LICHENS collected by the United States expedition under Dr. F. V. Hayden to the Yellowstone region in 1872, by Dr. J. M. Coulter, Botanist, and determined by H. Willey.

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[The order is that of Tuckerman's *Genera Lichenum*.]

1. *Evernia vulpina*, Wulf.—On trees at the Grand Falls of the Yellowstone. Fertile.

2. *Usnea trichodea*, Ach.—In some of the specimens the fibrils are tipped with minute black points resembling spermogones, but no spermatia could be detected.

3. *Alectoria jubata*, Fr.—Shoshone Lake. Infertile.

3a. *Alectoria Fremontii*, Tuck.—On branches of Coniferae. Infertile.

4. *Theloschistes parietinus*, (L., Duf.) Nyl., var. *lychneus*, Schaer.—On dead wood, Jackson's Lake.

5. *Parmelia saxatilis*, Ach.—Infertile fragments.

6. *Parmelia conspersa*, Ach.—Infertile fragments.

7. *Parmelia physodes*, Ach.—On branches.

8. *Parmelia olivacea*, Ach., var. *exasperata*, (DN.)—Very small and scanty specimens on dead wood.

9. *Umbilicaria polyphylla*, Hoffm.—Shoshone Lake. Infertile.

10. *Umbilicaria cylindrica*, Ach. (?)—Infertile.

11. *Umbilicaria hirsuta*, Ach.—Infertile.

12. *Umbilicaria rugifera*, Nyl.—Teton mountains, elevation 12,000 feet.

13. *Peltigera aphthosa*, Hoffm.—Mystic Lake, near Fort Ellis, Montana.

14. *Peltigera canina*, Hoffm.—Teton Canon; hot springs, and elsewhere.

14a. *Peltigera canina*, Hoffm., var. *spuria*, Ach.—Teton Canon.

14b. *Solorina saccata*, Ach., var. *limbata*, Schær.—On the earth among Algæ, Canon Creek, Idaho.

15. *Placodium cladodes*, Tuckerm.—Teton Mountains. Infertile.

16. *Placodium coralloides*, Tuckerm.—Teton Canon.

17. *Placodium murorum*, (Hoffm.,) DC.—The specimens are numerous.

17a. *Placodium murorum* DC., var. *citrinum*, (Ach.) Nyl.—With the above, but less abundant.

18. *Placodium callopismum*, Ach.—The specimens are numerous.

19. *Placodium peliophyllum*, Tuckerm., (Genera, p. 108.) Thallus crustaceous and white at the center, at the circumference laciniate, linear multifid, glaucous fuscous. Apothecia central, crowded, the margin entire, disk plane, white pruinose, cracked. Paraphyses articulate. Hymenial gelatine blue with iodine. Spores polar-bilocular, .016-21 mm. long, .008-10 mm. wide. On rocks, Fort Ellis, Montana.

The specimens are scanty, but I venture to refer it as above, though I have only seen the brief description cited.

20. *Placodium variable*, (Pers.), Nyl. (?)—Thallus tartareous, rimose areolate, whitish. Apothecia sessile, the disk black. Spores polar-bilocular, .015-18 mm. long, .007-9 mm. wide.

The single fragment is very small, and hardly sufficient for satisfactory determination.

21. *Placodium vitellinum*, (Ehrh.), Ach.—On dead wood.

22. *Placodium luteo-minium*, Tuckerm. Lich. Calif., p. 18. A small *Placodium* growing among mosses, which seems referable here.

23. *Placodium fusco-luteum*, Nyl. (?)—A few scattered apothecia with a plane ferrugineous disk, on rocks among other lichens, not sufficient for determination.

24. *Lecanora rubina*, Ach., var. *peltata*, DC.

24a. *Lecanora rubina*, Ach., var. *opaca*, Ach.—The specimens of both these varieties abundant.

25. *Lecanora muralis*, (Schreb.), Schær.

26. *Lecanora* ——— (?)

27. *Lecanora* ——— (?)

Fragments of two lichens belonging to the section Squamaria, but too small for determination.

28. *Lecanora subfusca*, Ach.—On stones and dead wood.

29. *Lecanora varia*, Fr.—On dead wood.

30. *Lecanora Hageni*, Ach.—On stones.

31. *Lecanora cinerea*, L., var. *Hoffmanni*, Ach.—Some of the specimens have a plicate crust, but seem not separable.

32. *Lecanora rhagadiosa*, Ach. (*Acarospora scabra*, Th. Fr. Scand., p. 208.)—Red Mountain, elevation 9,000 feet. New to this continent, and, with *Lecidea mamillaris* mentioned below, an interesting addition to the few lichens common to only the western slope of North America and Europe.

33. *Lecanora xanthophana*, Nyl.—On rocks.

34. *Lecanora chlorophana*, (Wahl.), Ach.—On rocks.

35. *Lecanora Schleicheri*, (Ach.), Nyl.—On the earth, the specimens scanty.

36. *Lecanora cervina*, (Pers.), Somf., var. *glaucocarpa*, Somf.

36a. *Lecanora cervina*, (Pers.), Somf., var. *squamulosa*, Fr.—Some of the specimens have prominent brownish-black spermogones with minute spermatia .002 mm. long.

36b. *Lecanora cervina*, (Pers.), Somf., var. *glebosa*, (Kbr.)—The specimens are numerous, some of them approaching the var. *discreta*, Fr.

37. *Lecanora* ———, (?) Thallus areolate verrucose, caesious pruinose. Apothecia immersed, 1 to 3 in the areoles, the disk plane, black, naked or white pruinose. Thekes myriosporous. Spores elliptical, .005–.006 mm. long, one-half as wide. On rocks with the preceding, from which it is perhaps distinct.

38. *Rinodina sophodes*, (Ach.), var. *exigua*, Nyl.—On dead wood.

39. *Rinodina Bischoffi*, (Hepp.), Kbr.—On rocks.

40. *Cladonia pyxidata*, Fr.

40a. *Cladonia fimbriata*, Fr.

40b. *Cladonia gracilis*, Fr., var. *verticillata*, Fr., Charles H. Peck, Esq.

41. *Cladonia rangiferina*, Hoffm.

41a. *Cladonia squamosa*, var. *delicata*, Fr. Charles H. Peck, Esq.

42. *Biatora decipiens*, Fr.

43. *Biatora luridella*, Tuckerm.

44. *Lecidea contigua*, Fr.—A single specimen.

45. *Lecidea enteroleuca*, Fr.

46. *Lecidea spilota*, Fr.—A single specimen.

47. *Lecidea polycarpa*, Flk.—A single specimen.

48. *Lecidea atro-brunnea*, (DC.), Schær.

49. *Lecidea armeniaca*, (DC.) (?)—A single specimen, about which I am not certain.

50. *Lecidea mamillaris*, (Gouan, Schær.)—On the earth. New to this continent.

51. *Lecidea caulescens*, Anz.—A single fragment.

52. *Buellia myriocarpa*, DC.—On dead wood.

53. *Buellia petræa*, (Fl.), var. *geminata*, (Nyl.)—A single specimen.

53a. *Buellia petræa*, (Fl.), var. *Montagnei*, (DC.)—A single specimen.

54. *Acolium* ——— Thallus verrucose, glaucescent. Apothecia innate-sessile on the apex of the verrucæ, the disk plane, surrounded by a thin, erect, cupular black proper exciple. Hypothecium white. Spores bilocular, .014–23 mm. long, .009–11 mm. wide. A few specimens occurred on dead wood. Perhaps a new species, in which case it may be called *A. occidentale*.

55. *Endocarpon miniatum*, (L.), Schær., var. *complicatum*, Schær.

56. *Endocarpon pusillum*, Hedw.—Two or three squamules, on the earth.

There are five or six other lichens in the collection, but infertile and insufficient for determination.