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CONTENTS.

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THE OTTAWA NATURALIST.

VOL. XIV. OTTAWA, DECEMBER, 1900. No. 9.

CATALOGUE OF THE RECENT MARINE SPONGES OF CANADA AND ALASKA.

By LAWRENCE M. LAMBE, F.G.S.

For convenience of reference, the names of the species of recent marine sponges referred to or described in a number of papers by the writer, published in the Transactions of the Royal Society of Canada, at various dates since 1892, are here brought together in the form of a catalogue. Although the species enumerated are for the most part to be found in Canadian waters, a number are mentioned that occur outside of this limit. In the west, localities are given as far south as California, and some of the more northern forms are recorded from the Alaskan Arctic, with frequent reference to Behring Sea and North Pacific species. In the east, species from off the western coast of Greenland are considered to be from Canadian waters. The Canadian and foreign distribution of each species is given, although in the latter case a complete statement of the geographical range outside of Canada is not always attempted. It is thought desirable to state where the type, or specimens used in the description, of species that have been described as new, were collected and where they are now to be found.

A bibliographical index is appended as well as the names of a number of species, recorded by different authors as occurring off the coast of Greenland and in Behring Sea and Strait.

An asterisk placed before the name of a species denotes that that species is not represented in the collection of the Geological Survey.

The numbers in heavy type refer to the Bibliographical Index.

I. MONAXONIDA.

1. HALICHONDRIA PANICEA, Johnston. 1842. (14)

Distribution—River and Gulf of St. Lawrence (37); coast of New England (33); Vancouver Island; Queen Charlotte Islands and Behring Sea. (15, 16, 17, 18)

Foreign distribution—Coasts of Great Britain (Johnston, Bowerbank); Basse Rocks, off southeast coast of Ceylon (Carter); Kerguelen Island (Carter, Challenger); Torres Strait (Ridley "Alert"); Japan (Challenger); coasts of Norway, Sweden, Novaya Zemlya and western Greenland (Fristedt).

2. HALICHONDRIA DISPARILIS, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 25, pl. ii, figs. 1, 1a; type in the museum of the Geological Survey of Canada.

Type locality—Gulf of Georgia, near Comox, Vancouver Island, B.C.

3. EUMASTIA SITIENS, O. Schmidt. 1870. (26)

Distribution—River and Gulf of St. Lawrence and coast of Nova Scotia; Greenland; North Pacific Ocean and Behring Sea. (17, 18)

Foreign distribution—Pitlekai, eastern Siberia (Fristedt).

Schmidt's specimens are from Greenland.

4. PETROSIA HISPIDA, Ridley and Dendy. 1886. (23)

Locality—Middleton Island, Gulf of Alaska (17).

Foreign locality—Royal Sound, Kerguelen Island (Challenger).

5. RENIERA CINEREA, Grant. 1827.

Locality—Blunden Harbour, B.C. (16).

Foreign distribution—Coasts of Great Britain (Grant, Bowerbank); Philippine Islands (Challenger); Spitzbergen (Fristedt).

6. RENIERA RUFESCENS, Lambe. 1892.

Described in Transactions, Royal Society of Canada, vol. X, p. 75, pl. iv, fig. 6, and pl. v, figs. 12, 12a; type in the museum of the Geological Survey of Canada.

Type locality—Petropaulowski, Kamtschatka.

Distribution—Arctic Ocean (Kotzebue Sound), Behring Sea and North Pacific Ocean; Gaspé coast and Orphan Bank, off the entrance to the Baie des Chaleurs, Gulf of St. Lawrence. (15, 17, 18)

7. RENIERA MOLLIS, Lambe. 1893,

Described in Transactions, Royal Society of Canada, vol. XI, p. 26, pl. ii, figs. 3, 3a; type specimen in the museum of the Geological Survey of Canada.

Type locality—Elk Bay, Discovery Passage, Vancouver Island, B.C.

Distribution—Vancouver Island; coast of Labrador, Orphan Bank, off the entrance to the Baie des Chaleurs, and Hudson Bay. (16, 18, 20, 21).

8. CHALINA OCULATA, Pallas. 1766.

Distribution—River and Gulf of St. Lawrence (37), coast of Nova Scotia (18); New England coast (Verrill, 33).

Foreign distribution—Between England and Belgium (Pallas); Northumberland coast and Firth of Forth (Johnston); coast of England (Bowerbank).

9. GELLIUS ARCOFERUS, Vosmaer. 1885. (35)

Distribution—Gulf of St. Lawrence (18); Greenland (Fristedt, 12).

Foreign distribution—Barents Sea (Vosmaer); Siberian Arctic Ocean (Fristedt).

10. GELLIUS FLAGELLIFER, Ridley and Dendy. 1886. (23)

Distribution—Gulf of St. Lawrence (18).

Foreign locality—Off Marion Island (Challenger).

11. GELLIUS LAURENTINUS, Lambe. 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 20, pl. i, figs. 1, 1a; type material in the museums of University College, Dundee, Scotland, and of the Geological Survey of Canada.

Distribution—Gulf of St. Lawrence; Davis Strait.

12. TOXOCHALINA BOREALIS, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 115, pl. ii, figs. 2, 2a—e; type material in U. S. National Museum at Washington, D.C., and in the museum of the Geological Survey of Canada.

Type locality—Kyska Harbour, Kyska Island, Aleutian Islands.

13. TEDANIA FRAGILIS, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 116, pl. ii, figs, 3, 3a—c; type specimen in U. S. National Museum at Washington, D.C., and authentically named examples in the museum of the Geological Survey of Canada.

Distribution—Amaknak Island (type locality), Aleutian Islands; Sooke, Vancouver Island, B.C.

14. DESMACELLA PEACHII, var. GRŒNLANDICA, Fristedt, 1887. (12)

Locality—Between Anticosti and the Gaspé Peninsula, Gulf of St. Lawrence (18).

Foreign locality—East coast of Greenland (Fristedt).

15. DESMACELLA PENNATA, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 129, pl. iv, figs. 6, 6a—d; type specimen in the museum of the Geological Survey of Canada.

Type locality—Sooke, Vancouver Island, B.C.

16. ESPERELLA LINGUA, Bowerbank. (Sp.) 1866. (1)

Distribution—Gulf of St. Lawrence (18); northeast coast of the United States (Verrill, 33); Greenland (Fristedt); Adak Island, Aleutian Islands (17).

Foreign distribution—Western Islands, Outer Skerries and Unst, Scotland (Bowerbank); off northern coast of Norway (Vosmaer).

17. ESPERELLA SERRATOHAMATA, Carter. (Sp.) 1880.

Locality—Sooke, Vancouver Island, B.C. (17).

Foreign locality—Gulf of Manaar, India, (Carter, 7) and (?) Korea Strait (*Esperella macrosigma*, Lindgren, 39).

18. ESPERELLA HELIOS, Fristedt. (Sp.) 1887.

Distribution—Alaskan Arctic Ocean; Behring Strait and Behring Sea.

Type locality—Pitlekai (Fristedt).

19. ESPERELLA HISPIDA, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 27, pl. ii, figs. 4, 4a—c; type specimen in the museum of the Geological Survey of Canada.

Type locality—Near Suquash, off Pulteney Point, Queen Charlotte Sound, Vancouver Island, B.C.

20. ESPERELLA ADHÆRENS, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 27, pl. ii, figs. 5, 5a—d; type in the museum of the Geological Survey of Canada.

Type locality—Elk Bay, Discovery Passage, Vancouver Island, B.C.

Distribution—Vancouver Island, North Pacific Ocean and Behring Sea (16, 17).

21. ESPERELLA OCCIDENTALIS, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 28, pl. ii, figs. 6, 6a–e; type in museum of the Geological Survey of Canada.

Tpye locality—Gulf of Georgia, near Comox, Vancouver Island, B.C.

22. ESPERELLA MODESTA, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 118, pl. iii, figs. 1, 1a—d; type material in the U. S. National Museum at Washington, D.C., and in the museum of the Geological Survey of Canada.

Localities from which material was first examined—Chika Island, Akutan Pass; Simeonof Island, Shumagin Islands.

Distribution—Behring Sea and North Pacific Ocean; Gaspé coast, Gulf of St. Lawrence (18).

23. ESPERELLA FRISTEDTII, Lambe, 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 21, pl. i, figs. 2, 2a—h; specimens in the U. S. National Museum at Washington, D.C., and in the museum of the Geological Survey of Canada.

Distribution—Davis Strait.

Foreign locality—West from Taimur Peninsula (Fristedt); the specimen from this locality was referred to Carter's species *Esperia cupressiformis* (12, p. 457).

24. ESPERELLA MINUTA, Lambe. 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 23, pl. i, figs. 3, 3a—c; type in the U. S. National Museum at Washington, D.C.

Type locality—Davis Strait, off Cape Wild.

25. ESPERIOPSIS RIGIDA, Lambe. 1892.

Described in Transactions, Royal Society of Canada, vol. X, p. 68, pl. iii. fig. 4, and pl. v, figs. 3, 3a—g; type in museum of the Geological Survey of Canada.

Type locality—Entrance to Malaspina Inlet, B.C.

26. ESPERIOPSIS VANCOUVERENSIS, Lambe. 1892.

Described in Transactions, Royal Society of Canada, vol. X, p. 68, pl. iii, fig. 5, and pl. v, figs. 4, 4a—d; type specimen in museum of the Geological Survey of Canada.

Type locality—West coast of Vancouver Island, B.C., north of Quatsino Sound.

27. ESPERIOPSIS QUATSINOENSIS, Lambe. 1892.

Described in Transactions, Royal Society of Canada, vol. X, p. 69, pl. iii, figs. 8, 9, and pl. v, figs. 8, 8a, 8b, 8c; types in museum of the Geological Survey of Canada.

Type localities—West coast of Vancouver Island, B.C., north of Quatsino Sound, and near Lasqueti Island, Strait of Georgia.

Distribution—Behring Sea and North Pacific Ocean as far south as the State of Washington.

28. ESPERIOPSIS LAXA, Lambe. 1892.

Described in Transactions, Royal Society of Canada, vol. X, p. 70, pl. iii, fig. 10, and pl. v, figs. 13, 13a, 13b, 13c; type in museum of the Geological Survey of Canada.

Type locality—Oyster Bay, Vancouver Island, B.C.

29. CLADORHIZA ABYSSICOLA, M. Sars. 1872.

Distribution—Between Anticosti and the Gaspé Peninsula, Gulf of St. Lawrence (Whiteaves, **37**); coast of New England (Verrill, **33**); Baffin Bay (Fristedt, **12**).

Foreign distribution—Coast of Norway (Sars, **25**); between the north coast of Scotland and the Faroe Islands (Carter).

30. CLADORHIZA GRANDIS, Verrill. 1879. (? syn. C. NOBILIS, Fristedt. 1887.)

Distribution—Off the coast of Nova Scotia (Verrill, **32**); eastern coast of Greenland (Fristedt).

31. CLADORHIZA NORDENSKIOLDII, Fristedt. 1887.

Locality—Between Anticosti and the Gaspé Peninsula, Gulf of St. Lawrence (**18**).

Fristedt's type specimen is from the east coast of Greenland.

32. CHONDROCLADIA ALASKENSIS, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 119, pl. ii, figs. 7, 7a–e; type material in the U. S. National Museum at Washington, D.C., and in the museum of the Geological Survey of Canada.

Distribution—Behring Sea and North Pacific Ocean.

33. CHONDROCLADIA PULCHRA, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 119, pl. ii, figs. 8, 8a–d; type material in the U. S. National Museum at Washington, D.C., and in the museum of the Geological Survey of Canada.

Distribution—Aleutian Islands.

34. DESMACIDON (HOMŒODICTYA) PALMATA, Johnston. 1842.

Distribution—Nova Scotia and northeast coast of the United States (18, 33).

Foreign distribution—Coasts of England and Scotland (Johnston and Bowerbank).

35. IOPHON CHELIFER, Ridley and Dendy. 1886.

Distribution—Vancouver Island, B.C., (16); Gulf of St. Lawrence (18); Davis Strait (21).

Foreign distribution—Off the Cape of Good Hope, off Prince Edward Island (lat. 46° 41′ S., long. 38° 10′ E.) and off Crozet Island (Challenger).

36. *IOTROCHOTA MAGNA, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 120, pl. iii, figs. 2, 2a—d; type in the U. S. National Museum at Washington, D.C.

Localities from which material was examined—Kyska Island and Nagai Island, North Pacific Ocean.

37. MYXILLA INCRUSTANS, Johnston. 1842.

Distribution—Gaspé coast, Gulf of St. Lawrence (18).

Foreign distribution—Coast of Great Britain (Johnston, Bowerbank).

38. MYXILLA BARENTSI, Vosmaer. 1885.

Distribution—Alaskan Arctic Ocean, Behring Sea, and North Pacific Ocean as far south as Vancouver Island (17).

Foreign distribution—Arctic Sea (Vosmaer, 35).

39. MYXILLA LACUNOSA, Lambe. 1892.

Described in Transactions, Royal Society of Canada, vol. X, p. 70, pl. iii, fig. 3, and pl. v, figs. 5, 5a–g; type specimen in the museum of the Geological Survey of Canada.

Type locality—West coast of Vancouver Island, B.C., north of Quatsino Sound.

40. MYXILLA ROSACEA, Lieberkühn, var. 1892.

Described in Transactions, Royal Society of Canada, vol. X, p. 71, pl. iii, fig. 6, and pl. v, figs. 6, 6a, 6b—f; specimen in the museum of the Geological Survey of Canada.

Locality—Oyster Bay, Vancouver Island, B.C.

41. MYXILLA PARASITICA, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 31, pl. ii, figs. 8, 8a—f; specimens in the museum of the Geological Survey of Canada.

Distribution—Vancouver Island, B.C.

42. MYXILLA BEHRINGENSIS, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 121, pl. iii, figs. 3, 3a—f, type material in the U. S. National Museum at Washington, D.C., and in the museum of the Geological Survey of Canada.

Distribution—Behring Sea and North Pacific Ocean.

43. MYXILLA AMAKNAKENSIS, Lambe, 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 122, pl. ii, figs. 10, 10a—e; type material in the U. S. National Museum at Washington, D.C., and in the museum of the Geological Survey of Canada.

Distribution—Behring Sea and North Pacific Ocean as far south as Vancouver Island, B.C.

44. MYXILLA FIRMA, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 122, pl. iii, figs. 4, 4a—f.; type material in the U. S. National Museum at Washington, D.C., and in the museum of the Geological Survey of Canada.

Distribution—Kyska Island (North Pacific Ocean) and Vancouver Island, B.C.

45. CLATHRIA LOVENI, Fristedt. 1887.

Localities—Chika Island, Akutan Pass; Unalaska Island (17).

Type locality—Cape Yakan (Fristedt).

46. CLATHRIA LÆVIGATA, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 31, pl. ii, figs. 9, 9a—f; type specimen in the museum of the Geological Survey of Canada.

Type locality—Near Comox, Vancouver Island, B.C.

47. CLATHRIA DELICATA, Lambe. 1896.

Described in Transactions, Royal Society of Canada, second series, vol. II, p. 192, pl. ii, figs. 2, 2a—h; type specimen in the museum of the Geological Survey of Canada.

Distribution—Coast of Nova Scotia.

There are two specimens from Portland, Maine, in the Peter Redpath Museum, McGill University, Montreal.

48. *PLOCAMIA MANAARENSIS, Carter. 1880.

One specimen, from coast of California, in the U. S. National Museum at Washington, D.C (17).

Carter's type is from the Gulf of Manaar (7).

49. PHAKELLIA VENTILABRUM, Johnston. 1842.

Distribution—River and Gulf of St. Lawrence (37), Hudson Bay (20), Davis Strait and the northeast coast of the United States (33); North Pacific Ocean, Behring Sea and the Alaskan Arctic Ocean.

Foreign distribution—British Seas (Bowerbank, Johnston, &c.); Ireland, (Johnston); Shetlands (Bowerbank); between Scotland and Faroe Islands (Carter); southwest coast of Norway (Schmidt); Arctic Ocean, off Norway (Vosmaer); Baltic Sea (Fristedt); Florida, Gulf of Mexico, and Barbadoes (Schmidt); off Brazil and northeast coast of Falkland Islands (Challenger).

50. *PHAKELLIA DALLI, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 125, pl. iii, figs. 5, 5a—d; type specimen in the U.S. National Museum at Washington, D.C.

Type locality—Chika Island, Alaska.

51. AXINELLA RUGOSA, Bowerbank. (Sp.) 1866.

Distribution.—Chika Island and Unalaska Island, Alaska (17); Greenland (Fristedt 12).

Foreign distribution.—Orkney and Shetland Islands (Bowerbank).

52. SUBERITES SUBEREA, Johnston, 1842.

Distribution—Vancouver Island, North Pacific Ocean, and Behring Sea (17); New England coast (Verrill, 33).

Foreign distribution—Coasts of British Isles (Bowerbank).

53. SUBERITES FICUS, Johnston. 1842.

Locality—Sable Island, off the coast of Nova Scotia (specimens in the Peter Redpath Museum, McGill University, Montreal, 18).

Foreign distribution—Coasts of Great Britain (Johnston and Bowerbank).

54. SUBERITES HISPIDUS, Bowerbank. 1864.

Described in Canadian Naturalist, second series, vol. I, p. 304; type

specimen in the Peter Redpath Museum, McGill Uuiversity, Montreal; one specimen in the museum of the Geological Survey of Canada.

Localities—Portland, Maine (type locality), and off the coast of Anticosti, Gulf of St. Lawrence (18); New England coast (Verrill, 33).

55. SUBERITES MONTALBIDUS, Carter. 1880. (8)

Localities—Unalaska Island, Alaska, 17 (one specimen in the U. S. National Museum at Washington, D.C.) and Richmond Gulf, Hudson Bay, 20 (one specimen in the museum of the Geological Survey of Canada).

Distribution—Behring Sea and Strait, Beaufort Sea, the Siberian Arctic Ocean, the Kara Sea, the European Arctic Ocean, Barents Sea (type specimen from near the southwest end of Novaya Zemlya) and the west and east coasts of Greenland.

56. *SUBERITES MONTINIGER, Carter. 1880, (8)

Locality—Granite Cove, Port Althorp, Cross Sound, Alaska (one specimen in the U. S. National Museum at Washington, D.C.).

Type locality—Barents Sea from the southwest end of Novaya Zemlya, in lat. 71° 6′ N., long. 50° E.

57. SUBERITES SIMPLEX, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 32, pl. iv, figs. 4, 4a; type specimen in the museum of the Geological Survey of Canada.

Type locality—Gulf of Georgia, near Comox, Vancouver Island, B.C.

58. SUBERITES PACIFICA, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 32, pl. ii, figs. 10, 10a—d; type specimen in the museum of the Geological Survey of Canada,

Type locality—Gulf of Georgia, near Comox, Vancouver Island, B.C.

59. SUBERITES CONCINNUS, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XII, p. 128, pl. ii, figs. 12, 12a; type material in the U. S. National Museum at Washington, D.C., and in the museum of the Geological Survey of Canada.

Distribution -North Pacific Ocean, Behring Sea and Alaskan Arctic Ocean.

60. POLYMASTIA MAMMILLARIS, Johnston. (Sp.) 1842.

Distribution—Gulf of St. Lawrence (37, 18) and off the coast of Nova Scotia (24); northeast coast of United States.

This species has a wide geographical range. According to Topsent (38, p. 135) it is found, outside of Canadian waters, in the Arctic Ocean (Kara Sea, White Sea, Spitzbergen, Greenland, &c.); in the North Atlantic (coasts of Norway, Belgium, British Isles, France, Spain); in the Mediterranean (coast of France, Naples, Adriatic); Pacific Ocean (Amboina Island, Japan).

61. POLYMASTIA ROBUSTA, Bowerbank. 1860.

Distribution—Gulf of St. Lawrence (18); off the coast of Nova Scotia (24); northeast coast of United States (Verrill, 33).

Foreign distribution—British Isles (Bowerbank, Norman, Hanitsch); North Sea, Shetland Islands (Norman); entrance to the Baltic (Levinsen); French coast of the English Channel and of the Atlantic (Topsent).

62. POLYMASTIA LAGANOIDES, Lambe. 1894.

Described in Transactions, Royal Society of Canada, vol. XI, p. 129, pl. iv, figs. 5, 5a—c; type in the U. S. National Museum at Washington, D.C.; part of the type specimen in the museum of the Geological Survey of Canada.

Type locality—Behring Island, Behring Sea.

63. TRICHOSTEMMA HEMISPHÆRICUM, M. Sars. 1872.

Distribution—Gulf of St. Lawrence (Whiteaves, 37) 18; northeast coast of the United States (Verrill, 33).

Foreign distribution—Lofoten, Norway (Sars); Arctic Ocean, off the coast of Norway (Vosmaer).

64. TENTORIUM SEMISUBERITES, Schmidt. (Sp.) 1870. (26)

Distribution—Gulf of St. Lawrence (Whiteaves, 37); off Nova Scotia (Challenger); Baffin Bay, Omenak Bay, west and east coast of Greenland (Fristedt); Davis Strait and East Greenland (Lambe, 21); Greenland (Schmidt); northeast coast of United States (Verrill, 33).

Foreign distribution—Off the Shetland Islands (Wyville Thompson); Arctic Ocean off the coast of Norway (Vosmaer); Inaccessible Island, South Atlantic Ocean (Challenger).

65. STYLOCORDYLA BOREALIS, Lovén. (Sp.) 1868. (22)

Distribution—Gulf of St. Lawrence (Whiteaves, 37); south of Halifax, Nova Scotia (Challenger); northeast coast of the United States (Verrill, 33).

Foreign distribution—North Sea and coast of Finmark (Lovén); off the coast of Finmark (Vosmaer); Lofoten, Norway (Sars); between the north of Scotland and the Faroe Islands (Wyville Thompson, Carter);

off Bahia, Brazil, and between Marion and Crozet islands, South Indian Ocean (Challenger).

66. CLIONA CELATA, Grant. 1826.

Locality—North shore of Prince Edward Island, Gulf of St. Lawrence (18); New England coast (Verrill, 33).

Foreign distribution—Coasts of Great Britain (Bowerbank); Norway, Denmark, Belgium, France; Mediterranean—France, Naples, Adriatic (Topsent); Florida; South of Australia (Carter, Dendy); New Guinea (Ridley and Dendy).

II. TETRACTINELLIDA.

67. CRANIELLA CRANIUM, Müller. (Sp.) 1798.

Distribution—Richmond Gulf, Hudson Bay (20); Greenland (Fristedt).

Foreign distribution—The Island of Arran, Galway, Ireland (Bowerbank); The Minch, Scotland (Norman); between the Faroe Isles and the North of Scotland (Carter); Shetland Islands (Bowerbank); Kors Fjord, Norway (Norman, Sollas); lat. 61° o′ N., long. 4° 49′ E. and lat. 72° 53′ N., long. 21° 51′ E. (Hansen); near last mentioned locality (Vosmaer).

68. CRANIELLA VILLOSA, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 34, pl. iii, figs. 1, 1a—f; type specimen in the museum of the Geological Survey of Canada.

Type locality—Houston Stewart Channel, Queen Charlotte Islands, B.C.

69. CRANIELLA SPINOSA, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 35, pl. iv, figs. 1, 1a—j; type specimen in the museum of the Geological Survey of Canada.

Localities from which material was examined—Elk Bay, Discovery Passage and Gulf of Georgia, near Comox, Vancouver Island, B.C.

70. THENEA MURICATA, Bowerbank. (Sp.) 1858.

Distribution—Gulf of St. Lawrence (Whiteaves, 37); northeast coast of the United States (Verrill, 33); Baffin Bay, Davis Strait and east coast of Greenland (Fristedt); east coast of Greenland (Lambe, 21).

This species is known to range through the Arctic and North Atlantic oceans, from about lat. 42° to 75° N., and from long. 60° W. to 32° E.

71. CYDONIUM MULLERI, Fleming. 1828.

Distribution—Vancouver Island and Queen Charlotte Islands.

Type locality—Island of Fulah and Unst (Shetland Islands).

According to Vosmaer (35, p. 6) the geographical distribution of this species is "Atlantic (Shetland, Iceland, Florida) and Arctic Oceans."

III. HEXACTINELLIDA.

72. RHABDOCALYPTUS DAWSONI, Lambe. (Sp.) 1892.

Described in Transactions, Royal Society of Canada, vol. X, p. 73, pl. iv, fig. 2, and pl. vi, figs. 2, 2', 2a, 2a', 2b, 2b', 2c, 2d--i, 2k ; type in the museum of the Geological Survey of Canada.

Localities—Off mouth of Qualicum River (type specimen) and Strait of Georgia near Comox. Vancouver Island, B.C.

This species referred to 13, p. 54.

73. APHROCALLISTES WHITEAVESIANUS, Lambe. 1892.

Described in Transactions, Royal Society of Canada, vol. X, p. 74, pl. iii, fig. 2, and pl. vi, figs. 3, 3a--n, 3p ; type specimen in the museum of the Geological Survey of Canada.

Type locality—Strait of Georgia near Comox, Vancouver Island, B.C.

74. STAUROCALYPTUS DOWLINGII, Lambe. (Sp.) 1893.

Described in Transactions, Royal Society of Canada, vol. xi, p. 37, pl. iii, figs. 2, 2a--h ; type in the museum of the Geological Survey of Canada.

Type locality—Strait of Georgia, near Comox, Vancouver Island.

Foreign locality—Sagami Sea, Japan (Ijima, 13).

IV. CALCAREA.

75. LEUCOSOLENIA CANELLATA, Verrill. 1874 (13).

Distribution—Gulf of St. Lawrence (Whiteaves) ; Strait of Belle Isle (Lambe) ; northeast coast of the United States (Verrill, 33) ; Davis Strait (Lambe).

76. SYCON COMPACTUM, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 38, pl. iv, figs. 3, 3a--f ; type in the museum of the Geological Survey of Canada.

Type locality—Elk Bay, Discovery Passage, Vancouver Island, B.C.

77. SYCON PROTECTUM, Lambe. 1896.

Described in Transactions, Royal Society of Canada, second series, vol. II, p. 204, pl. iii, figs. 6, 6a--g ; type in the museum of the Geological Survey of Canada.

Distribution—Off Bonaventure Island, Baie des Chaleurs (type locality); Strait of Belle Isle, and Upernavik, Baffin Bay (Lambe); near Nanaimo, Vancouver Island (Lambe).

78. SYCON ASPERUM, Lambe. 1896.

Described in Transactions, Royal Society of Canada, second series, vol. II, p. 205, pl. ii, figs. 8, 8a—c; type in the museum of the Geological Survey of Canada.

Type locality—Off Bonaventure Island, Baie des Chaleurs, Gulf of St. Lawrence.

79. SYCON MUNDULUM, Lambe. 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 28, pl. iii, figs. 7, 7a—e; of two specimens, one (the type) is in the museum of University College, Dundee, Scotland, the other in the museum of the Geological Survey of Canada.

Distribution—Exeter Harbour (type locality) and off Cape Raper. Davis Strait.

80. *SYCON EGLINTONENSIS, Lambe. 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 29, pl. ii, figs. 6, 6a—e; type in the museum of University College. Dundee, Scotland.

Type locality—Eglinton Harbour, Davis Strait.

81. GRANTIA COMOXENSIS, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 39, pl. iii, figs. 3, 3a—c; type in museum of the Geological Survey of Canada.

Type locality—Strait of Georgia, near Comox, Vancouver Island, B.C.

82. GRANTIA CANADENSIS, Lambe. 1896.

Described in Transactions, Royal Society of Canada, second series, vol. II, p. 206, pl. iii, figs. 7, 7a—c; two specimens, one (the type) in the museum of the Geological Survey of Canada, a third in the Peter Redpath Museum, McGill University, Montreal.

Distribution—Between Pictou Island and Cape Bear (type locality); off Bonaventure Island; Little Metis. Gulf of St. Lawrence.

83. GRANTIA MONSTRUOSA, Breitfuss. 1898.

Described in Memoires de l'Académie des Sciences de St. Pétersbourg, eighth séries, vol. VI, No. 2, p. 24, pl. ii, fig. 16, and pl. iii, fig. 19; type specimen from the North Polar Sea off the coast of Russia.

Specimens in the U. S. National Museum at Washington, D.C., and one in the museum of the Geological Survey of Canada, from Copper Island, Commander Islands, Behring Sea.

84. *GRANTIA PHILLIPSII, Lambe. 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 30, pl. iv, figs. 9, 9a--i ; type in museum of University College, Dundee, Scotland.

Type locality—Cape Aston, Davis Strait.

85. *GRANTIA INVENUSTA, Lambe. 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 32, pl.vi, figs. 14, 14a--f ; type in the museum of University College, Dundee, Scotland.

Type locality—Off Cape Raper, Davis Strait.

86. LEUCONIA PYRIFORMIS, Lambe. 1893.

Described in Transactions, Royal Society of Canada, vol. XI, p. 40, pl. iii, figs. 4, 4a--d ; type in the museum of the Geological Survey of Canada.

Type locality—Strait of Georgia, near Comox, Vancouver Island, B.C.

87. LEUCANDRA VALIDA, Lambe. 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 32, pl. iv, figs. 10, 10a--e, and pl. v, figs. 11, 11a--e; of two specimens, one (the type) in the museum of University College, Dundee, Scotland, the other in the museum of the Geological Survey of Canada.

Type locality—Exeter Harbour, Davis Strait.

88. LEUCANDRA CUMBERLANDENSIS, Lambe. 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 34, pl. v, figs. 12, 12a--j ; type specimen in the museum of University College, Dundee, Scotland, one specimen (co-type) in the museum of the Geological Survey of Canada.

Localities—Cumberland Sound, Kingawa Fjord ; off Cape Raper, Davis Strait.

89 LEUCANDRA TAYLORI, Lambe. 1900.

Described in Transactions, Ottawa Naturalist, vol. XIII., p. 261, pl. vi, figs. a--i ; type in the collection of the Rev. George W. Taylor, Nanaimo, B.C. ; one specimen (co-type) in the museum of the Geological Survey of Canada.

Type locality—Boat Harbour, near Nanaimo, Vancouver Island, B.C.

90. HETEROPIA RODGERI, Lambe, 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 35, pl. vi, figs. 13, 13a--g; type specimen in the museum of University College, Dundee, Scotland, one specimen (co-type) in the museum of the Geological Survey of Canada.

Type locality—Off Norman's Light, Strait of Belle Isle, Gulf of St. Lawrence.

91. AMPHORISCUS THOMPSONI, Lambe. 1900.

Described in Transactions, Royal Society of Canada, second series, vol. VI, p. 36, pl. iii, figs. 8, 8a--j; type specimen in the museum of University College, Dundee, Scotland, co-type in the museum of the Geological Survey of Canada.

Type locality—Off Norman's Light, Strait of Belle Isle, Gulf of St. Lawrence.

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The following species according to L. L. Breitfuss (in "Kalkschwamm fauna des Weissens Meeres, &c.") occur in the waters of East Greenland :—

Leucosolenia coriacea, Montagu.
,, lamarcki, Hæckel.
Ascandra corallorrhiza, Hæckel.
,, fabricii, O. Schmidt.
,, mirabilis, Fristedt.
,, reticulum, Hæckel.
Sycon ciliatum, Aut. (Hæckel).
,, raphanus, O. Schmidt.
Grantia arctica, Hæckel.
,, utriculus, O. Schmidt.
,, compressa, Aut. (Hæckel).
,, clavigera, O. Schmidt.
Amphoriscus glacialis, Hæckel.
Leuconia ananas, Montagu.
,, stiligera, O. Schmidt.
,, egedi, O. Schmidt.

In his "Catalog der Calcarea, der Zoologischen Sammlung des Koniglichen Museums für Naturkunde zu Berlin," the same author cites the occurrence of the following species from Greenland :—

Leucosolenia lamarcki, (Hæckel).	East Greenland.	
Ascandra fabricii, (O. Schmidt).	West Greenland.	
,, reticulum, (O. Schmidt).	,,	,,
Sycon karajakense, Breitfuss.	,,	,,
Grantia arctica, (Hæckel).	,,	,,
,, pennigera, (Hæckel) Breitfuss.	Greenland.	
,, utriculus, (O. Schmidt).	West Greenland.	

Amphoriscus glacialis, (Hæckel). East Greenland.
Leuconia ananas, (Montagu). West Greenland.
,, egedi, (O. Schmidt). Greenland.

Fristedt in "Sponges from the Atlantic and Arctic Oceans and the Behring Sea," mentions the following sponges from the "Sea west from Greenland"—

Hyalonema foliata, Fristedt.
Amorphina panicea, Pallas (O.S.).
Isodictya Dicksonii, Fristedt.
Suberites montalbidus, Carter.
Thecophora semisuberites, O. Schmidt.
Tethya muricata, Bowerbank.
,, cranium, Lamarck.
Desmacella porosa, Fristedt.
Cornulum ascidioides, Fristedt.
,, textile, Carter.
,, enteromorphoides, Fristedt.
Experia lingua, Bowerbank (O.S.).
Cladorhiza abyssicola, Sars.
Clathria corallorhizoides, Fristedt.
Axinella vermiculata, Bow. (Fristedt) var. erecta, Carter.

And a number as below from Behring Strait and Sea :—

Halisarca Dujardinii, Johnston.
Amorphina renieroides, Fristedt.
,, fibrosa, Fristedt.
Suberites montalbidus, Carter.
Hastatus Robertsoni, Bow. (Fristedt).
Myxilla septentrionalis, Fristedt.
Esperia lingua, Bow. (O.S.) var. arctica, Fristedt.

Also the following from Beaufort's Sea :—

Ascandra complicata, Montagu (Hæckel).
Leucandra cylindrica, Fristedt.
Cribrochalina variabilis, Vosmaer.
Amorphina grisea, Fristedt.
Eumastia sitiens, O. Schmidt.
Suberites montalbidus, Carter.
Tethya Sibirica, Fristedt.
Esperia helios, Fristedt.

ZOOLOGICAL NOTES.

A CANADIAN POCKET MOUSE—(*Perognathus Lordi*, Gray).

Under the direction of Dr. C. Hart Merriam, Chief of Division of Biological Survey of the United States Department of Agriculture, (one of the corresponding members of the Ottawa Field-Naturalists' Club,) Mr. Wilfred H. Osgood, Assistant Biologist, has prepared a "Revision of the Pocket Mice of the Genus Perognathus," just issued at the Government Printing Office in Washington, and forms Bulletin No. 18 of the "North American Fauna," a series of peculiar interest to all naturalists.

Upwards of 3,000 specimens have been examined in the course of preparation of this monograph. The progress made up to date in researches concerning the interesting group of the Heteromyidæ, one of the most peculiar groups of New World mammals, is therein given.

Besides *Perognathus*, the other genera of the Pocket Mice are: *Heteromys*, *Dipodomys*, *Perodipus* and *Micropodops*.

Perognathus is divisible into two sub-genera: *Perognathus* proper, and *Chætodipus*, the latter containing the large coarse-haired and long-tailed "forms," whilst *Perognathus* includes the small soft-haired species.

Of the forms described, *Perognathus Lordi*, Gray, is recorded from British Columbia, the type locality, as a member of the "Parvus" group, *i.e.*, of the group of *Perognathus parvus* (Peale). Mr. Osgoode thus describes this little animal:

"*General characters.* Similar to *P. parvus*; size, large (nearly equalling *Magruderensis*; tail, long; feet and ears, moderate; antifragus, lobed; color, dark; interparietal, narrow

"*Color.* Above, pale slatey buff, strongly mixed with black; general color as in the gray phase of *P. parvus*; hairs of belly generally with plumbeous bases and buffy tips, leaving a small marginal and a large pectoral patch pure white; sub-auricular spot small but distinct; tail tricolor as in *P. parvus*.

"*Skull.* Size large and audital bullæ and mastoids inflated; andital bullæ always connected anteriorly; interparietal, squarish pentagonal, deeply notched by occipital.

"*Measurements.* Average of seven adults from Oroville, Wash.: Total length, 183; tail vertebrae, 97.7; hind foot, 23.2; skull, basilar length of Hensel, 16,5 mm.; occipito-nasal length, 23 mm.; greatest mastoid breadth, 11.8 mm.; greatest width of interparietal, 4.3 mm.

These are the measurements of *P. Lordi*, Gray :

Basilar length of Hensel (which is measured from the anterior margin of the foramen magnum to the posterior run of the alveolus of the middle incisor) 18.7 ; occipito-nasal length, 26.7 ; greatest mastoid breadth, 13.6: length of interparietal, 4.7; number of specimens averaged, 5.

Perognathus Lordi, Gray, was originally described as the Northwest Pocket Mouse in "Proceedings of the Zoological Society of London for 1868," p. 202, and subsequently noticed by Rhoads in Proc. Acad. Nat. Sc. Phil. for 1893, p. 405.

Specimens of this species are recorded from the following British Columbia localities as follows :—Ashcroft, 14 ; Kamloops, 6 : Okanagan, 12 ; Vernon, 2.—H.M.A.

OBITUARY.

CHARLES JULES EDME BRONGNIART.—It is with profound regret that we have to chronicle the death of this eminent palaeontologist at the early age of 40. His special studies lay in the direction of fossil insects, and he described a very large number of new or hitherto imperfectly known species from the carboniferous rocks of France. His first paper on fossil insects was written at the early age of fifteen. His researches and knowledge at that youthful period led him to recognise an insect in a specimen of fossil fruit which his grandfather, the distinguished palæobotanist, was examining at the time, and published the same with his own illustrations in an entomological magazine. This paper was most favourably commented upon, and ever since his energies have been directed in working out the "Faune fossile entomologique de France." Charles Brongniart's principal work was published in 1893 in two large quarto volumes with atlasses of plates. He had in his laboratory at Paris, where I had the pleasure of meeting him in 1885, a very large collection of the fossil insects from the open air coal mines of Commentry which have been rendered famous by these very remains of insect life. Some of the fossil dragon flies and springtails of the Carboniferous system were of enormous size, compared with their modern representatives. Shortly before his death Monsieur Brongniart kindly examined an interesting wing of a *neurorthopterid* from the Riversdale formation of Colchester County, and he pronounced the form closely allied to *Miamia Bronsoni*, a carboniferous insect.

WILHELM HEINRICH WAAGEN.—This celebrated Palæontologist died March 24th, 1900. His principal work is found in the series of volumes constituting the "Palæontologica Indica," which

include his studies of the Jurassic Cephalopoda of Kutch and the Salt Range Fossils. From 1870 to 1875 he was palæontologist to the Geological Survey of India. He then married and settled in Vienna, where he was tutor at the University and subsequently went to Prague to occupy the Chair of Mineralogy and Geology at the German Technical High School. On the death of the illustrious Joachim Barrande—the prince of palæontologists—he assisted in issuing the remaining volumes on the "Systeme Silurien de la Bohême," and in conjunction with Professor J. J. Jahn wrote the section bearing on the Crinoidea. In 1890 he succeeded Neumayer at tbe University of Vienna as Professor and held that position at the time of his death. His researches on the Cephalopoda and Brachiopoda are of great value and interest.

H. M. A.

BOOK REVIEW.

A NEW PHYSICAL GEOGRAPHY.

Probably in no other scientific branch has there been such a change of method in the matter of presentation as in the study of the topography and physiography of the earth's crust. In the old days it was all included under geography, which it was *in toto*, with the exception of a brief prefatory explanation of planetary relations and the phenomena of changing seasons and temperatures. Geography in the old days dealt with the rivers and mountain ranges, the valleys and bodies of water, but chiefly with the arbitrary divisions of the earth's surface made by man, the political centres and commercial marts. All this has been changed in recent years. The natural has been separated from the artificial, and the former has been given its rightful place in school curricula. An important addition to the text books on physiographical geography is that by Jacques W. Redway, published by Charles Scribner's Sons, New York. This volume, as the author states in his preface, "is designed to show that the distribution of life is governed very largely by the conditions of geographic environment, and that human history and industries are always closely connected with geographic laws—in many instances the direct resultants of them." The book is planned for use in high schools and in normal schools. Some of the more important chapters, are "The wasting of the land; by rivers, by underground waters, by avalanches and glaciers, and by imperfect drainage. The dispersal of life; distribution of plants and animals and the industrial regions of the United States are also treated. The matter is excellently arranged. The author's style is succinct and clear. The volume is well printed and freely illustrated with a good grade of half tones. It is a book to be commended.

JOHN CRAIG.

Cornell University, Ithaca, N.Y.

PROGRAMME FOR WINTER SOIRÉES, 1900-1901.

1900.

Dec. 11.—OPENING CONVERSAZIONE. Exhibition of specimens.
President's Inaugural Address, Dr. H. M. Ami, F.R.S.C., etc.
Presentation (by the subscribing members of the Club) of a portrait in oils of the late E. Billings to the Government of Canada for the Geological Survey Museum.
On Various Phases of the Forests of Canada, with lantern illustrations, by Dr. Robert Bell, F.R.S., etc.

1901.

Jan. 8.—Meeting for conversation, exhibition of specimens and reading of papers.
The Rocky Mountains, with special Reference to the Crow's Nest Pass, by Prof. John Macoun, M.A., F.R.S.C.
Observations on the Crow's Nest Pass, by Mr. James McEvoy, B.Sc.
Report of the Botanical Branch.

Jan. 22.—Meeting for conversation, exhibition of specimens, and reading of papers.
Explorations in Baffin Land, with lantern illustrations, by Dr. Robert Bell, F.R.S.
On the Arboretum and Botanic Garden at the Central Experimental Farm, Ottawa, by Mr. W. T. Macoun.
Some Iron Ore Deposits of the Cambrian and Cambro-Silurian of Ontario, by Mr. E. D. Ingall, Assoc. R. S. M.
Report of the Geological Branch.

Feb. 12.—Meeting for conversation, exhibition of specimens, and papers.
Ancient Channels of the Ottawa River, by Dr. R. W. Ells, F.R.S.C.
Some Points in Reference to the Algonquin Park, by Mr. A. M. Campbell.
Notes (1) *On the Autumn-flowering of various Native Plants in 1900*, by Mr. C. Guillet. (2) *On Mosquitoes*, by Dr. J. Fletcher.
Report of the Ornithological Branch.

Feb. 26.—Meeting for conversation, exhibition of specimens and reading of papers.
On the Region between the Nelson and Churchill Rivers, by Mr. D. B. Dowling, B.Sc.
Prehistoric Camping Grounds along the Ottawa River, by Mr. T. W. E. Sowter.
On Recent Discoveries in the Utica Formation at Ottawa, by Dr. H. M. Ami, F.G.S.

Mar. 6.—Meeting for conversation, exhibition of specimens, and papers.
Fat in the Animal Body, its Function and Origin, by Mr. A. T. Charron, B.A.
Trees and Shrubs for the Adornment of Streets Parks and Homes, with lantern illustrations, by Dr. W. Saunders, F.R.S.C., etc.
Report of the Entomological Branch.

Mar. 12.—Meeting for conversation, exhibition of specimens, and papers.
The Sources and Distribution of the Gold-bearing Alluvions of the Province of Quebec, by Mr. Robert Chalmers.
Corundum, with Special Reference to its Occurrence in Ontario, by Dr. A. E. Barlow.

Mar. 19.—**Annual Meeting** of the O.F.N.C. for the reception and adoption of the Reports of Council, the election of officers, and other business.

N.B.—At each meeting various objects of natural history will be exhibited and the papers will be discussed.

TIME AND PLACES OF MEETINGS.

The Opening Conversazione, by kind permission of Principal McCabe, will be held in the Assembly Hall of the Normal School. The Young Men's Christian Association has again generously placed its commodious Lecture Hall on O'Connor street at the disposal of the Club for the remaining meetings, all of which will be held on TUESDAY evenings, and will begin at 8 o'clock *punctually*.

THE OTTAWA FIELD-NATURALISTS' CLUB, 1900-1901.

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