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FERNS AND EVERGREENS

OF

NEW ENGLAND.

A SIMPLE GUIDE FOR THEIR DETERMINATION.

By EDWARD KNOBEL.

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To find the name of a fern. Observe if the stem divides into two branches or forks.



(a) *Feather-like parted* (pinnatifid), *i. e.*, divisions not reaching to midrib or stem.



(b) *Feather-like divided* (pinnate), *i. e.*, divisions reaching to midrib or stem.



(c) Once divided, and divisions parted.



(d) Twice divided (two pinnate).



(e) Twice divided, and divisions parted.



(f) Three times divided (three pinnate, or ternate).

Compare general shapes, stems, and points with drawings on the black-ground plates ; also lower leaflets with detail drawings in regard to veins, sawteeth, points, and fruit dots.

The drawings are all about one-third natural size.

Key to Ferns (Filices).

Stem not forked.

- (a) Simple leaf-like, feather-like parted, or twice parted Plate I.
- (b) Feather-like divided Plate II.
- (c) Feather-like divided and parted :
 - narrow Plate II.
 - less than 2 ft. long Plate III.
 - 2 ft. or more long Plates IV., V.
- (d) Twice feather-like divided Plate VI.
- (e) Twice divided and parted, at least the lower leaflets. Plates VI., VII., VIII.
- (f) Three times divided, at least the lower leaflets Plate IX.

Stem two-forked. Ferns Plate X.

Evergreens or Club-mosses Plate XI.

The Ferns have been classified by their fruit, which consists of minute one-celled powder-like spores in a case (*sporangium*). The sporangia are often clustered into round or oblong dots (*sori*), and these are sometimes covered by a thin skin (*indusium*).



1. POLYPODIUM and PHEGOPTERIS, sori round and uncovered.



2. PTERIS and ADIANTUM, sporangia covered by the edge of leaf.



3. WOODWARDIA, sori oblong, parallel to ribs.



4. ASPLENIUM, sori oblong, oblique to ribs, and opening inwards.



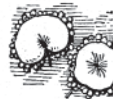
5. DICKSONIA, indusium cup-shaped, supported by a tooth of the leaf.



6. WOODSIA, indusium hood-like, covering the sporangia.



7. CYSTOPTERIS, indusium fastened behind sori, opening from the centre.



8. ASPIDIUM, indusium kidney or shield shaped, fastened at the middle, opening all round.



9. ONOCLEA, fertile on separate contracted fronds, sporangia covered with deformed leaves.



10. OSMUNDA and BOTRYCHIUM, sporangia uncovered, and separate.



11. LYGODIUM, indusium scale-like, covering the sporangia.



12. OPHIOGLOSSUM, sporangia uncovered, and connected.

PLATE I.

Plate I.

1. ADDER'S TONGUE. *Ophioglossum vulgatum*. 1 to 2 in.
 2. MOONWORT. *Botrychium simplex*. 2 to 5 in.
3. MOONWORT. *Botrychium matricaria*. 3 to 6 in.
4. COMMON ROCK FERN. *Polypodium vulgare*. 6 to 10 in.; evergreen; fruit dots large and round.
5. — *Woodwardia angustifolia*. 1 ft. high; fertile plants, with narrow curled-up leaflets, and fruit dots parallel to midrib.
6. MOUNTAIN FERN. *Pbegopteris polypodioides*. 12 in.; narrow triangular, hairy; fruit dots small.
7. — *Pbegopteris hexagonoptera*. 12 to 15 in.; broad triangular, smooth.
8. SENSITIVE FERN, WOOD SWAMP FERN. *Onoclea sensibilis* 2 to 4 ft.



PLATE I.

PLATE II.

Plate II.



9. SPLEENWORT. *Asplenium trichomanes*. 3 to 8 in. ; stem brown.



10. SPLEENWORT. *Asplenium ebeneum*. 8 to 16 in. ; stem brown.



11. SHIELD FERN. *Aspidium (Polystichum) lonchitis*. 9 to 20 in. ; evergreen ; short stemmed ; fruit dots round, on under side of almost all leaves.



12. WOOD FERN. *Aspidium acrostichoides*. 1 to 2½ ft. ; bright shining, evergreen ; fruit dots round, on under side of upper leaves only ; long stem.



13. — *Aspidium cristatum*. 1 to 2½ ft. ; dull dark green, evergreen ; fruit dots round and large.



14. — *Woodsia obtusa*. 6 to 12 in. ; fruit dots globular.



PLATE II.

PLATE III.

Plate III.



15. SPLEENWORT. *Asplenium thelypteroides*. 1½ to 2½ ft.; fruit dots oblong, divisions not as crowded as in No. 17, stem leafy to ground, veins simple.



16. COMMON MEADOW FERN. *Aspidium thelypteris*. 2 ft.; bare long stalk, fruit dots round and crowded, veins forked.



17. COMMON WOOD FERN. *Aspidium noveboracense*. 1 to 2 ft.; fruit dots round, leaflets crowded, stem leafy to ground, veins simple.



PLATE III.

PLATE IV.

Plate IV.



18. BOG FERN. *Woodwardia virginica*. 2 ft. ; featherlets far apart, fruit dots oblong, parallel with midrib.

19. — *Aspidium goldianum*. 2 to 3 ft. ; fruit dots round near ribs.

20. — *Onoclea struthiopteris* (*struthiopteris germanica*). 2 to 3 ft. ; fertile on separate, curled-up, blackish fronds ; stems angular ; veins few and simple.

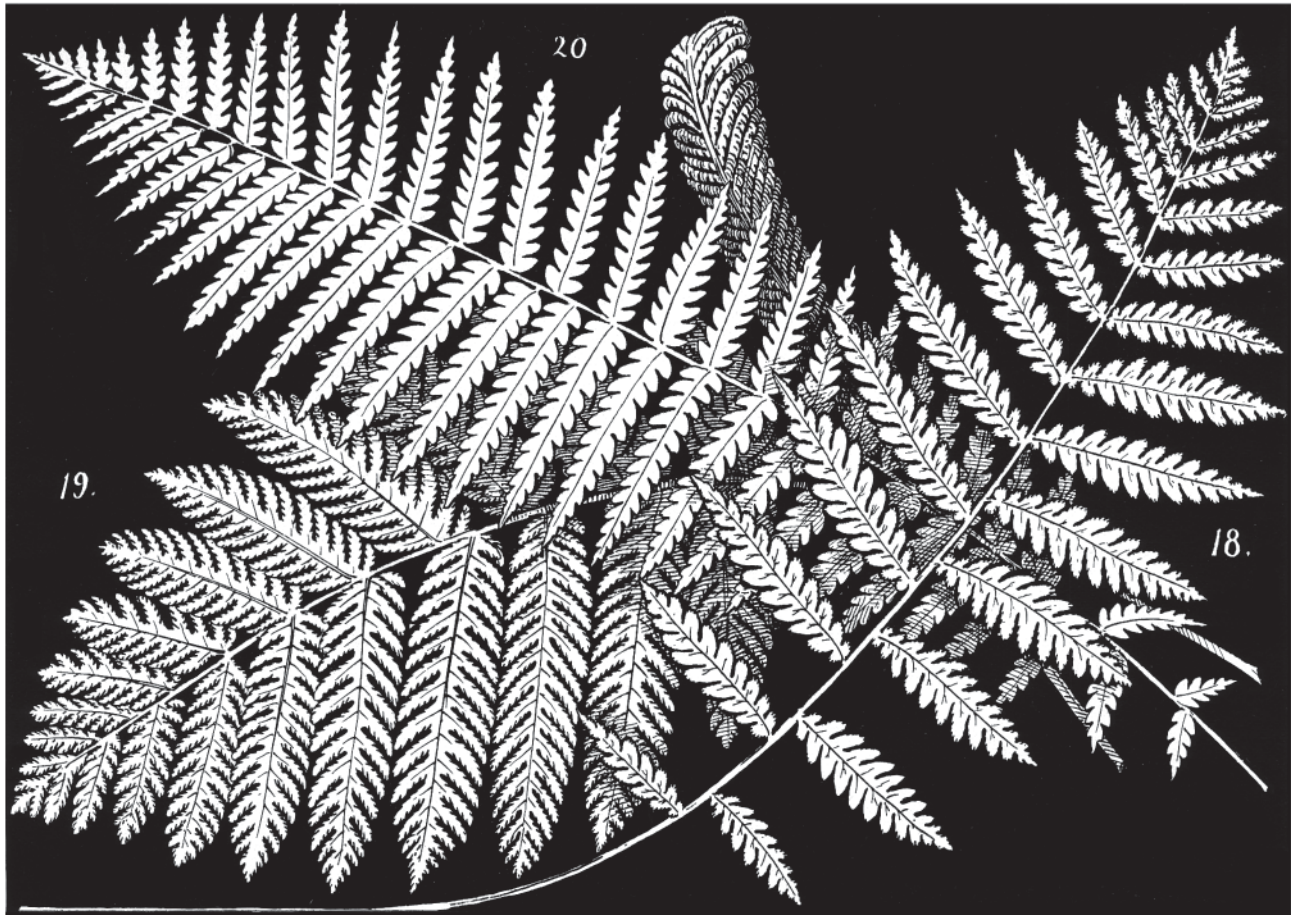
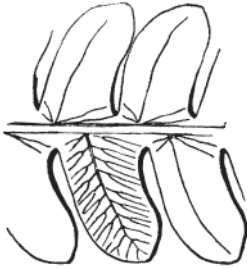


PLATE IV

PLATE V.

Plate V.



21. — *Osmunda Claytoniana*. 2 to 4 ft. ; some featherlets in middle of an ordinary frond bear the fruit.
22. — *Osmunda cinnamomea*. 2 to 5 ft. ; fruit on a separate smaller frond, thickly covered with whitish rusty wool.

Leaves of both alike ; many forked veins.

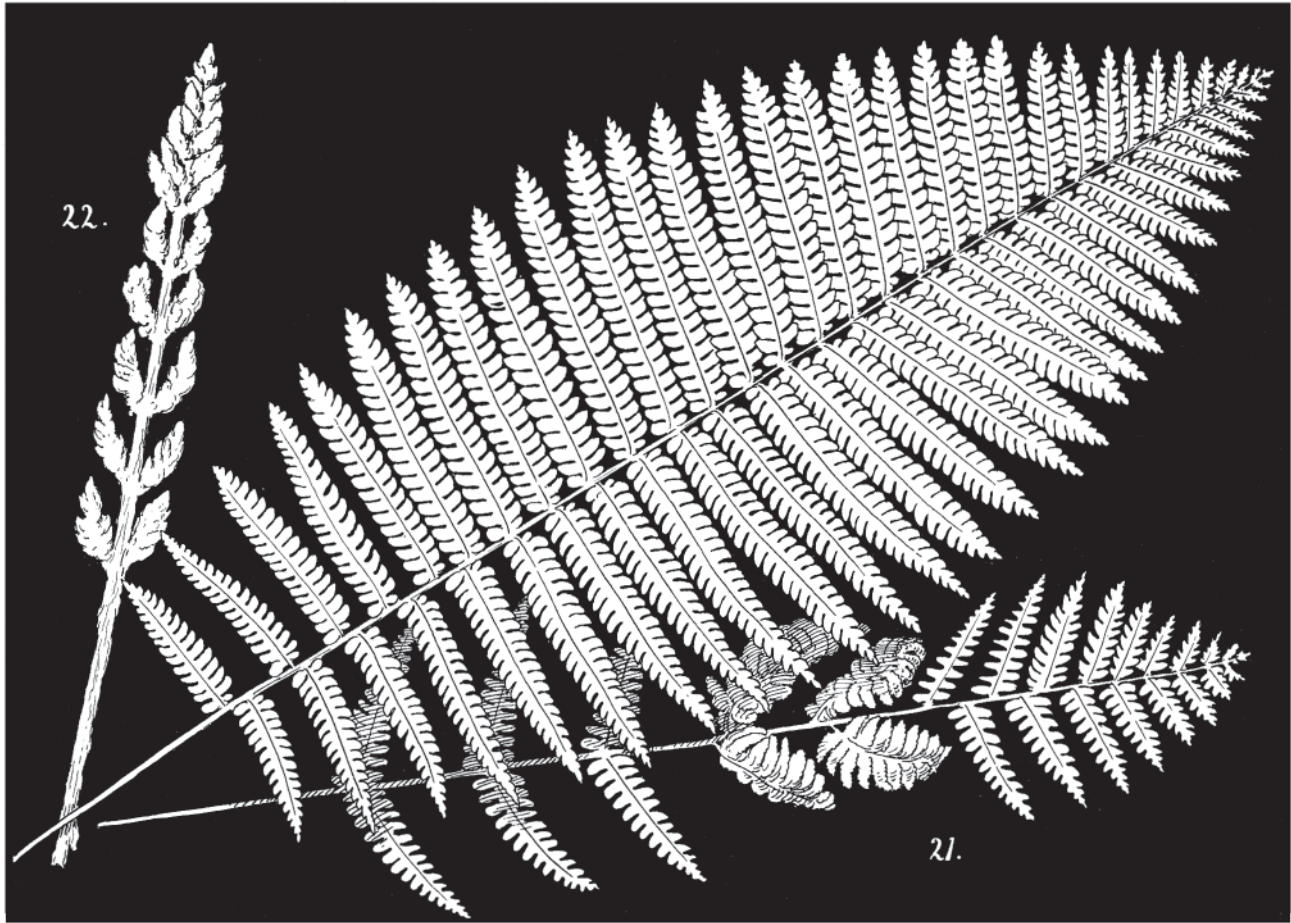
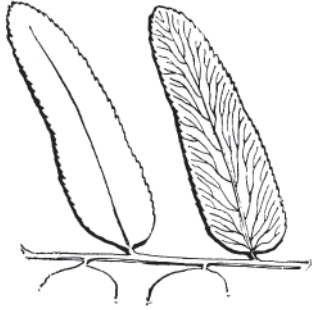


PLATE V.

PLATE VI.

Plate VI.



23. ROYAL FERN. *Osmunda regalis* 2 ft. ; fruit crowded on upper ends of some leaves



24. MALE FERN, VERMIFUGE. *Aspidium filix-mas.* 2 ft. ; fruit dots round.



25. ROCK FERN. *Aspidium marginale.* 1 to 2 ft. ; evergreen ; fruit dots round, near margin of leaflets.



PLATE VI.

PLATE VII.

Plate VII.



26. — *Dicksonia punctilobula (pilosiuscula)*. 2 ft. ; hairy, tapering gradually to a fine point ; roundish sawteeth ; fruit dots cup-shaped, globular.



27. FEMALE FERN. *Asplenium felix-femina* 1 to 3 ft. ; smooth, short pointed, sharp toothed ; fruit dots oblong or half-moon shaped.

There are several varieties, one smaller with only short sawtoothed leaflets, one larger with long curved leaflets.



28. BLADDER FERN. *Cystopteris bulbifera*. 1 to 2 ft. ; slender, sometimes little bulblets on stems.

29. — *Cystopteris fragilis*. 1 ft. ; slender.



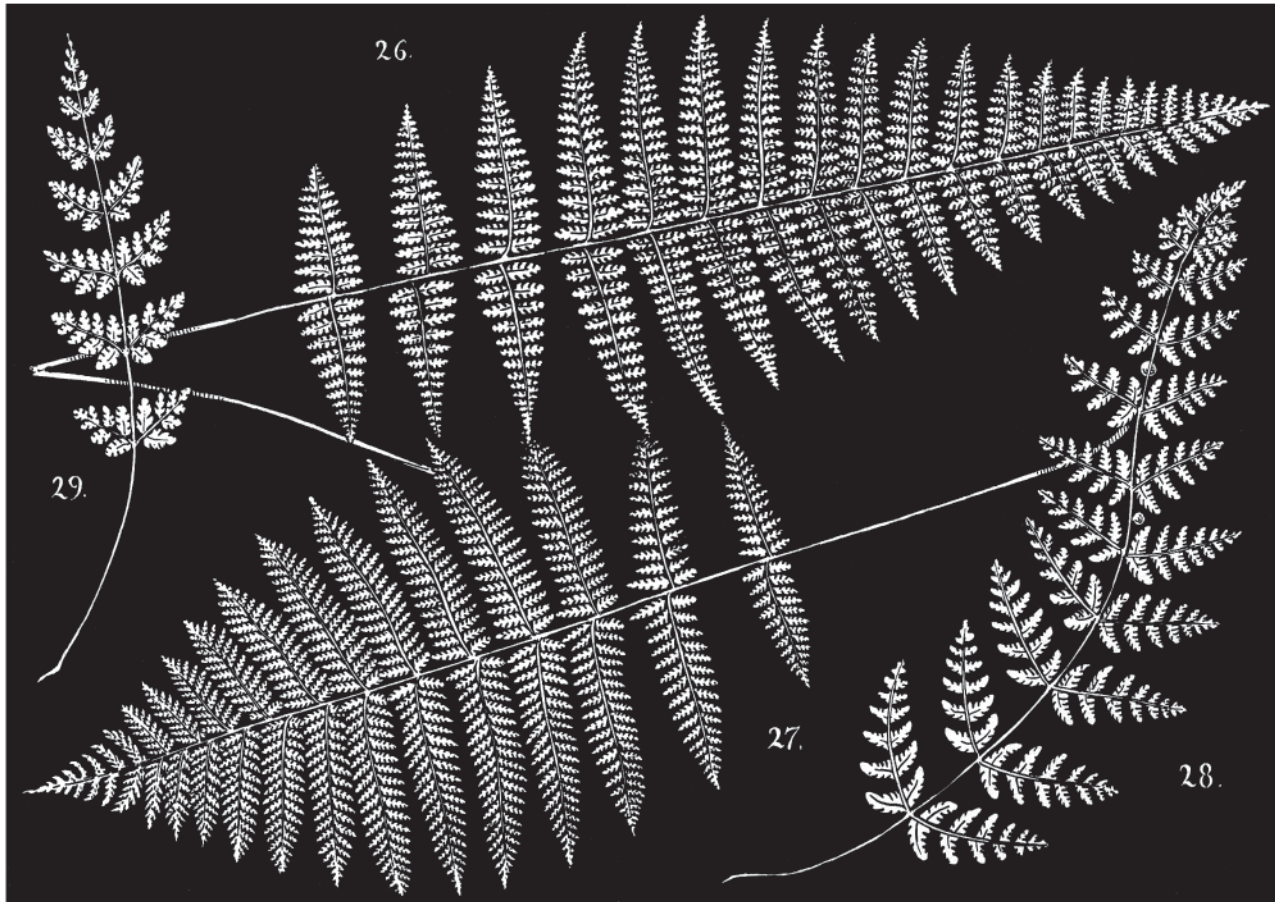


PLATE VII.

PLATE VIII.

Plate VIII.



30. — *Aspidium boottii*. 1 to 2 ft.; evergreen, resembling a broad *Aspidium cristatum*, but differing in divided leaflets and much smaller fruit dots.



31. — *Aspidium spinulosum*. 1 to 2 ft.; sharp spiny toothed; lower leaflets conspicuous, larger than the others and almost three times divided; evergreen.
32. — *Asplenium ruta-muraria*. 2 to 4 in.; evergreen.

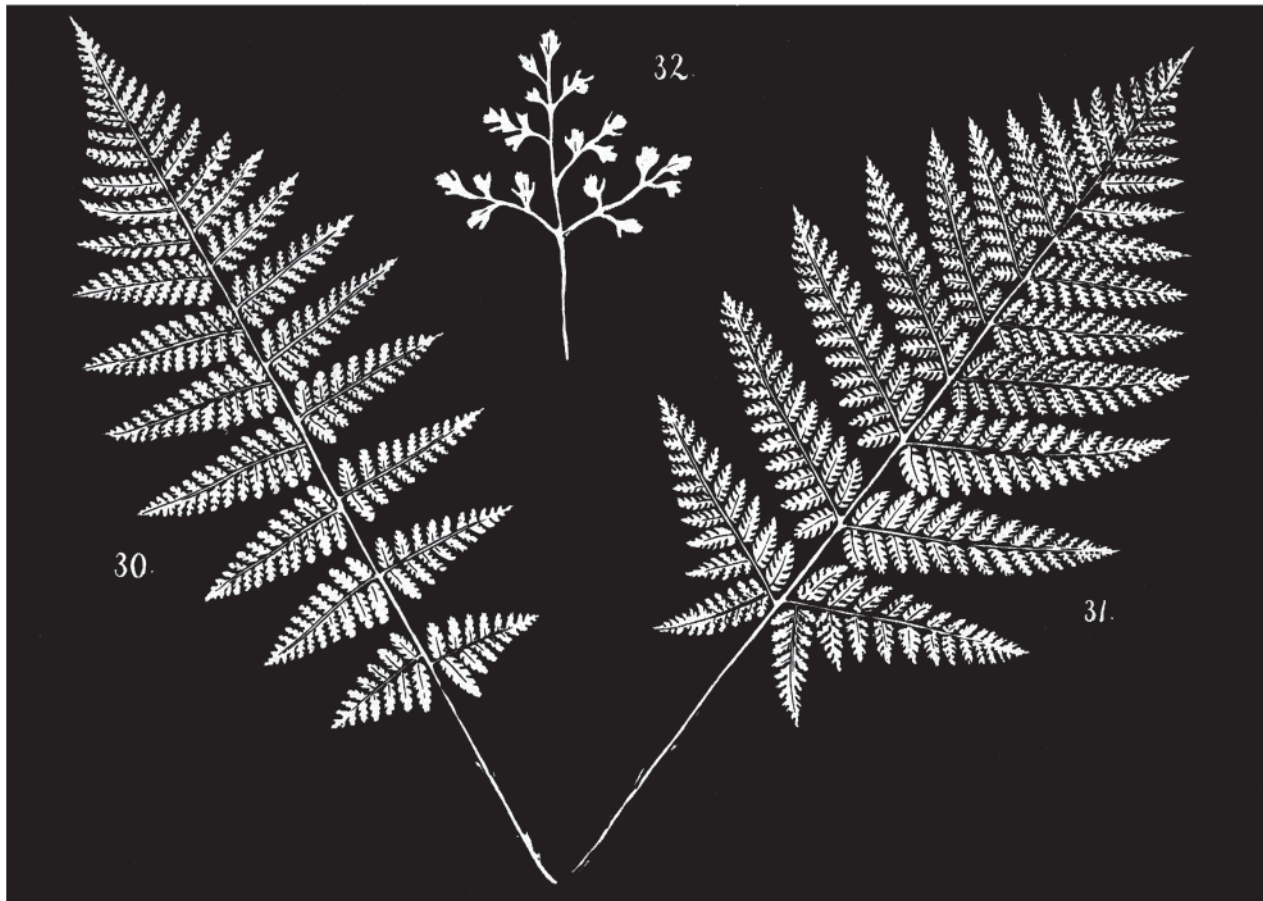


PLATE VIII.

PLATE IX.

Plate IX.

33. COMMON BRAKE, EAGLE FERN. *Pteris aquilina*. 2 to 3 ft. high ; stem upright ; fruit on curled margin of leaves.



34. OAK FERN. *Phegopteris dryopteris*. 1 ft.

35. Moonwort. *Botrychium lunarioides*. 3 to 12 in. ; leaf-stem from the ground.

36. — *Botrychium virginicum*. 1 to 2 ft. ; leaf from middle of fertile stem.



PLATE IX.

PLATE X.

Plate X.

37. MAIDEN HAIR FERN. *Adiantum pedatum*. 9 to 15 in. ; upright blackish stem, leaves horizontal.

38. CLIMBING FERN. *Lygodium palmatum*. 1 to 3 ft. long.

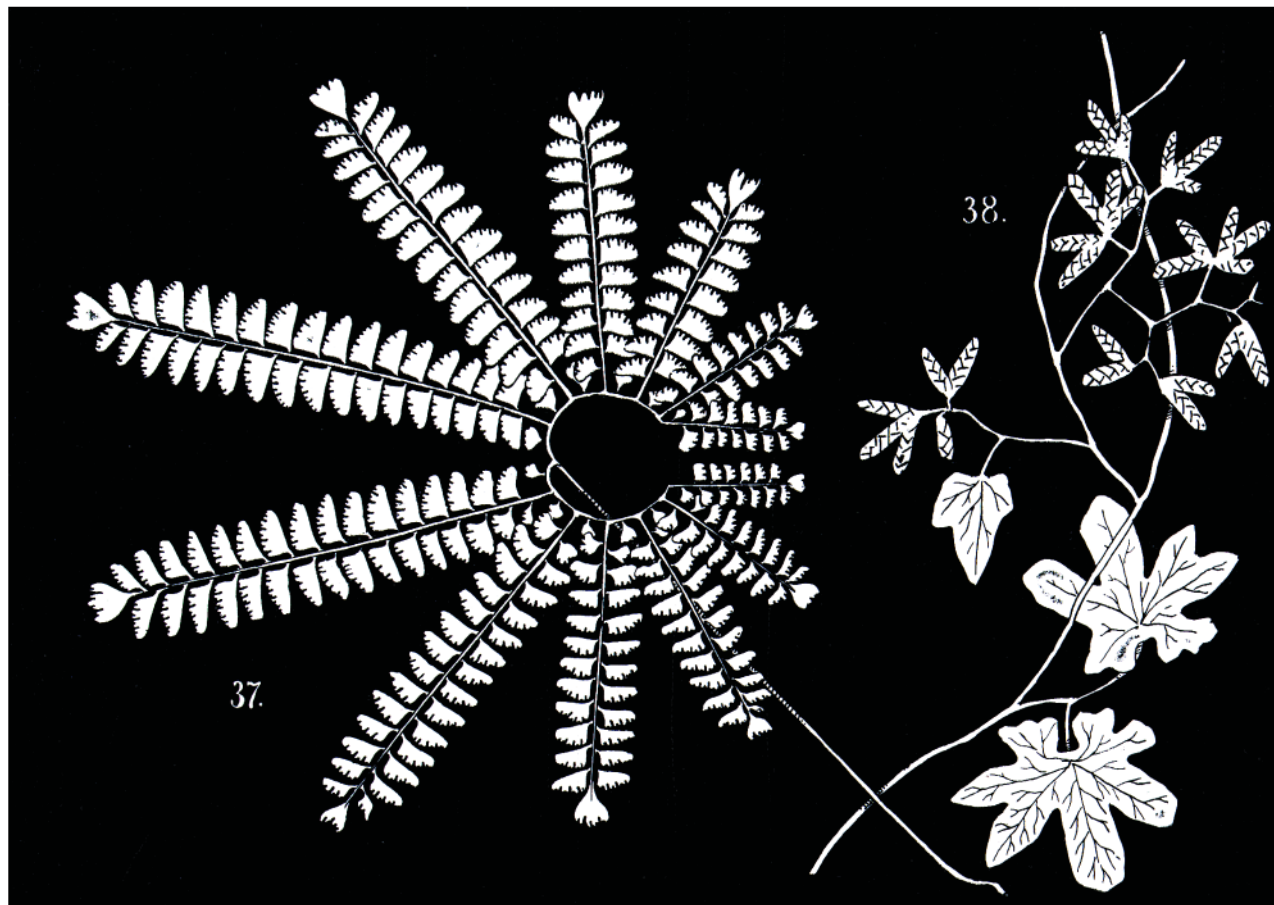


PLATE X.

PLATE XI.

Plate XI.

EVERGREENS

LYCOPODIUMS AND CLUB-MOSS.

- I. SWAMP EVERGREEN. *Lycopodium lucidulum*. 6 to 12 in. ; leaves minutely toothed, growing from underground creeping stems.
L. selago. 3 to 6 in.; similar to No. 1; leaves not toothed.
L. inundatum. 1 to 4 in. ; similar to No. 1, but creeping on the surface of ground.
2. — *Lycopodium complanatum*. Creeping, branches flat.
3. GROUND-PINE. *L. dendroideum (obscurum)*. 6 to 9 in. ; stems creeping underground.
L. annotinum. 5 to 8 in. ; similar to No. 3, but creeping on surface of ground.
4. COMMON CLUB-MOSS. *L. clavatum*. Creeping on surface of ground.

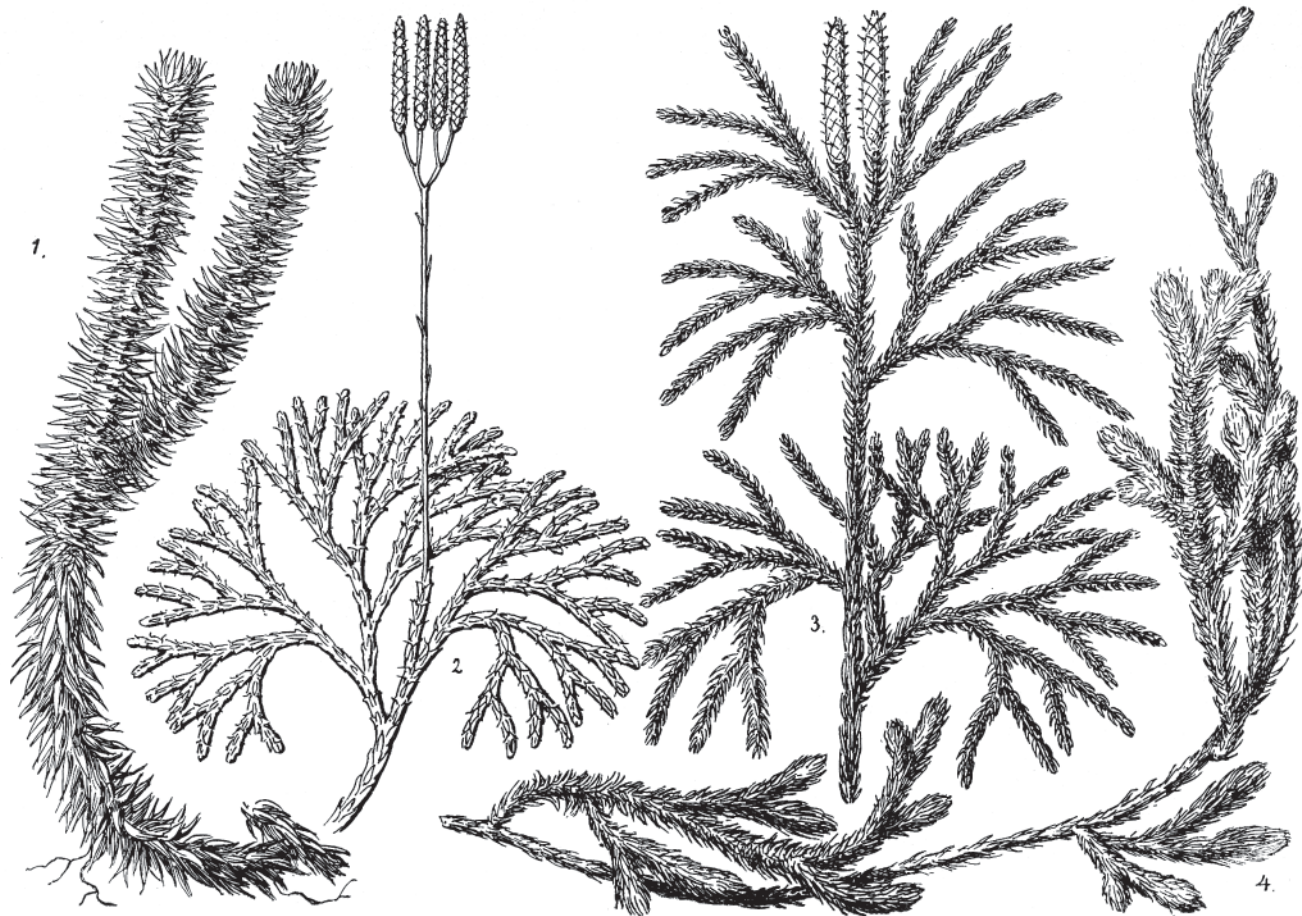


PLATE XI.

#	Old Common name	Old Botanical Name	Current Common Name	Current Botanical Name
1.	ADDER'S TONGUE.	<i>Ophioglossum vulgatum.</i>	ADDER'S TONGUE.	<i>Ophioglossum pusillum.</i>
2.	MOONWORT.	<i>Botrychium simplex.</i>	LEAST MOONWORT.	<i>Botrychium simplex.</i>
3.	MOONWORT.	<i>Botrychium matricaria.</i>	DAISY-LEAF GRAPE FERN.	<i>Botrychium matricariifolium</i>
4.	COMMON ROCK FERN.	<i>Polypodium vulgare.</i>	COMMON POLYPODY.	<i>Polypodium virginianum.</i>
5.	—	<i>Woodwardia angustifolia.</i>	NETTED CHAIN FERN.	<i>Woodwardia areolata.</i>
6.	MOUNTAIN FERN.	<i>Phegopteris polypodioides.</i>	NARROW BEECH FERN.	<i>Phegopteris connectilis.</i>
7.	—	<i>Phegopteris hexagonoptera.</i>	BROAD BEECH FERN.	<i>Phegopteris hexagonoptera.</i>
8.	SENSITIVE FERN, WOOD SWAMP FERN.	<i>Onoclea sensibilis.</i>	SENSITIVE FERN.	<i>Onoclea sensibilis.</i>
9.	SPLEENWORT.	<i>Asplenium trichomanes.</i>	MAIDENHAIR SPLEENWORT.	<i>Asplenium trichomanes.</i>
10.	SPLEENWORT.	<i>Asplenium ebeneum.</i>	EBONY SPLEENWORT.	<i>Asplenium platyneuron.</i>
11.	SHIELD FERN.	<i>Aspidium lonchitis.</i>	NORTHERN HOLLY FERN.	<i>Polystichum lonchitis</i>
12.	WOOD FERN.	<i>Aspidium acrostichoides.</i>	CHRISTMAS FERN.	<i>Polystichum acrostichoides.</i>
13.	—	<i>Aspidium cristatum.</i>	CRESTED WOOD FERN.	<i>Dryopteris cristata</i>
14.	—	<i>Woodsia obtusa.</i>	BLUNT-LOBED WOODSUA.	<i>Woodsia obtusa.</i>
15.	SPLEENWORT.	<i>Asplenium thelypteroides.</i>	SILVERY SPLEENWORT.	<i>Deparia acrostichoides.</i>
16.	COMMON MEADOW FERN.	<i>Aspidium thelypteris.</i>	MARSH FERN.	<i>Thelypteris palustris.</i>
17.	COMMON WOOD FERN.	<i>Aspidium noveboracense.</i>	NEW YORK FERN.	<i>Thelypteris noveboracensis.</i>
18.	BOG FERN.	<i>Woodwardia virginica.</i>	VIRGINIA CHAIN FERN.	<i>Woodwardia virginica.</i>
19.	—	<i>Aspidium goldianum.</i>	GOLDIE'S FERN.	<i>Dryopteris goldiana</i>
20.	—	<i>Onoclea struthiopteris.</i>	OSTRICH FERN.	<i>Matteuccia struthiopteris</i>
21.	—	<i>Osmunda Claytoniana.</i>	INTERRUPTED FERN.	<i>Osmunda Claytoniana.</i>
22.	—	<i>Osmunda cinnamomea.</i>	CINNAMON FERN.	<i>Osmunda cinnamomea.</i>
23.	ROYAL FERN.	<i>Osmunda regalis.</i>	ROYAL FERN.	<i>Osmunda regalis.</i>
24.	MALE FERN, VERMIFUGE.	<i>Aspidium filix-mas.</i>	MALE FERN,	<i>Dryopteris filix-mas.</i>

#	Old Common name	Old Botanical Name	Current Common Name	Current Botanical Name
25.	ROCK FERN.	<i>Aspidium marginale.</i>	EVERGREEN WOOD FERN.	<i>Dryopteris intermedia.</i>
26.	—	<i>Dicksonia punctilobula.</i>	HAY-SCENTED FERN,	<i>Demstaedtia punctilobula.</i>
27.	FEMALE FERN.	<i>Asplenium filix-femina</i>	LADY FERN.	<i>Athyrium filix-femina</i>
28.	BLADDER FERN.	<i>Cystopteris bulbifera.</i>	BULBLET FERN.	<i>Cystopteris bulbifera.</i>
29	—	<i>Cystopteris fragilis.</i>	FRAGILE FERN.	<i>Cystopteris fragilis.</i>
30	—	<i>Aspidium bootii.</i>	BOOTT'S FERN.	<i>Dryopteris x bootii.</i>
31.	—	<i>Aspidium spinulosum.</i>	SPINULOSE WOOD FERN.	<i>Dryopteris carthusiana.</i>
32.	—	<i>Asplenium ruta-muraria.</i>	WALL RUE.	<i>Asplenium ruta-muraria.</i>
33.	COMMON BRAKE, EAGLE FERN.	<i>Pteris aquilina.</i>	BRACKEN FERN.	<i>Pteridium aquilinum.</i>
34.	OAK FERN.	<i>Phegopteris dryopteris.</i>	OAK FERN.	<i>Gymnocarpium dryopteris.</i>
35.	MOONWORT.	<i>Botrychium lunarioides.</i>	CUT-LEAF GRAPE FERN.	<i>Botrychium dissectum</i>
36.	—	<i>Botrychium virginicum.</i>	RATTLESNAKE FERN.	<i>Botrychium virginianum.</i>
37.	MAIDEN HAIR FERN.	<i>Adiantum pedatum</i>	MAIDENHAIR FERN.	<i>Adiantum pedatum.</i>
38.	CLIMBING FERN.	<i>Lygodium palmatum</i>	HARTFORD CLIMBING FERN. HARTFORD FERN.	<i>Lygodium palmatum</i>

Plate XI. EVERGREENS — LYGOPODIUMS AND CLUB-MOSS.

1.	SWAMP EVERGREEN.	<i>Lycopodium lucidulum.</i>	SHINING CLUBMOSS.	<i>Hyperzia lucidula.</i>
	—	<i>L. selago.</i>	NORTHERN FIRMOSS.	<i>Hyperzia selago.</i>
	—	<i>L. inundatum.</i>	BOG CLUBMOSS.	<i>Lycopodiella inundata.</i>
2.	—	<i>Lycopodium complanatum.</i>	CREEPING JENNY.	<i>Diaphasiastrum complanatum.</i>
3.	GROUND-PINE.	<i>L. dendroideum (obscurum).</i>	PRINCE'S PINE.	<i>Dendrolycopodium obscurum.</i>
	—	<i>L. annotinum.</i>	STIFF CLUBMOSS BRISTLY CLUBMOSS	<i>Spinulum annotinum.</i>
4.	COMMON CLUB-MOSS.	<i>L. clavatum</i>	STAGHORN CLUBMOSS.	<i>Lycopodium clavatum..</i>



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