willd.—Manual.)
Swale near Noels ; rare.
1026. **F. elatior**, L., var. **pratensis**, Gray.
Railroad track, Blue Grass ; rare.

Bromus, L. Brome Grass.

1027. **B. secalinus**, L. Cheat or Chess.
Railroad tracks and waste ground near grain fields ; common.
1028. *B. ciliatus*, L., var. *purgans*, Gray.
Moist woods ; frequent.
1029. **B. tectorum**, L.
Sandy railroad embankment ; Fairport. Rare.

Lolium, L.

1030. **L. perenne**, L. Darnel.
Escaped from lawns ; Eldridge, Muscatine.

Agropyrum, Gaertn.

1031. *A. repens*, Beauv. Couch- or Quick-Grass.
Railroad tracks ; common. Becoming a troublesome weed.

Hordeum, Tourn. Barley.

1032. *H. jubatum*, L. Squirrel-tail Grass.
Common.
1033. *H. pratense*, Huds.
Our plants of this species belong to *H. pusillum*, Nutt.
Dry sandy soil along railroads ; infrequent.

Elymus, L. Wild Rye.

1034. *E. Virginicus*, L.
Waste land ; common.
1035. *E. Canadensis*, L.
With above ; common.

1036. *E. Canadensis*, L., var. *glaucifolius*, Gray.
With above ; infrequent.

1037. *E. striatus*, Willd., var. *villosus*, Gray.
Wooded hillsides ; frequent.

Asprella, Willd.

1038. *A. Hystrix*, Willd. Bottle-brush Grass.
Moist woods ; frequent.

EQUISETACEÆ.

Equisetum, L. Horse-Tail. Scouring Rush.

1036. *E. arvense*, L.
Common in sandy soil.

1040. *E. hyemale*, L. Shave Grass.
Common in wet soil.

FILICES.

Polypodium, L. Polypody.

1041. *P. vulgare*, L.
Rock ledges, Wild Cat Den.

Adiantum, L. Maidenhair.

1042. *A. pedatum*, L.
Shady woods ; frequent.

Pteris, L. Brake.

1043. *P. aquilina*, L.
Thickets and open woods ; frequent.

Pellæa, Link. Cliff Brake.

1044. *P. atropurpurea*, Link.
Limestone ledges ; Wyoming Hill, Montpelier, and Devil's
Glen.

Asplenium, L. Spleenwort.

1045. *A. ebeneum*, Ait.
Open sandy woods ; rare. Muscatine county.

1046. *A. thelypteroides*, Michx.
Wild Cat Den.

1047. *A. Filix-foemina*, Bernh.
Moist woods ; frequent.

Camptosorus, Link. Walking Leaf.

- 1048.
- C. rhizophyllus*
- , Link.

Wild Cat Den ; on sandstone ledges.

Phegopteris, Fee. Beech Fern.

- 1049.
- P. polypodioides*
- , Fee.

Wild Cat Den ; rare.

- 1050.
- P. hexagonoptera*
- , Fee.

Rich woods ; frequent.

Aspidium, Swartz. Shield or Wood Fern.

- 1051.
- A. Thelypteris*
- , Swartz.

Boggy places and marshes ; frequent.

- 1052.
- A. spinulosum*
- , Swartz.

Wild Cat Den ; rare in other localities.

- 1053.
- A. cristatum*
- , Swartz.

Boggy places in Cedar River region and other localities ; rare.

- 1054.
- A. Goldianum*
- , Hook.

Wild Cat Den.

- 1055.
- A. acrosticoides*
- , Swartz. Christmas Fern.

Ravines and shady banks in woods ; frequent.

Cystopteris, Bernhardt. Bladder Fern.

- 1056.
- C. bulbifera*
- , Bernh.

Moist shaded places ; infrequent.

- 1057.
- C. fragilis*
- , Bernh.

Rocky woods ; frequent.

Onoclea, L.

- 1058.
- O. sensibilis*
- , L. Sensitive Fern.

Low moist places ; common.

- 1059.
- O. Struthiopteris*
- , Hoffmann.

Low rich woods ; Wild Cat Den, Moscow.

Woodsia, R. Brown.

- 1060.
- W. obtusa*
- , Torr.

Rocky places ; infrequent.

Osmunda, L. Flowering Fern.

- 1061.
- O. regalis*
- , L.

Semi-boggy places in Cedar River region. Local, becoming very rare.

1062. *O. Claytoniana*, L.
Hilly woods ; frequent.
1063. *O. cinnamomea*, L. Cinnamon Fern.
Boggy places in Cedar River region ; local.

OPHIOGLOSSACEÆ.

Botrychium, Swartz. Moonwort.

1064. *B. Virginianum*, Swartz.
Rich woods ; frequent.

LYCOPODIACEÆ.

Lycopodium, L. Club Moss.

1065. *L. lucidulum*, Michx.
Wild Cat Den and Cedar River region ; rare.
1066. *L. complanatum*, L. Ground Pine.
Collected in 1892 in woods east of Wild Cat Den.

SELAGINELLACEÆ.

Selaginella, Beauv.

1067. *S. rupestris*, Spreng.
Sandy soil near Cedar River ; local. Among clumps of
Opuntia Rafinesquii.

SALVINIACEÆ.

Azolla, Lam.

1068. *A. Caroliniana*, Willd.
Floating on water, Muscatine Slough.

Cnicus Hillii, Canby. Garden and Forest 4:101, 1891.

Observations made since the publication of this species in 1891, and accurate drawings, furnish material for a more complete description and understanding of this thistle, which well maintains its claim to specific rank.

Plant perennial, 1—2 feet high, leafy, simple or branched, villous pubescent or somewhat woolly. Root 8—15 inches long, simple or fasciated (1—4), generally perpendicular, the parts fusiform or the middle portion more or less enlarged and hollow or coarsely cellular, slender above. Leaves sinuate lobed to pinnatifid, or the lower undulate, the lobes rather broad and rounded, green both sides, acute or the lower obtuse, dentate, spinulose or with a few short prickles; the upper oblong to oblong-lanceolate, sessile and clasping; the lower oblanceolate to spatulate-oblong, narrowed at the base, or the lowest petioled and 6—8 inches long. Vernal and autumnal leaves rosulate, oblanceolate-oblong, entire or slightly undulate, with short and weak marginal prickles, or sometimes with stouter yellowish prickles. Heads 1—3 (1—5), frequently single, 2—3 inches broad, 2—2½ inches high. Outer involucral bracts ovate-lanceolate, tipped with a short bristle or prickle, with a dark and prominent glutinous line along the back, inner, narrowly lanceolate, long acuminate. Flowers purple, pappus slender pointed or sometimes slightly spatulate.

Fields and open woods. June 20—Aug. 1.

The main distinctions between this and the pasture thistle (*Cnicus pumilus*, Torr.), its nearest ally, and with which it was at first confounded, are the duration and form of the root, that of the pasture thistle being biennial and branched, while in this it is perennial, simple, with a few rootlets, mainly on the lower half; its less spinescent and less deeply lobed or divided leaves; the bracts of the involucre more glutinous; their weaker tips which are scarcely prickly except in the lowermost; the longer and more slender pappus; the earlier flowering season, the first half of summer, while that of *C. pumilus* is the latter half. The leaves of the pasture thistle cover the stem well up to the head to which they may form a kind of involucre, while those of *C. Hillii* are few and small near the head, or the stem may

be bare for an inch or two. The form of the root is a very safe means of identification at any season when it can be found. If more than one they are similar in shape and all spring from the base of the stem. Its habits are like those of the pasture thistle, growing in fields and meadows, and it seems to take the place of that species in the central and western states, and may fitly be termed the western pasture thistle.

E. J. HILL.

Quercus ellipsoidalis, E. J. Hill. Botanical Gazette 27:205, 1899.

Trees 30—60 feet high, 1—3 feet in diameter, the head oblong, spray repeatedly and finely dividing, the limbs usually coming low down on the trunk, the lower drooping. The bark is close, quite smooth, $\frac{1}{2}$ — $1\frac{1}{2}$ in. thick, divided by shallow fissures into narrow, thin, flat plates, 2—6 in. long. It is dark near the base, dull gray above, grayish brown and quite smooth among the branches, dull red within, with a thin band of yellow next the wood. The winter buds are small, $\frac{1}{8}$ — $\frac{1}{4}$ in. long, ovate, obtuse or acutish, with a rusty or grayish pubescence. The leaves are broadly oval to oval-orbicular or somewhat obovate orbicular in outline, $2\frac{1}{2}$ —6 in. long, $1\frac{1}{2}$ —5 or more wide, lustrous green and smooth above, lighter green and smooth beneath or with slight tufts of pale hairs in the axils of the principal veins, and are deeply cut into 5—7 lobes by broad and rounded sinuses which extend half way or more to the midrib. The base is bluntly cuneate or truncate, petioles rather slender, 1—2 in. long, generally tinged with red on the upper side. In autumn the leaves are yellowish to pale brown, often blotched or tinged with purple or sometimes of a vinous or crimson purple. They are quite persistent on the trees in winter. The aments are long and slender, loosely flowered pubescent. Calyx campanulate, variously cut into 2—5 segments which are fringed with long hairs. Stamens 4 or 5; filaments shorter than the anthers. Pistillate flowers on stout tomentose 1—3 flowered peduncles, the calyx variously divided into 5—7 parts, the margin lacinate-hairy. Styles 3, thick and flattened, spreading or recurved. Acorns single or in pairs, the cup turbinate or cup-shaped, thin, or in some thickened and rounded near the margin, covering $\frac{1}{3}$ — $\frac{1}{2}$ the nut. The cup scales are brownish, more or less puberulent, closely appressed, occasionally loosening a little near the rim on

drying. Nut chestnut brown, often striped with darker lines, $\frac{1}{2}$ — $\frac{3}{4}$ in. long, ellipsoidal to oval-cylindrical, or when short and broad oval-globular, the base and apex mostly rounded about equally. The kernel is pale yellow and bitter.

Q. ellipsoidalis more closely resembles *Q. palustris* in general appearance than any other of the biennial-fruited oaks. This is seen in the comparative smoothness of the bark, the depression of the lower limbs, which descend low down on the trunk except when much crowded in dense woods; and in the finely divided leaves and general character of the branching. But it differs in the form of the leaf-lobes, in the color of the bark, and especially in the form and size of the nut and acorn-cup. The lower branches, though long persistent, die and fall off like those of the pin oak, but do not leave the stubs so characteristic of that species. It resembles *Q. coccinea* in the form of some of its acorns, in the lobation of the leaves and reddish color of the inner bark, but the outer bark is darker and generally much smoother than on trunks of the scarlet oak of similar age and size, and the leaves do not turn scarlet in autumn. *Q. velutina* is suggested by the darker color of the bark near the base of the trunk, the band of yellow next to the wood, the dull color of the autumn leaves, the hairs in the axils of the veins beneath, though this is a feature of *Q. palustris* and is frequent in *Q. coccinea*; but the bark is not rough and black, a character that appears very early on boles of the black oak; the yellow of the inner bark is usually much less in amount, the acorns differ in shape, and especially in the loosened or squarrose densely puberulent scales of the cup.

E. J. HILL.



PLATE I.

PLATE I.

CNICUS HILLII, Canby. One-third natural size.

PLATE II.

- FIG. 1. Root of plant illustrated in Plate I. One-third natural size.
FIG. 2. Fascicle of root. Two-ninths natural size.
FIG. 3. A root. One-third natural size.
FIG. 4. Vernal plant. One-third natural size.
FIG. 5. Outer involucral bract. Two-thirds natural size.
FIG. 6. Inner involucral bract. Two-thirds natural size.
FIG. 7. Flower. Two-thirds natural size.
FIG. 8. Achene and pappus. Two-thirds natural size.



PLATE II.

SYNOPSIS OF PROCEEDINGS
OF THE
DAVENPORT ACADEMY OF SCIENCES.
1899—1900.

January 18, 1899—ADJOURNED ANNUAL MEETING.

President Edward S. Hammatt in the chair. The minutes of the Annual Meeting, January 5, 1898, were read and approved and the annual reports of the various officers were presented.

The annual report of the Recording Secretary, E. M. White, showed that during 1898 there were ten regular monthly meetings of the Academy and three meetings of the Board of Trustees. Five honorary, two life and six regular members were elected, while one life and two regular members died.

The Librarian, C. E. Harrison, reported 2,099 accessions to the library. In addition to the books obtained by exchange the library was enriched by forty volumes on geology and palæontology, all new to the library and of great value for scientific work, from the library of Prof. W. H. Barris, presented by Miss Elizabeth D. Putnam; sixty-one volumes, some of them rare, from Dr. S. C. Bowman of Andalusia, Ill.; and sixty-seven volumes from a private scientific library in Davenport which will eventually come to the Academy. The entomological library of J. Duncan Putnam, numbering 270 volumes, was catalogued by Miss Alice Beach and the entire library overhauled, cleaned and arranged preparatory to cataloguing and binding. Attention was called to the necessity of completing this work in order that the library may be made of greater service.

The Treasurer, Mrs. Mary L. D. Putnam, reported that on account of the unusual expenses for fitting up and rearranging the library, purchasing new cases and cleaning and rearranging the museum, it had been necessary to borrow \$342.52. During the year one-half of

the \$5,000 necessary to purchase the Presbyterian church property adjoining the Academy was subscribed, but efforts in that line were temporarily suspended on account of the Spanish war. The report laid emphasis on the demand for an increased endowment fund.

Below is given a synopsis of accounts for 1898:

GENERAL FUND.

RECEIPTS.

Balance on hand Jan. 1, 1898.....	\$	14.88	
From Dues.....		180.00	
Initiation fees.....		35.00	
Interest.....		91.85	
Sale of case.....		25.00	
Annual subscriptions.....		415.00	
Donations.....		182.94	
Advanced by Mrs. M. L. D. Putnam.....		92.52	
Advanced by Miss E. D. Putnam.....		50.00	
Advanced from publication fund.....		200.00	
Door admission.....		46.66	\$1,333.85

EXPENDITURES.

Salary W. H. Barris, Curator.....	\$	500.10	
M. Mathews, Janitor.....		82.02	
Insurance.....		90.00	
Lights.....		15.53	
Fuel.....		53.99	
Water.....		16.00	
Repairs to furnace.....		12.00	
Repairs to sidewalk.....		21.19	
Miscellaneous supplies.....		5.80	
Printing.....		7.75	
New cases for museum.....		207.00	
Shelves, labels, etc., for library.....		76.01	
Rearranging library.....		111.70	
Postage and express.....		32.85	
Cleaning and arranging museum.....		72.37	
Total expenses, 1898.....	\$	1,304.31	
Amount in bank.....		15.73	
Amount with Curator.....		13.81	\$1,333.85

As chairman of the Publication Committee, Mrs. M. L. D. Putnam reported that during the year five papers had been published and that Volume VII. of the Proceedings was nearing completion. Financially the Publication Fund was in excellent condition. The papers published were:—

“Studies of North American Jassoidea,” by Herbert Osborn and Elmar D. Ball, 66 pages, six plates drawn by Charlotte M. King, and six pages explanatory of plates, used by courtesy of Iowa Experiment Station.

“Notched Bones From Mexico,” by Frederick Starr, 10 pages, four plates.

“The Genus *Pediopsis*,” by Herbert Osborn and Elmer D. Ball, 28 pages.

“Contribution to the Entomology of New Mexico,” by T. D. A. Cockerell, 18 pages.

“Supplement to a Revision of the *Melanopli*,” by Samuel H. Scudder, 64 pages, three plates.

Another paper, “Notes on the Habits of Our Tiger Beetles,” by H. F. Wickham, is on hand.

The report on the Publication Fund for the year 1898 is given below :

RECEIPTS.

Balance in bank Jan. 1, 1898.....	\$	11.78	
Sale of Proceedings.....		50.80	
Interest on Putnam Memorial Fund		427.50	
Interest on bank deposit.....		2.09	
Advanced by Mrs. M. L. D. Putnam.....	100.00	\$	592.17

EXPENDITURES.

Edward Borchardt, printing.....	\$	238.30	
Egbert, Fidler & Chambers, binding.....		87.50	
Advanced to General Fund.....		200.00	
Total expenses, 1898.....	\$	525.80	
Balance in bank.....		66.37	
	\$	592.17	\$ 592.17

Dr. Elmer was called to the chair and the President delivered his annual address.

PRESIDENT'S ANNUAL REPORT.

EDWARD S. HAMMATT, January 18, 1899.

Members of the Academy, Ladies and Gentlemen :

Can we look back on the year just closed with satisfaction at the progress we have made in the development of the fundamental ideas of this society as expressed in its title, “Academy of Natural Sciences?” What have we done to increase man’s knowledge of nature or love for nature study? We may embrace these questions in one and answer them in an account of the Academy work during the past year. The statistical reports of the Publication and Finance Committees show that the first part of Volume VII. of the Academy Proceedings is nearly ready for distribution. Material is available and in the hands of the printer for beginning the second part. The Finance Committee’s report indicates the necessity of establishing endowment funds for the various branches of the Academy work. The Curator

reports that over twenty donations, embracing a large number of specimens, have been added to our Museum collection, making it imperative that arrangements should soon be made for future additions to the Museum space.

Attention must again be called to our list of Corresponding Members. This list should be revised as soon as possible and corrected lists of Honorary, Life, Corresponding and Regular Members kept posted in the Curator's office. Corresponding Members should be required to notify the Academy of their location once a year.

We find from the Librarian's report that the Library has received some 2,099 accessions in foreign and American exchanges. A Library fund is necessary before we can bind and catalogue the Library or make its treasures available for public use. The floor space in the Library heretofore used for lecture audiences has been given up to a number of cases containing most of our collection of Ornithology.

It is clear from these reports that the capacity of our building is near its limit. We are forced to seek other quarters for Academy lectures. Adjacent property, with a building which would serve for some time as a lecture hall and store room, is available by purchase. A special committee is making progress toward this end.

The steady growth and prosperity of this city demands that we keep the Academy equipment abreast of the times with facilities for active work. The Academy has in the past, and must in the future, keep well in advance of the situation. The annual reports just presented give a fair statement of the Academy work during the past year. But they do not include a report on educational work, such as the name "Academy of Natural Sciences" would indicate as of pre-eminent importance. We have not advanced nor taken the lead we should in such matters. The spirit of a new century is already beginning to awaken us to better methods in every branch of human progress. Science, and especially natural science, is the great motive power now working out a complete revolution in the aims and methods of modern thought, both as regards mental and moral instruction. Scientific methods are now applied to every branch of study. The closing year of the nineteenth century finds Religion and Science, so far asunder at its beginning, closely united in the great struggle for the uplifting of humanity. And today we accept Science teaching as the most adequate method of imparting moral instruction by bringing the child face to face with the great truths of nature. It is with this end in view that those interested in the Academy have repeatedly urged a closer relation between the Academy and the public schools. It is a simple duty we owe this community, that from our Academy should go forth a powerful influence for building up of character by means of nature study.

In a previous annual report your attention was called to the importance of a uniform system of weights and measures for scientific as well as commercial purposes. Your indulgence may be asked in again

considering the question in view of the fact that this year may see the adoption by the United States government of the system now in almost universal usage. It seems strange that Great Britain and the United States, the two most enlightened of civilized nations, should be among the last to adopt measures which will not only put them in touch with the advance of science in other countries, but will effect a great economic reform in commercial transactions. A measure known as the Hurley Bill was introduced in the Fifty-fourth Congress and failed to pass by only three votes. It is now on the House calendar and is quite likely to become a law during the present session of Congress. This bill is entitled "A Bill to fix the standard of weights and measures by the adoption of the metric system of weights and measures" and provides "That from and after the first day of July, nineteen hundred, all the departments of the Government of the United States, in the transaction of all business requiring the use of weight and measurement, except in completing the survey of public lands, shall employ and use only the weights and measures of the metric system, and from said first day of July, nineteen hundred, the metric system of weights and measures shall be the legal standard of weights and measures recognized in the United States." The adoption of this measure is opportune—just as we are entering upon a period of territorial expansion and opening up commercial relations with distant colonies which will use American products and serve as distributing stations for our exports to other countries. The metric bill now pending before Congress is of such great importance that it may be of interest to recall some of the facts leading to the adoption of the system by the United States and our own connection with the international metrological movement. It is a singular coincidence that while the United States Government, then in its infancy, was considering a plan of unification of weights and measures, France was investigating the same problem. In 1790 Talleyrand, in view of the great diversity of weights and measures then in use in France, proposed to members of the Constituent Assembly that "either the old system should be reformed or a new universal standard be adopted." It was decided to have the French Academy of Sciences fix upon an invariable standard for weights and measures. Borda, Lagrange, Laplace, Minge, and Condorcet were chosen as a committee to report upon the selection of a standard. After considering the pendulum beating seconds, a quadrant of the equator, and a meridian quadrant, they selected the ten-millioneth part of a quadrant of the meridian as a standard unit of linear measure. On August 1, 1793, the metric system was provisionally adopted by the National Assembly of France and on April 7, 1795, the nomenclature the system now bears was adopted. In the United States Washington, realizing the necessity of a uniform system, introduced the subject in his message to the First Congress, saying: "Uniformity in the currency, weights and measures of the United States is an object of great importance and will, I am persuaded, be

duly attened to." The subject was referred by the House of Representatives to Jefferson, then Secretary of State, for a report, which was made in July, 1790. When it became known that France was considering the same question, the Senate committee to whom had been referred Jefferson's propositions decided that it was best not to introduce any alterations in the standards then in use. Washington, in his address to the Second Congress, again urged the need of action. The subject was next brought to public attention by Madison. This portion of the President's address was referred by the Senate to John Quincy Adams, Secretary of State, who submitted his plan February 22, 1821. He advised consultation with foreign nations for the future and ultimate establishment of universal and permanent uniformity. No further action was taken till 1828, when an Act was passed legalizing a Troy pound as standard for the use of the mint. It was not till July 27, 1866, that the metric system was legalized by act of Congress. The passage of this Act was largely due to Hon. J. A. Kasson of Iowa, chairman of the House committee on coinage, weights and measures, who strongly urged the adoption of the measure in Congress and before the Convocation of the University of New York. In 1873 a committee of the British Association for the Advancement of Science was appointed to "select a nomenclature for dynamical and electrical units," with the intention of making them international. The gramme, centimetre, and second of time were chosen and have been adopted by all scientific men. As the use of the metric system became more general, in order to insure the preservation of metrological prototypes certain nations, among them the United States, agreed by a treaty signed in 1875 to establish an International Bureau of Weights and Measures at Paris. The administration and maintenance of this Bureau is vested in an international committee appointed by the twenty-nine nations that have become parties to the treaty of 1875. The work so far accomplished by the Bureau has been to construct the standards, which have been distributed to the nations forming the Bureau. In addition to this a standard decimal thermometric scale and normal barometer have been constructed. The metric system is in use in the United States Coast and Geodetic Survey and it is to be hoped that our government, after having endorsed the metric system as the best for international usage that has been devised, and a system that has proved adequate for all purposes, will at least require its use in all government transactions. We should, as an Academy of Science, do all in our power to enlist the hearty coöperation of Congressional representatives from Iowa in enacting necessary legislation. Hon. Charles W. Stone, chairman of the Committee on Coinage, Weights and Measures, says in his report to Congress, June 20, 1898: "Put the system in practical and uniform operation in the transactions of the government and the adoption by the people will take care of itself. Its merits will be brought home to them in a practical way and knowledge will inevitably bring approval. No compulsion of the

people is contemplated and none will be necessary. The system of the government of the people will speedily and easily become the system of the people."

It is with regret that we are called upon to record the loss of several members within the past year: Rt. Rev. William Stevens Perry, Second Bishop of Iowa, and Mr. A. J. Smith, both members of several years' standing; Mr. M. Frahm, a member and generous subscriber to the Academy work; Dr. S. C. Bowman of Andalusia, whose interest in the Academy is testified by many additions to the Museum; Major George P. McClelland, one of our life members, who for many years and up to the time of his death took an active part in the Academy work, serving on many important committees and at various times as trustee and treasurer. We can ill afford to lose a member so much interested in the Academy and so well qualified to appreciate its value.

In closing this report, allow me to express my appreciation of the repeated honor conferred upon me, and to return thanks to the more active members, with whom it has been a pleasure to work.

The reading of these reports was followed by the election of the following officers for the year 1899:

President—CHARLES FRANCIS.

First Vice-President—DR. A. W. ELMER.

Second Vice-President—C. A. FICKE.

Recording Secretary—E. M. WHITE.

Treasurer—MRS. M. L. D. PUTNAM.

Corresponding Secretary—W. H. BARRIS.

Librarian—C. E. HARRISON.

Curator—W. H. BARRIS.

Trustees for Three Years—E. S. HAMMATT, EDWARD C. ROBERTS, W. C. PUTNAM, J. F. LARDNER.

The following Honorary Members were elected: Prof. S. Calvin, Prof. T. H. McBride, Prof. C. C. Nutting, all of the State University of Iowa.

January 27, 1899 — REGULAR MEETING.

President Charles Francis in the chair; six members present.

The Curator reported the following additions to the Museum:

From Capt. Hall, purchased by the Mound Fund, 103 flints, one large grooved stone axe, remarkable in material and perfection of workmanship and finish, one long celt wrought of entirely different stone.

The Committee on Resolutions reported the following, which was adopted and entered on the minutes :

The Davenport Academy of Natural Sciences takes this occasion to put upon record its profound sense of bereavement in the death of Major George Pressley McClelland. For a quarter of a century or more he has been one of its main supporters. He was among its most generous patrons. In 1883, with Hon. George H. French and Nicholas Kuhnlen, he raised some \$3,000 for the debt and endowment of this institution. He was a most faithful trustee and treasurer. He secured Prof. Richard A. Proctor and other lecturers for the Academy course and in countless ways labored for the advancement of science. We mourn the loss of a citizen whose character was pure and lofty. We lament the departure of a friend whose gentle manners and courtly carriage won the love of all who knew him.

JOHN B. DONALDSON.
MARY L. D. PUTNAM.

The following committees were appointed for 1899 :

Finance—W. C. Putnam, J. B. Phelps, C. A. Ficke.

Publication—Mrs. M. L. D. Putnam, Prof. W. H. Barris, Prof. S. Calvin, Dr. C. H. Preston.

Archæology—C. E. Harrison.

Geology—Prof. W. H. Barris.

Conchology—Miss S. F. Sheldon.

Zoölogy—Dr. A. W. Elmer.

Botany—A. A. Miller.

Entomology—Prof. H. B. Osborn.

Library—C. E. Harrison, Charles Francis, E. M. White.

February 24, 1899 — REGULAR MEETING.

President Francis in the chair ; seven members present.

The Curator reported the following additions to the Museum :

From Albert P. Morse of Wellesley College a collection of new American *Odonota* and, to the Library, his paper containing a full description of the same, a paper on "The Study of New England Species of *Spharagenion*," and four papers entitled "Notes on the *Acridæ* of New England." Dr. Scudder has presented the original drawings from which were engraved the illustrations of his paper, just published in Volume VII. of the Proceedings of the Academy. From George R. Putnam, a collection of Eskimo implements, including spears five or six feet in length, furnished with bone sockets and detachable ivory points, adapted to different kinds of game, birds and fish. They were accompanied by a throwing stick by which a powerful momentum is given the spear.

February 28, 1899 — TRUSTEES' MEETING.

President Francis in the chair ; seven Trustees present.

A general discussion as to the advisability of purchasing the First Presbyterian church property adjoining the Academy led to the adoption of a resolution presented by C. A. Ficke, as follows :

Resolved, That the committee be authorized to close the contract for the purchase of the property of the Presbyterian Church on the northwest corner of Seventh and Brady streets, Davenport, Iowa, for the sum of \$5,000, of which sum the church propose to furnish \$500 in the shape of five Life Members at \$100 each ; an amount of \$500 to be paid to the Trustees of the Presbyterian Church to secure the property, and the balance to be paid on the surrender of the property to the Academy.

March 31, 1899 — REGULAR MEETING.

President Francis in the chair ; six members present.

The Curator reported the following gift :

From J. L. Bean of Rock Island two well-preserved specimens of wood taken from wells thirty feet deep at Hampton and Andalusia, Illinois.

The Treasurer reported that \$2,325 had been collected from subscribers to the church fund and \$2,300 paid to the trustees of the church, on account.

The following papers for publication were read by title :

"The Flora of Scott and Muscatine Counties," by W. D. Barnes, Fred Reppert and A. A. Miller.

"The Grasses of Northern Wyoming," by Prof. L. H. Pammel.

"The Fungi of Northern Wyoming," by Prof. H. H. Hume.

Dr. C. H. Preston, chairman of the Committee on Membership, reported the completion of an alphabetical list of all elections to membership—Honorary, Corresponding, Regular and Life—from the foundation of the Academy to the present time, together with a working list of the present members so far as it could be made out without further action of the Academy. He recommended that the Academy remit the dues of delinquents who desire to renew and continue active membership. He also recommended that the list of members be published in the Proceedings.

On motion the rules were suspended and the following were elected Life Members : C. A. Ficke, Mrs. C. A. Ficke, Anthony Burdick, George W. Cable, Hon. Hiram Price, Richard Andresen, Edward C.

Crossett, John L. Zoeckler, Paulo Roddewig, J. J. Richardson, Edward C. Roberts, Thomas Iles, Jr., Harry Vollmer, Jr., Charles E. Harrison, Dr. W. H. Barris, Miss Bessie Ballord, Miss Nellie Leonard, James T. Robinson of Rock Island.

On motion a lecture committee was appointed, consisting of Chas. Francis, Dr. C. H. Preston, C. A. Ficke, Charles E. Harrison, and E. M. White.

April 28, 1899—REGULAR MEETING.

President Francis in the chair ; six members present.

The Curator reported the following gifts to the Museum :

From Capt. Hall, purchased from the Mound Fund, nearly 100 flint implements. From Mrs. Alice Hornby, a large, thick mass of petrified wood, preserving peculiarities of structure. Its upper surface is capped with layers of pure anthracite coal a few inches in thickness and this in turn is encrusted with a silicious deposit preserving and protecting the coal in place. Also a well preserved specimen of the bone of some extinct animal, most probably the elephant, converted into stone. It seems to be the entire top of the articulating surface of the humerus. Both specimens are from western Nebraska, having been sent from Valentine.

Prof. Frederick Starr's paper, "Ethnography of Southern Mexico," was read by title and referred to Publication Committee.

July 28, 1899—REGULAR MEETING.

President Francis in the chair ; seven members present.

The Curator reported additions to the Museum for three months as follows :

From W. H. Barris, a fine specimen of the crustacean known as *Euripterus remipes* of DeKay, from the waterlime group of New York, Black Rock, N. Y.; also a fish from the tertiary of Mount Herman, Palestine. From Prof. J. A. Udden, three bottles of diatom bearing earth, the first from under the loess on the farm of W. B. Verick in Cedar township, Muscatine county, Iowa; the second from under trees at Davenport; the third from under the loess three miles north of Wapello, Louisa county, Iowa. From Miss Clara Holmes, a number of books, a large glass bell case, and a Cupid drawn on a spiderweb.

The Library is indebted to C. E. Harrison for 56 pamphlets, historical works on Iowa.

It was moved and carried that the newly acquired building be re-shingled, the same to be paid for out of the first available funds.

W. G. Smith and Rev. G. S. Rollins were elected Regular Members. W. D. Barnes, Morgan Park, Ill., Prof. E. J. Hill, Englewood, Ill., and Rev. M. Kempke were elected Corresponding Members.

September 29, 1899—REGULAR MEETING.

C. A. Ficke, First Vice-President, in the chair; seven members present.

The Curator reported the following additions to the Museum for two months:

From Dr. C. F. Kellogg, Clinton, Iowa, an unusually large, fine specimen of a celt, locality unknown. From the Cemetery Association of West Davenport, a collection of rocks of very variegated character, found in an excavation on their grounds. Among them was a large, flat, finegrained sandstone in which were imbedded a series of good-sized pebbles of quartz and flint, mostly elongated, all rounded and deeply grooved. The peculiarities are, first, grooves in the same general direction; second, no evidence of their extension into the matrix. These pebbles are distributed through the whole thickness of the rock. The specimens deserve careful study. From G. N. Black, a unique specimen of rock of which, as yet, we know little. It seems to be composed of very fine, worn grains of quartz. This is compacted into forms that have a general resemblance to one another and yet are compressed into every possible shape. But order prevails, as each form retains throughout its length from ten to twenty divisions separated by deep furrows and distinguished by a remarkable discoloration of iron. From Mrs. Putnam, from Yellowstone Park, specimens of obsidian granite; petrified and agatized wood; hardened mud from a geyser, with characteristic mass, cones and leaves; from Salt Lake, brown salt rock used in a building of same material with pure white crystallized lining for the inside finish, small natural and large artificial crystals; from Leadville, crystals of lead, iron pyrites, and quartz. From Edward K. Putnam, well-preserved forms of the prevalent species of reptiles and insects from Shoshone, Idaho; an excellent impression of a fish from the Green Mountains; a tinder box, also a wooden sand box which our paper blotters have displaced, from Cape Cod, Massachusetts.

E. Dwight Sanderson's paper on the "Studies of the Immature Stages of Some Chrysomelina" was read by title and referred to the Publication Committee, as was also Samuel H. Scudder's paper on "Synonymical Catalogue of Orthoptera of the United States and Canada."

The following were duly elected Regular Members: Bishop T. N. Morrison, Horace Roberts, Dr. A. L. Hagebæck, John M. Helmick.

October 27, 1899 — REGULAR MEETING.

E. S. Hammatt in the chair ; seven members present.

The Curator reported additions to the Museum as follows :

From George R. Putnam, a large glass case containing life-sized forms of an Eskimo man and woman in full costume, with other Eskimo relics bearing on their customs and manner of living. From Benjamin R. Putnam, from Butte, Montana, specimens of silver, copper and other ores, and a series illustrating the process of smelting copper.

The Publication Committee reported that Volume VII. of the Proceedings was in the hands of the binder and that Volume VIII. was under way, Dr. Scudder's and Prof. Starr's papers being in the hands of the printer.

Ernest C. Oberholzer was elected a Regular Member.

October 27, 1899 — TRUSTEE'S MEETING.

Dr. W. H. Barris in the chair ; five Trustees present.

The bid of the T. W. McClelland Company for roofing the church property, at an expense of \$425.00, of which amount \$100.00 is to apply for a Life Membership for Wilson McClelland, was accepted.

Mrs. M. L. D. Putnam was appointed a committee to conclude arrangements for repairs on the roof and removal of the tower on the church property.

January 5, 1900 — ANNUAL MEETING.

President Charles Francis in the chair ; seven members present.

The reading of reports of officers was postponed until the next regular meeting.

The following officers for 1900 were elected :

President — MRS. M. L. D. PUTNAM.

First Vice-President — C. A. FICKE.

Second Vice-President — DR. A. W. ELMER.

Recording Secretary — A. A. MILLER.

Corresponding Secretary — PROF. W. H. BARRIS.

Treasurer — MISS ELIZABETH D. PUTNAM.

Librarian — C. E. HARRISON.

Curator — W. H. BARRIS.

The election of Trustees was postponed until the next regular meeting.

January 26, 1900—REGULAR MEETING.

Edward S. Hammatt occupied the chair.

The annual reports of Recording Secretary, Librarian, and Curator were read at this meeting.

The report of E. M. White, Recording Secretary, showed that during the year 1899 there had been nine regular meetings of the Academy and two Trustees' meetings. During the year three Honorary, seven Regular, three Corresponding and nineteen Life Members were elected and one Life Member died.

C. E. Harrison, Librarian, reported that during the year there had been 1,587 additions to the Library. An event of unusual interest was the designation of the Academy as one of the permanent depositories, under the law of 1897, for all the maps issued by the United States Geological Survey. During the year the work of making a card catalogue was continued under the direction of Miss Alice Beach. Attention was called to the crowded condition of the Library and the need of more stack-room as well as space for reading tables.

The annual report of Dr. W. H. Barris, Curator, gave a summary of the various additions to the Museum during the year, a detailed enumeration of which is given in the reports of the regular monthly meetings.

As Corresponding Secretary Dr. Barris reported that during the year 1899 there were 246 letters written and acknowledgments made and 153 letters received.

The Curator reported the following additions to the Museum for November, December and January:

From Harry French, a terra cotta lamp, well preserved, ornamented with characters establishing its Greek origin. From Mrs Elizabeth Applewhite, a steel plate engraving of Washington in military costume. From George R. Putnam, a young elephant's tooth found in Alaska; an Alaskan representation executed in wood showing the mother seal carrying her young; two horn spoons made and in use by the natives; and an Alaskan ivory needle case. From Mrs. M. L. D. Putnam, highly ornamented Norwegian articles for household use and wear; and specimens of the work of the Indians of our National Park. From Henry Heim, a large colored engraving of Davenport as it was in 1850.

April 27, 1900 — REGULAR MEETING.

The President, Mrs. M. L. D. Putnam, in the chair ; seven members present.

The Librarian reported that 97 books and pamphlets and 11 bound volumes were presented by George R. Putnam.

The Curator reported the following additions to the Museum :

From George R. Putnam, a fine skull of a walrus with tusks, together with stone implements for cooking used by the Eskimos, all from Greenland; also implements for boring and fire making, and a large tusk of a walrus with etched drawings, all the work of the Eskimos of Alaska. From David C. Thomson, a crucifix fish from Dutch Guiana. From W. S. Price, a series of shells, most probably used by Illinois Indians as money. A representation of peculiar meteorological phenomena in January, 1900, taken by Karl Schmallaus. From C. E. Harrison, a freak of a cottonwood root.

The President announced the following committees for 1900 :

Archæology — Prof. Frederick Starr.

Geology and Palæontology — Prof. W. H. Barris.

Conchology — Miss S. F. Sheldon.

Zoölogy — Dr. A. W. Elmer.

Botany — A. A. Miller.

Entomology — Prof. H. B. Osborn.

Finance — W. C. Putnam, J. B. Phelps, C. A. Ficke.

Publication — Mrs. M. L. D. Putnam, Prof. W. H. Barris, Dr. C. H. Preston, Prof. Samuel Calvin, E. S. Hammatt.

Library — C. E. Harrison, Charles Francis, E. M. White.

Lectures and Entertainment — Mrs. J. J. Richardson, Bishop T. N. Morrison, Dr. J. B. Donaldson, E. S. Hammatt.

The following Trustees were duly elected to serve three years : C. E. Harrison, Dr. Jennie McCowen, Prof. W. H. Barris, A. F. Cutter.

The Publication Committee presented the following report :

The first form of Volume VII. was printed September 13, 1897, and the last form on March 1, 1900. Seventeen hundred copies have been completed, of which 1,200 are in paper, 300 in cloth, and 200 separates. The cost is \$1,180, as follows :

Printing, including plates.....	\$ 880.00
Portrait of C. E. Putnam.....	100.00
Prof. Scudder's plates.....	125.00
Binding.....	75.00
	<hr/>
	\$1,180.00

The laborious work of preparing the list of members was done by Dr. C. H. Preston, while the preparation of the index was the work of J. A. Udden, Jr., assisted by his father. The Publication Committee is under great obligation to these gentlemen for the extreme care exercised in their work.

The Treasurer submitted the annual report for the year 1899, as follows :

GENERAL FUND.

RECEIPTS.

Balance on hand Jan. 1, 1899.....	\$ 29.54	
From Dues.....	198.00	
Initiation fees.....	15.00	
Interest, Endowment.....	86.26	
Annual subscriptions.....	352.00	
Donations.....	228.75	
Loans.....	86.26	
Lecture70	
	<u>\$ 996.51</u>	\$ 996.51

EXPENDITURES.

Salary W. H. Barris, Curator.....	\$ 458.39	
M. Mathews, Janitor.....	85.00	
Fuel.....	30.50	
Water.....	12.00	
Repairs.....	27.75	
Printing	5.50	
Postage.....	5.00	
Capt. Hall, Mound Fund.....	5.00	
W. H. Barris, books.....	70.75	
Church Fund, loan repaid.....	25.00	
Indebtedness paid.....	267.52	
Amount on hand Jan. 1, 1900.....	<u>4.10</u>	
	<u>\$ 996.51</u>	\$ 996.51

T. D. Eagal's paper on "The Early History of Davenport" was read by title and ordered to be filed.

On motion it was decided to give the name "Science Hall" to the Presbyterian church building recently purchased by the Academy.

On motion an amendment to Article I. of the Articles of Incorporation, by omitting the word "Natural" in the title of the Academy, was proposed and placed in the hands of the following committee for presentation at a later meeting: E. S. Hammatt, C. A. Ficke.

The President, Mrs. M. L. D. Putnam, read her inaugural address, as follows:

PRESIDENT'S INAUGURAL ADDRESS.

MRS. MARY L. D. PUTNAM, April 27, 1900.

In accepting the presidency of the Academy for the second time, and after a lapse of twenty-one years, it would not be out of place for me to turn backward and review the noble record of devotion and achievement in the past. But my purpose is rather to look at the Academy as it exists today and to find wherein it can accomplish the most good.

An academy of science in a city like Davenport has many and varied functions to fulfill. One of these, the original object of this Academy, and perhaps its highest aim, is to be the center for active scientific work by those who devote their lives to science. In the thirty-three years of its existence the Academy has been such a center. It has reason to be proud of the scientific research and investigation done within its walls by such men as Professor Sheldon, Dr. Parry, Professor Pratt, Dr. Farquharson, J. Duncan Putnam, Dr. Barris, and many others. Let us be thankful for the past and let us be courageous enough to hope that in the rising generation there may be bright young men and women with observing eyes, with clear minds, and with devotion to the pursuit of truth — young men and women who will here do scientific work worthy of the world-wide reputation given to the Academy by its early members.

EDUCATIONAL OPPORTUNITIES.

This suggests that the Academy has a great opportunity before it in the line of education. It is not a teaching institution, but in other ways it can assist in the development of young eyes and minds.

Cordial relations should exist between the Academy and the public schools, St. Katharine's Hall, Augustana College, St. Ambrose College, and all the other educational institutions of Davenport and its vicinity, including the district schools of Scott county. Every opportunity should be offered for the students of these schools and colleges to come to the Academy, to become interested in the museum, to learn by observing. Members of the Academy can accomplish much good by being present on such occasions to explain the collections in which they are specially interested. Afternoon or evening talks, illustrated by actual specimens or by lantern slides, as the case may be, would arouse more interest in the students than whole rows of text books. So, too, the Academy might coöperate in planning excursions to points of natural interest, where the students may see for themselves how valleys are made, learn to know a glacial deposit when they see it, and may appreciate animal and vegetable life in its natural conditions. How otherwise can the physical geography of the country about Davenport be taught, and what does physical geography amount to unless taken out of the books and applied to the region that is best known? Excursions of this sort, for old as well as young, are regular features

in the programme of the Geographical Society of Washington and of the Appalachian Club of Boston.

A dozen or so years ago the Academy became the headquarters of the local chapters of the Agassiz Association. Here were held the weekly meetings at which observations were reported and papers read and discussed. Here, as a result of excursions to the haunts of nature, was begun an embryo museum, not perhaps valuable in itself but of the greatest value in teaching classification and arrangement. Here the would-be scientists—most of them students of the High School—gathered their younger brothers and sisters and friends and helped them organize a junior chapter, an extension movement which was of benefit to all concerned. In course of time the Agassiz chapters ceased to exist, but not until they had accomplished abundant good. Some of the members have maintained their personal interest in natural history or science, but even those who have not, frequently testify that their dabbling in science was not all play; that it had an educational value not to be slighted. A similar organization among the students of today might well be encouraged.

VALUE OF THE MUSEUM.

It is hard to overestimate the educational value of a museum. One function of a museum is to bring together a scientific collection for the purpose of study by specialists, and to preserve those relics of a past race which would otherwise become scattered and lost. Thanks to its early devoted members, its indefatigable collectors and to its generous contributors, the Academy has a scientific museum that has attracted specialists not only from the east and west of our own country, but also from distant Europe. Aside, however, from this strictly scientific value of the museum, there is a popular and educational one. The laboring man in Paris who spends an hour in the Louvre to warm his hands and feet certainly absorbs something from the art treasures spread out before him. Who can tell how much good our own museum has done to those who have drifted in merely to kill time, or because some friend has told them about it? Surely eyes have been opened and the breadth of vision broadened. How much more Egypt means to the boy who has seen the mummy! How much more real are the mound-builders to us who know their animal pipes, their axes of copper covered with cloth! How much nearer to us is the Eskimo when we look upon his kayak, his fire-making tools, and the fur-seal which he hunts! As with primitive and distant man, so with nature. What can teach the ages and growth of the world so well as the rocks and fossils? And what undying interest there is in the cases of birds. The presence of such a museum in Davenport is a boon that we cannot too highly appreciate. To accomplish the greatest good, however, very much remains to be done. Owing to the lack of space in the building, boxes of specimens have never been opened. The purchase of the church property will afford some tem-

porary relief, but the time is not far distant when a new and absolutely fire-proof building, fully equipped with new cases adapted for the preservation and display of specimens, will be a necessity. In the meantime, however, much can be done. The cases need a thorough overhauling and in many instances the specimens need to be reclassified and rearranged, while many labels need to be rewritten. Crowded cases can be relieved by displaying typical specimens and preserving the others for special study. The boy or girl who comes to the Academy to identify a bird he has seen in the yard should be able, as soon as he finds the corresponding specimen here, to learn its common and scientific name, its family and its habitat. The boy who reads in the life of Boone about a beaver should be able to come to the Academy and see a stuffed beaver.

It is interesting to watch the children in the South Kensington museum, in London, flock about a case placed there for their especial benefit, containing the commonest butterflies properly named. Interesting, too, it is to watch older students studying the cases in which types of the orders are scientifically arranged, and under them types of the families in each order, all clearly labeled, and forming a graphic and indelible lesson. Let us, in our humble way, follow the lead of that great London museum and encourage our young students to observe, to compare and to study.

THE HISTORICAL DEPARTMENT.

There is another department of the museum in which the Academy has made a beginning but in which more can be done. This may be called the historical. It is natural for man to be interested in historical trophies, in a tattered flag carried through a war, in a sword captured from the enemy. There is interest even in the weather-beaten wooden ball that topped the flagstaff of the old court house.

No less interesting are the objects connected with our every-day life, objects which we scorn to preserve, but which in a generation become rare and curious. How many of the children of to-day, for instance, ever saw a tinder box? When they read about a tinder box they may ask their grandmother and she may say that she saw one in her girlhood. But some day the grandmothers will be gone and with them the recollection of the tinder box. Fortunately, the Academy possesses a tinder box, but there are many other contrivances of the pioneer days that it does not possess. If any of these are hidden away in a dark and forgotten attic, let them be brought out and placed where they can be preserved.

THE ACADEMY LIBRARY.

From the museum to the library is but a short step. For scientific work, scientific books are a necessity. Technical books and journals are needed for the specialist, handbooks and more popular works are no less needed for the beginner. Thanks to the thousands of

exchanges brought in by its own Proceedings and by the gift of several collections of books by its members, the Academy library is well adapted to the needs of the special student. But there are scores of handbooks, manuals and more or less popular treatises which are not on our shelves and which should be secured either by gift or purchase. Then, too, to make it more accessible, the library needs to be catalogued, a large undertaking of which a beginning has already been made.

The Academy library should be enriched by thousands of historical documents, which, unless they are deposited in some such place, will eventually become destroyed. Old manuscripts, old letters, old maps, everything that throws light on the early life in Davenport, in the three cities, or in the West, should be collected and preserved, to be looked at by the curious and made use of by the historian.

The Academy library and the public library, which the city of Davenport is to have, thanks to the generosity of Andrew Carnegie, are very different in nature, the one specialized and technical, the other more general and popular. Each supplements the other. The Academy may well congratulate itself on this new addition to the forces of culture in the city, for as the community becomes more enlightened through the reading of books from the public library it is bound to appreciate to a higher degree the opportunities of the Academy of Sciences. So far as possible the two institutions should coöperate.

TO POPULARIZE MEETINGS.

The regular monthly meetings of the Academy should be made of such interest that they will attract not only the members but outsiders. The meetings should be freed from petty business matters, which should be attended to by committees. Rather they should furnish an opportunity for the thinking people of the three cities to gather, to exchange thoughts in discussion, or to listen to papers or addresses on subjects of interest. A paper or address before a meeting of the Academy need not be the result of life-long research and investigation. It need not bristle with scientific names, with technical terms, with unintelligible references. Such papers are to be read rather than listened to. What are wanted for the meetings of the Academy are papers that are somewhat more popular in nature, expositions in terms that all can understand of the discoveries made by scientists or on any subject to which the interest of the day is drawn. The Academy has had in recent years a number of such addresses. Returning travelers, for instance, have spoken of Egypt and Alaska. Similar talks, whether by travelers or not, should be given on the Philippines, or Hawaii, or South Africa. These are subjects not only of scientific but of popular interest. Near at home extremely interesting talks could be given on the engineering problems involved in the Hennepin canal, the improvement of the Rock Island rapids, the Moline water power and its adaptability for furnishing electrical power, the cause and effect of

the Mississippi floods. The eclipse of the sun could be described so as to attract general interest. Hundreds would like to learn about X-rays and wireless telegraphy. Other subjects are those in which science comes in contact with agriculture. Would not the farmers of Scott and Rock Island counties appreciate talks on injurious insects, on birds that destroy and on others that protect crops by destroying insects? These subjects are merely suggestive and show what an opportunity the Academy has to take part in the extension of knowledge. There is no reason why many of these papers could not be prepared by the Academy's own brainy and versatile members, and at times scientific men could be induced to come here from Iowa City, from Ames, from Chicago and elsewhere. Courses of popular lectures, of the sort suggested, are given regularly by the Geographical Society at Washington, and are free to members, outsiders being admitted on payment of a small fee. A like plan adopted by the Academy would, it is to be trusted, increase the membership list and make its meetings of interest and value.

READY TO COÖPERATE.

The Academy of Sciences, with its age, record and high purpose behind it, should become the center of the various semi-scientific societies of the city. Its rooms and hall should be thrown open to the medical societies, the agricultural society, the farmers' institute, the pioneers' association, the university extension, and all societies which in any way tend to the advancement and diffusion of knowledge. Should an art gallery ever be established in Davenport, as one certainly should be, it might well find a home in the new building which the Academy hopes to erect.

THE ACADEMY PUBLICATIONS.

The function of the Academy which tells most for its reputation abroad is naturally the publication of its proceedings. This work, supported now by an endowment which might be larger, goes quietly on. Volume after volume is being published, and there is no lack of material for publication. Only papers of the highest grade are accepted and many of these are written by scientists of world-wide reputation. Institutions older and richer than the Academy and located in cities ten times greater than Davenport, may well be envious of our Proceedings.

AN ENDOWMENT NEEDED.

Such are some of the functions of an institution like the Davenport Academy of Sciences. Some of them, such as that of publication, and the amassing of a great and valuable museum and library, it is filling better than could be expected. In others, more has been outlined, perhaps, than the Academy is at present able to undertake, but we need not be discouraged. Before we can accomplish all that we would like to do

we must have an endowment of from fifty to a hundred thousand dollars, and as much more for a commodious fire-proof building. In the meantime, however, we can do something ourselves, something more than merely waiting, and we can hope that in the near future the Academy may be blessed more generously with endowments, may have a new building adapted to its growing needs, and that it may become the center of renewed scientific life and activity.

May 2, 1900 — TRUSTEES' MEETING.

The President, Mrs. M. L. D. Putnam, in the chair; eight Trustees being present. Routine business was transacted.

May 25, 1900 — REGULAR MEETING.

The President, Mrs. Putnam in the chair; eight members present.

The Curator reported the following additions to the Museum during May:

From C. E. Harrison, three trilobites of the genus *Calymene*. From a gentleman in Sac City, Iowa, a peculiar chameleon from the west.

The Publication Committee reported the distribution of Volume VII. of the Proceedings as follows: To foreign societies, 224; to home societies, 147; to individuals, 36; total distribution, 407.

Mrs. Frank G. Allen, Moline, Ill., was elected a Regular Member and Bishop T. N. Morrison a Life Member of the Academy.

E. S. Ballord gave an interesting account of his recent visit to the Grand Cañon. The talk was informal and a discussion accompanied it.

May 28, 1900 — TRUSTEES' MEETING.

The President, Mrs. Putnam, in the chair; nine Trustees present.

The President stated that the purpose of the meeting was to consider the advisability of making the following improvements and repairs: Connect the two buildings, fit up the auditorium, fit up the basement, lay sidewalk, level up the ground, etc.

It was decided that the improvements and repairs should be made and that the President should appoint a committee of three to carry the work to completion.

The following committee was appointed: A. F. Cutter, C. A. Ficke, W. C. Putnam.

The President mentioned the fact that about \$100 would be needed to transport the collection from Griswold College and rearrange the Museum, whereupon J. B. Phelps generously agreed to donate \$100 for that purpose.

June 29, 1900 — REGULAR MEETING.

The President, Mrs. Putnam, in the chair ; ten members present.

The Curator reported additions to the Museum as follows :

From Lucis Hyde, very rare specimens of fossil shells gathered from the well-known layer of Pipestone rock at Pipestone, Minn., described by Prof. N. H. Winchell. The layer is twelve feet thick, between two immense masses of crystalline rock several hundred feet thick. From Prof. Otis T. Mason, cast of Eskimo child's head from Clarence, Alaska. From the Smithsonian Institute, in exchange, three Indian baskets—one small Pomo basket, one Heyso basket from California, and an Apache carrying basket. From Judge C. M. Waterman, specimen of *Stigmara ficoides* from Angel's Ferry, Ill. From Edwin A. Clark, Princeton, Iowa, a pair of very old spectacles with large, round glasses and flat nose piece.

The Publication Committee reported the completion of Prof. Starr's paper on "Ethnography of Southern Mexico," being part of Volume VIII., and that the paper on "The Flora of Scott and Muscatine Counties, Iowa," by Barnes, Reppert and Miller, was in the hands of the printer. The committee further reported that Prof. Starr had presented his album, "Indians of Southern Mexico," and four extra plates to the Academy.

Miss Marian E. Sparks, engaged to make a card catalogue of the Library, reported that it would take several months to complete the work. She had written to 104 societies to obtain volumes to fill out sets. Fifty-six had sent the numbers asked for and six had promised to do so. She said about 1,000 to 3,000 volumes should be bound for safe keeping, convenience and appearance.

John R. Putnam, late of China, was elected a Regular Member.

July 27, 1900 — REGULAR MEETING.

First Vice-President, C. A. Ficke, in the chair ; fourteen members present.

The Curator reported the following donations to the Museum :

From Mrs. Grace B. Buford, Rock Island, Ill., an Indian costume, hatchet, pipe, stone hammer or war club, and a cane made from the

"diamond willow." From Joseph Duncan, Chicago, Ill., an Indian dress decorated with beads and a pair of Indian moccasins, presented to Governor Duncan seventy years ago. From W. C. Putnam, the head and antlers of an elk.

Mrs. E. Hurst, Rock Island, Ill., was elected a Regular Member.

The following resolutions of respect to the memory of the late John B. Phelps were adopted :

WHEREAS, In the death of John B. Phelps, the Davenport Academy of Natural Sciences has lost a warm friend and honored associate, and a long-time life member, one who throughout the twenty-five years of his active connection with it has been at all times a ready and most efficient helper, and to whose guidance, both as chairman of the finance committee and as trustee during many years, it is much indebted ; therefore be it

Resolved, That we record hereby our appreciation of his genuine worth, our deep sense of the loss sustained in his death, and our sympathy with his bereaved household.

Resolved, That these resolutions be spread on the minutes of the Association, and that copies be transmitted to the family and to the papers.

C. H. PRESTON.

C. A. FICKE.

W. C. PUTNAM.

In behalf of the Trustees of Griswold College, the Right Reverend Theodore N. Morrison, Bishop of Iowa, formally presented to the Academy the scientific library and geological collection of Griswold College. In making the presentation he spoke of the impossibility of Griswold College continuing its existence and of the increased work that would be done at Saint Katharine's Hall. The desire of the Trustees of the College was that the library and valuable geological collection be kept together where they could be examined and studied by the largest number of people. All scientific work and all other books that the Academy desired are to become the property of the institution and the remainder are to go to the Davenport public library.

First Vice-President, C. A. Ficke, responded in behalf of the Academy in part as follows :

In the absence of Mrs. Putnam, President of our Association, who unfortunately is unable to be present to-night, it becomes my pleasant task, honored Bishop, in behalf of the Davenport Academy of Sciences, to accept the generous gift which the Trustees of Griswold College, through you, so kindly tender. This gift, pleasing in itself because of its great value, is even more welcome as a proof of the fact that the good work of the Academy is appreciated by those who tender it. It is gratifying beyond measure that our Academy was deemed worthy of becoming the owner of a collection and a library which Bishop Lee, Professor Sheldon, Professor Barris and other enthusiastic scientists

and collectors have spent so many years in accumulating. To you, honored Bishop, and through you to the Trustees of Griswold College, I wish to extend the sincere thanks of the Davenport Academy of Sciences for this most generous and valuable gift.

On motion of C. E. Harrison, seconded by Dr. C. H. Preston, it was resolved that the Academy accept the gift, and that sincere thanks be extended to Bishop T. N. Morrison and the Trustees of Griswold College, and that the following report of a meeting of a committee appointed by the Trustees of Griswold College be spread upon the minutes:

The committee appointed by the Trustees of Griswold College at a meeting held June 12, 1900, to whom was referred the disposal of the library and other property — geological specimens, minerals, shells, etc., etc. — belonging to the Griswold College, with power to act, held a meeting at the Episcopal residence, Davenport, Iowa, on July 27, 1900. Present: the Bishop, the Rev. N. S. Stephens, and the Rev. C. H. Weaver, L.L.D.

The Rev. Dr. Weaver was appointed Secretary. The following motion was passed unanimously:

Resolved, That all such books as relate to science, and such other historical books as the authorities of the Academy may think of value to the institution, together with all specimens relating to the several departments of geology, mineralogy and conchology be and they are hereby presented to the Davenport Academy of Sciences, together with the cases in which they are arranged, it being the conviction of the committee that this valuable collection should be kept together and placed where it may be examined and studied by the largest number of people.

THEODORE N. MORRISON,

Bishop of Iowa.

CLINTON H. WEAVER,

Secretary of Committee.

After the meeting, those attending paid a visit to Science Hall, the newly acquired building, in the basement of which the valuable collections were arranged.

September 28, 1900 — REGULAR MEETING.

The President, Mrs. Putnam, in the chair; seven members present.

The Curator reported the following donations to the museum:

From Prof. J. A. Udden, a package of *Fusilina* from the coal measures of Pottawattamie county, Iowa. From W. H. Forrest, a portrait of Mrs. D. S. True; a collection of the larger ocean shells with many smaller forms; corals, ancient and recent, large and small; and minerals — some very fine — from western localities. From G. R. Putnam, a very fine mounted fur seal from Pribilof Islands; the skin of a Greenland polar bear; and a pair of Eskimo gloves. From Mrs. Tracy, Harbor Point, Mich., two polished specimens of coral from the Hamilton group, and a specimen of opalized agate. From W. C. Putnam, four horizontal show-cases and six upright wall cases for the museum.

The Publication Committee reported the completion of the paper on the "Flora of Scott and Muscatine Counties."

Miss Marian Sparks reported progress in cataloguing. On motion it was decided to put in more shelving for the library and to retain Miss Sparks.

The committee, consisting of E. S. Hammatt and C. A. Ficke, reported that due notice of the proposed amendment to the Articles of Incorporation, by dropping the word "Natural" from the title of the Association, had been published in the papers, and upon motion the amendment was made.

In consideration of the donation to the Academy of his submarine collection from the Bahama Islands, Webb Ballord was elected a Life Member.

October 26, 1900 — REGULAR MEETING.

The President, Mrs. Putnam, in the chair ; five members and several visitors present.

The Curator reported additions to the Museum as follows :

From C. E. Harrison, a carefully prepared and mounted skeleton of a rattlesnake. From Elizabeth D. and W. C. Putnam, a large and valuable collection of Indian relics found in the grave of an Ottawa chief near Harbor Springs, Michigan. The collection contains, in part, the skeleton of a man, a number of copper kettles, and all the honorary decorations of a chieftain, the skull being encircled by a silver band, and further ornamented by a small silver turtle, which was the standard of the Ottawa chief, Little Turtle. This chieftain was the hero of the battle between the Ottawas and the Musquatas, which resulted in the extermination of the latter tribe. War implements, such as stone axes, spear-heads, arrow-heads, iron scalping knives and tomahawks, and portions of flint-lock muskets ; a number of large circular silver pieces used as money, and a great number of dress ornaments, brooches, ear-rings, bracelets, etc.; silver crosses with one, two and three bars, which were given the Indians by the Jesuits ; the finger bones of a hand still bearing the silver rings. The collection numbers several hundred specimens.

A committee was appointed to make arrangements for the opening of Science Hall on December 14th, 1900.

November 30, 1900 — REGULAR MEETING.

The President, Mrs. Putnam, in the chair ; eight members and several visitors present.

Thomas Scott, Davenport, Iowa, was elected a Regular Member, and T. D. A. Cockerell, East Las Vegas, New Mexico, and Charles Webster, Charles City, Iowa, were elected Corresponding Members.

The committee on the opening of Science Hall, Friday evening, December 14, 1900, reported, and the following committees were appointed to complete arrangements :

Reception — C. A. Ficke, Dr. A. W. Elmer, Dr. William Allen, Edward Roberts.

Tickets and Door — C. E. Harrison.

Press — A. A. Miller.

Refreshments — Miss Alice Kimball.

Miss Sparks reported the work of cataloguing as nearly completed. The catalogued books include 2,336 works, 10,016 volumes on 983 subjects, and 7,163 cards were used.

The session was closed with a talk by Edward K. Putnam upon the various elements that enter into the English language. He traced the changes of the Anglo-Saxon through middle English into modern English, illustrating the rules governing these changes by examples of modern words and idioms. He also discussed the Norman, Scandinavian and other influences on the language.

December 14, 1900 — OPENING OF SCIENCE HALL.

On this evening, the thirty-third anniversary of the founding of the Academy, Science Hall was dedicated to the cause of science in the presence of an audience numbering about five hundred, including a large delegation from the High School. The Honorable C. A. Ficke, First Vice-President, presided. On the stage were seated the lecturer of the evening, Professor Frederick Starr of the University of Chicago ; President MacLean and Professor C. C. Nutting of the State University of Iowa, and several of the more active local members of the Academy, including the President, Mrs. Mary L. D. Putnam.

The Reverend Dr. J. B. Donaldson, pastor of the First Presbyterian Church, opened by prayer.

In his introductory remarks, Mr. Ficke congratulated the Academy, the citizens of Davenport, and of the State of Iowa as well, on the establishment of Science Hall.

President MacLean said he brought to the Academy and the citizens of Davenport congratulations, not only on behalf of the State University with its faculty of 130 and its 1,500 students, but also on behalf of all the public schools, academies and colleges of the state. The Davenport High School, he said, led all others in the state in sending students to the University and to other higher institutions of learning. He regarded the Academy of Sciences as a valuable addition to the educational facilities of the city and state. Science, he said, was no longer looked upon as antagonistic to religion and poetry, but went hand in hand with all other educational and uplifting influences. He closed with a reference to the achievements of woman and paid a tribute to Mrs. Putnam for what she has done for the Academy.

Professor Nutting, also of the State University, said, in substance :

I represent the scientific department of the State University and we are glad to meet our friends of science here. We feel it is due to the Academy that we should come here this evening. I have often wondered what the people of Davenport are to make of the Academy of Sciences. For some years I have been in charge of a museum and I have been interested in the way the public thinks of and values a museum. A man once came to me and asked, "Will the amusement be open to-day?" meaning the museum. I have often thought I would like to prepare a lecture on "The Public in a Museum," for the reason that this man's remark was significant, indicating the popular notion that a museum is a place where one may go to see things and thereby be amused. Among the objects for which museums are established, the least important is amusement. It should be the aim of the people to seek instruction in the highest sense of that word. A museum is a place for research, for study and for work. I hope the school children of this city will be led to consider this museum from that point of view, and that they will be induced to use freely the valuable collections that you have here. This Academy is unique in that nowhere in the West has such a museum been sustained for so long a time in a city the size of Davenport. I feel that you are to be congratulated on the past as well as on the present achievements.

The Professor closed with the following :

THE STORY OF TWO WOMEN.

There was a woman on whose heart was pressed the heavy hand of Sorrow.
Her heart was bruised, her head was bowed, her life bereft of hope and light.
This woman was not strong, and so she sat her down and cried :

"Woe has come upon me, and my love lies dead, his work unfinished.
No more is heard his name upon the lips of men. With him is Hope
entombed.

Henceforth my life shall be devoid of light, and o'er his grave I'll place
A broken shaft to show the incompleteness of his life cut short of full fru-
ition."

And so it was. Her life was void. His name forgotten in the homes of
men.

Again there was a woman on whose heart was pressed the heavy hand of
Sorrow.

Her heart was sore, her head bowed low, her life bereft of light.
But strong this woman was, and brave, and she stood up amid the stress
Of this her dire calamity, and gazed undaunted on the face of Sorrow.
"My love shall live!" she said. "His work unfinished I take up. My life
I give

To see his hope fulfilled. His name shall still be spoken in the courts
Of Wisdom, and a monument I'll raise to show fruition of his cherished
hopes!"

And so it was. And wise men came to bring her aid. And lo! Her life
was full

Of light, and blessed with fruitful works. No broken shaft raised she
Above his tomb. Instead she reared a monument enduring as is Truth
eternal.

And the wise men bring the tribute of their learning to this shrine.
His name is honored still in Wisdom's court. His work complete. His
hope fulfilled,

And Sorrow conquered, chastened, owns the sway of Love.

Professor Starr, of the University of Chicago, said he had known
the Davenport Academy of Sciences for twenty-five years. When a
schoolboy in Iowa he had been attracted by the reports of its meet-
ings, and especially in its explorations of the mounds. Ten years
later, while teaching in Coe College, Cedar Rapids, he felt the need
of a scientific library, and came to Davenport, where he spent ten
days studying in the Academy's library and museum. Since then his
interest in the institution had been increasing. Continuing, he said,
in substance :

The people of this city should be proud of the Academy. In the
first place, we have here a library of many volumes that are rare and

SYNOPSIS OF PROCEEDINGS.

precious. We have the old building, we have the new building and we have the museum — one of the best, according to its size, to be found in the whole country. In that museum are many rare treasures. But, after all, the museum is one of the least important things about this Academy, for the monthly meetings, where the handful of enthusiastic devotees of science come together to keep the sacred fires lighted, are the important things. The publications of the Academy are also important, for they penetrate to all the libraries and universities of the world and bring back in exchange the thoughts of all scientific scholars to enrich the Academy's library. The Davenport Academy is known in many cities of the old world where the name of Chicago is unknown, and where the University of Chicago has not yet been able to make itself felt.

But what of the future? One sees erected on this site a large building with its corps of officials, its museums occupying one of the floors that extend from the street to the alley. One sees that courses of lectures are given every year, and the public is interested as never before in the study of science. To those who are interested in this work it is not necessary to call attention to the thirty-three years of achievement that lie in the past. Now for the future. It is the duty of those who are interested in this work to go out as missionaries and interest others until the whole city shall be alive to the value and the helpfulness of this magnificent local institution.

Professor Starr then delivered his interesting lecture on "The Indians of Southern Mexico," which was illustrated by stereopticon pictures.

At the conclusion of the lecture, opportunity was given those present to inspect the Griswold College and other collections which had been placed in the museum annex in the basement of the newly-acquired building, where refreshments were served.

Many letters were received from friends congratulating the Academy on its success. Among these letters, one from Prof. McBride seemed of especial interest:

TO MRS. M. L. D. PUTNAM, *President of the Davenport Academy of Sciences.*

DEAR FRIEND — I regret exceedingly that a previous engagement will prevent my being present on December 14 to bring you in person my earnest congratulations on the triumphant management of the Davenport Academy of Sciences. There is certainly no other success like it in Iowa, and I do not believe there is in any other state, and men of science everywhere are bound sooner or later to recognize that fact.

Through evil report and good report, in good times and bad times, you have persisted with a perseverance and patience beyond all praise, determined that whatever else might come and go, your fortunate city should not be without the inspiration of modern scientific research and the stimulus of modern scientific thought. For three and thirty years, especially from those days when your gifted young member, J. Duncan Putnam, charmed

us all by the beauty and elegance of his works, all too early ended, until the present hour, in the world's Council of National History, the voice of Davenport has never once been silent. The Davenport Academy, may it flourish forever, growing in usefulness and in the good esteem of all intelligent men.

Very sincerely yours,

Iowa City, Iowa, Dec. 10, 1900.

THOMAS H. MCBRIDE.

December 28, 1900 — REGULAR MEETING.

Vice-President C. A. Ficke in the chair; seven members present.

The Curator reported the following additions to the museum:

From C. E. Harrison, the skull of a woodchuck; two large, framed photographs, the first, of Scott County's first court house, the second, of the ruins of Hill's block, northwest corner of Brady and Third streets, destroyed by fire on the night of February 22, 1876. This is of special interest, as upon that night the Ladies' Centennial Association was having a fair and festival in Hill's Oper House for the purpose of raising funds to publish Vol. I. of the Proceedings of the Academy. From Capt. W. P. Hall, a box containing two hundred flint instruments of various shapes and sizes, and twelve grooved axes, some worn with age or use. From Jacob Shibe, Rapids City, Ill., a large Scotch curling stone, highly polished, weighing $37\frac{1}{2}$ pounds, and made of Scotch granite. Through favor of Bishop Morrison and the Board of Trustees, the Griswold College cabinet has been presented to the Academy, and the gift deserves grateful recognition. It comprises several distinct collections, among which are the fresh water shells of the immediate vicinity. As early as 1866, Agassiz visited Davenport, called on Prof. Sheldon and expressed his astonishment at the range of the collection, saying that it seemed to him the richest conchological section between the Atlantic and Pacific oceans. With that thoroughness and system which characterized all his work, Prof. Sheldon arranged the shells so as to facilitate their study. They were so placed on the shelves that the different sizes, forms and their internal structure might be taken in at one view. Prof. Sheldon furnished a similar collection for the cabinet at Harvard. There are over seven hundred marine shells, some collected and some obtained by exchange. They are from China, Japan, West Indies, Sandwich Islands, the Mediterranean, the waters of the American coast, and from the depths of the ocean. The collection of minerals is of wide range, including calcedony from India, volcanic rock from Iceland, silver and gold from the Rockies, crystals of quartz and lime from different parts of the United States. A mass of meteoric iron from Dakota, so pure that it is malleable. From the quarries around Davenport, a valuable collection of fossils, arranged for college class-work. Foreign fossils were added for the purpose of comparison. The cabinet of Rev. Dr. Peet, of great extent and value, was gathered by extensive travel in foreign countries. The collection of crystals is the most interesting

part, wonderful in the size and beauty of each individual crystal, and, still more wonderful, in the variety and delicacy of color, brought out by massing the crystals of different minerals. In passing I note the collection of garnets in mica-slate, pronounced by Prof. Silliman to be the finest specimens ever shown. It is a matter of deep regret that the systematic arrangement of this great collection has not been preserved, many specimens being misplaced and many labels lost. The donation of Webb Ballord, a member of the "Bahama expedition," is a thoroughly scientific collection. It teems with wonderful and various forms of life in tropical waters, pleasing to the eye of the casual observer and instructive to the student of natural history. J. H. Paarmann is now gathering together the various zoölogical specimens and arranging them in a scientific manner. I trust the members of the Academy will appreciate his excellent work.

The following resolution was unanimously adopted :

E. S. Carl, a prominent citizen of Davenport and an honored member of the Academy of Sciences, having died in October, 1900, the members of this Academy wish to place on record their appreciation of his many admirable qualities and of his interest in all enterprises pertaining to the improvement and advancement of the City of Davenport, and especially of the great interest he has always manifested in this institution.

W. C. PUTNAM.
C. A. FICKE.

Resolutions were also adopted on the death of Mrs. J. J. Humphrey, a Regular Member.

In connection with the recent dedication of Science Hall, resolutions were passed thanking the local press, the friends of the Academy who came from a distance to participate in the exercises, and to the friends at home, whose efficient aid made the entertainment such a success.

On motion, the chairman appointed the following nominating committee to nominate officers for 1901 : C. A. Ficke, A. F. Cutter and E. S. Hammatt.

A visit was then made to the zoölogical collection in the museum, and Mr. Paarmann explained his method of classifying and arranging the specimens.

ELECTIONS TO MEMBERSHIP.

JUNE 1, 1899, TO MAY 1, 1901.

CORRESPONDING MEMBERS.

W. D. Barnes, Morgan Park, Ill.....	July 28, 1899.
Prof. E. J. Hill, Englewood, Ill.....	July 28, 1899.
Rev. Kempke, Davenport, Iowa.....	July 28, 1899.
T. D. A. Cockerell, East Las Vegas, New Mexico	November 30, 1900.
Charles Webster, Charles City, Iowa.....	November 30, 1900.

REGULAR MEMBERS.

Residence, Davenport, unless otherwise stated.

W. G. Smith	July 28, 1899.
Rev. G. S. Rollins	July 28, 1899.
Horace Roberts	September 29, 1899.
A. L. Hageboeck	September 29, 1899.
John M. Helmick.....	September 29, 1899.
Ernest C. Oberholzer	October 27, 1899.
Mrs. Frank Gates Allen, Moline, Ill	May 25, 1900.
John R. Putnam, China	June 29, 1900.
Mrs. E. Hurst, Rock Island, Ill.....	July 27, 1900.
Thomas Scott	November 30, 1900.
J. H. Paarmann, Iowa City, Iowa	January 26, 1901.

LIFE MEMBERS.

Bishop T. N. Morrison.....	September 29, 1899.
Thomas W. Griggs	September 29, 1899.
Wilson McClelland.....	October 27, 1899.
Webb Ballord.....	September 28, 1900.
A. F. Cutter.	January 26, 1901.

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