5.

FRESH-WATER DIATOMS FROM ICELAND

BY

ERNST ØSTRUP

WITH 5 PLATES

1918

The manuscript was completed at the death of the author, April the 16th 1917; it was written in Danish, and the translation into English has been effected later.

THE EDITORS.

PREFACE

The material on which the present paper is based, was like the salt-water material, entrusted to me for examination by the Botanical Museum, Copenhagen University. It comprises in all 572 samples, and has been collected by: cand. mag. J. Boye Petersen (B. P.), cand. O. Davidsson (O. D. †), Professor A. Feddersen (A. F. †), Professor Chr. Grønlund (Grld. †), Professor Th. Holm (Ho.), cand. mag. Hjalmar Jensen (Hj. Js.), Dr. phil. Helgi Jónsson (H. Js.), Professor Dr. phil. L. Kolderup Rosenvinge (K. Rsv.), Dr. phil. C. H. Ostenfeld (C. H. O.), Professor Dr. phil. K. Rørdam (Rd.), Professor Jap. Steenstrup (Stp. †), Skoleforstander St. Stefánsson (St.), Adjunkt B. Sæmundsson (B. S.), Professor Dr. phil. Th. Thoroddsen (Th.), Dr. phil. C. Wesenberg-Lund (W. L.), Professor Dr. phil. E. Warming*).

Special thanks are due to Prof. Dr. phil. Th. Thoroddsen for his valuable assistance in revising and correcting the names of the Icelandic localities. As to the indication of the parts of the country, these have been copied from the labels, where the localities as a rule have been plainly marked. In this way the samples are apportioned as follows:

South,	given in the text as S.	127	samples
South-West	— - - - - S.W.	148	—
North-West	— - - - - N.W.	12	—
North	— - - - - N.	87	—
East	— - - - - E.	191	—
No locality	— - - - - s. l. (sine loco)	7	—
	Total	572	samples

In case a form is found in no more than 3 samples, these are noted and the name of the collector is added.

*) The letters in brackets, affixed to the names of the collectors indicate the abbreviations of their names as used in the text; † signifies that the person is by now deceased.

Wherever an apparent discrepancy may be noted, between the number of samples given and those of the list above (f. inst. in the case of Meridion circulare, 15 samples are recorded from N.W., while the list only gives 12 samples from this division) the reason is, that the fresh-water forms occurring at the Icelandic coast are included in the present treatise.

The names Europe, Africa, Asia, America, Australia, Greenland, Jan Mayen, Beeren Island, Spitzbergen, Franz Joseph Land are respectively abbreviated: Eur., Af., As., Am., Aust., Grl., J. M., B. E., Spb., Fz. J.

When the list shows a name marked with an *, it indicates, that the form has been found previously in Iceland. The number of such forms amounts in all to 131.

PENNATÆ

Euraphideæ diraphideæ

Caloneis Cl. 1894. Cl. Syn. I, 46.

Caloneis alpestris (Grun.) Cl. Cl. Syn. I, 53. V. H. Syn., Tab. XII, fig. 30 (Navicula alp.).

5 samples (S. 2, S.W. 1, E. 2).
Area: Eur., Aust.

*__Caloneis amphisbæna__ (Bory) Cl. Cl. Syn. I, 58. V. H. Trt., Tab. V, fig. 203 (Nav. amph.).

10 samples (S. 3, S.W. 7). Hot spring: 1.
Area: Eur., Af., As., Am., Grl., B. E.

Caloneis bacillaris (Greg.) Cl. Cl. Syn. I, 50. V. H. Syn., Tab. XII, fig. 27 (Nav. bac. thermalis).

Hvitá (S.) A. F., Hornarfjörðrfljót (E.), St.
Area: Eur., As., Am.

Caloneis? bodonensis (Pant.) var. *Heribaudi* M. Per. Cl. Syn. I, 53. Herib. Auv., Tab. IV, fig. 8 (Nav. Herib.).

Seydisfjord (E.), H. Js.
Area: Eur.

Caloneis Clevei (Lgst.) Cl. Cl. Syn. 1, 51. Lgst. Spb., Tab. I, fig. 10 (Nav. Clevei).

Hofsfjall (N.), O. D..
Area: Eur., As., Grl., J. M., Spb., Fz. J.

Caloneis fasciata (Lgst.) Cl. Cl. Syn. I, 50. V. H. Syn., Tab. XII, fig. 34 (Nav. fasc.).

46 samples (S. 13, S.W. 19, N. 7, E. 5, s. l. 2). Hot springs: 2.
Area: Ubiquist., Grl., J. M., Spb., Fz. J.

Caloneis Fedderseni sp. nov., Tab. nost. I, fig. 1.

Long: 42 μ, lat: 8 μ, str. 16 in 10 μ, subtiliter punctatis.

Valva fere lineari, apicibus rotundatis. Raphe area hyalina distincta, media in parte valvæ paululum dilatata, cincta. Striis

medianis aliquantulum spatiatis, apices versus densioribus, per totam valvam radiantibus.

Reykholtshver (S.) A. F.

Caloneis islandica sp. nov., Tab. nost. I, fig. 2.

Long: 64 μ, lat: 10 μ, str. 20 in 10 μ.

Valva lineari, apicibus rotundatis. Raphe area hyalina distincta, media in parte valvæ in areolam rotundatam, in qua lunulæ duæ adsunt, dilatata, cincta.

Laugarvatn (E.) B. P.

This form is probably related to, but hardly identical with Cal. alpestris (Grun.) Cl.

Caloneis Jonssoni sp. nov., Tab. nost. I, fig. 3.

Long: 35 μ, lat: 5,5 μ, str. 16 in 10 μ.

Valva lineari, in medio leniter contracta, apicibus rotundatis. Raphe area hyalina lata, media in parte valva in fasciam dilatata, cincta. Striis parallelis.

Norðfjörðr (E.) H. Js.

Caloneis Ladogenis Cl. Cl. Syn. I, 62. Cl. Finl., Tab. II, fig. 3.

4 samples (S. 1, S.W. 1, N. 1, E. 1).

Area: Eur.

Caloneis obtusa (W. Sm.) Cl. Cl. Syn. I, 54. Donk. Br. Diat., Tab. III, fig. 12 (Navicula Hebes).

4 samples (all E.).

Area: Eur.

Caloneis procera sp. nov., Tab. nost. I, fig. 4.

Long: 104 μ, lat: 12 μ, str. c. 25 in 10 μ.

Valva lineari in medio leniter inflata. Raphe area hyalina, media in parte valva paululum patescente, cincta. Striis parallelis.

Vallanes (E.) B. P.

This form has some similarity with Cal. Liber (W. Sm.) Cl., but has not the terminal nodi so characteristic of this latter, and it was found in a sample entirely containing fresh-water forms. The irregularly distributed ridges, illustrated in the figure, are possiby the outcome of a diseased condition.

*__Caloneis Silicula__ (Ehr.) Cl. Cl. Syn. I, 51. V. H. Trt., Tab. V, fig. 207 (Navicula limosa).

151 samples (S. 35, S.W. 39, N.W. 7, N. 22, E. 46, s. l. 2). Hot springs: 10.

Area: Ubiquist, Grl., B. E.

*Var. *alpina* Cl. Cl. l. c. V. H. Syn., Tab. XII, fig. 21 (Nav. Silicula).

24 samples (S. 6, S.W. 10, N. 3, E. 5). Hot springs: 5.

Area: Eur., Grl., J. M., Spb., Fz. J.

Var. *biconstricta* Øst. Øst. D. D. 15, Tab. I, fig. 6.

Egilstaðir (E.) B. P.
Area: Eur.

*Var. *inflata* Grun. Cl. Syn. I, 51. V. H. Syn., Tab. XII, fig. 20 (Nav. limosa subinflata).

5 samples (S. 3, S.W. 2). Hot springs: 2.
Area: Eur.

Var. *subventricosa* Grun. Cl. l. c. 52. Cl. & Gr. A. D., Tab. 1, fig. 19 (Nav. subv.).

Thingvellir (S.W.) E. W. & Ho.
Area: Kara.

Var. *ventricosa* (Ehr.) Donk. Cl. l. c. V. H. Trt., Tab. V, fig. 209 (Nav. vent.).

Ketilstaðir (S.W.) H. Js.
Area: Eur., As., Grl., Fz. J.

Neidium Pfitzer 1871. Cl. Syn. I, 67.

Neidium affine Ehr. var. *amphirhynchus* Ehr. Cl. Syn. I, 68. V. H. Trt., Tab. V, fig. 214 (Nav. Iridis amph.).

47 samples (S. 8, S.W. 14, N. 4, E. 20, s. l. 1). Hot springs: 5.
Area: Eur., Aust., Grl., B. E., Spb.

Var. *longiceps* Greg. Cl. l. c. Greg. Mic. J. IV, Tab. I, fig. 27.

Eiðar (E.) H. Js.
Area: Eur., Grl.

Var. *undulata* Grun. Cl. l. c. V. H. Trt., Tab. V, fig. 216 (Nav. Irid. und.).

Sandbrekka (E.) H. Js., Vallanes (E.) H. Js.
Area: Eur.

Neidium bisulcatum (Lagst.) Cl. Cl. Syn. I, 68. Lgst. Spb., Tab. I, fig. 8 (Nav. bisulc.).

41 samples (S. 6, S.W. 10, N. 4, E. 20, s. l. 1). Hot spring: 1.
Area: Eur., Af., As., Am., Grl., J. M., B. E., Spb., Fz. J.

Neidium dilatatum (Ehr.) Cl. Cl. Syn. I, 70. A. S. Atl., Tab. XLIX, fig. 6.

7 samples (S. 2, S.W. 3, E. 2).
Area: Eur.

Neidium dubium (Ehr.) Cl. Cl. Syn. I, 70.

10 samples (S. 4, N. 5, E. 1). Hot springs: 2.
Area: Eur., As., Am., Aust.

The above samples, corresponding with the figures in A. S. Atl., Tab. XLIX, figs. 8, 11, 14 and 24, all come within the group of Neidium dubium.

Neidium fasciatum Øst. Øst. D. D. 21, Tab. 1, fig. 14.
Gautavík (E.) H. Js., Vallanes (E.) H. Js.
Area: Eur.

Neidium Hitchcockii (Ehr.) Cl. Cl. Syn. 1, 69. A. S. Atl., Tab. XLIX, fig. 35 & 36 (Nav. Hitch.).
Vallanes (E.) H. Js.
Area: Eur., As., Am., Aust.

Neidium incurvum (Greg.) Øst. Tab. nost. I, fig. 5, cnfr. Greg. Mic. J IV, 8, Tab. I, fig. 26 (Nav. inc.).
Long: 45 μ, lat: 10 & 11 μ.
Valva elongata, in medio leniter incurvata, apicibus capitatis. Nodulis terminalibus summis in apicibus positis. Raphe area hyalina angustissima, media in parte valvæ in areolam parvam dilatata, cincta. Structuram ullam valvæ perspicere non potui.
Grimsá (E.) B. P.
Area: Eur.
I consider this form identical with Gregory's Navicula incurva. The "fragliche" form delineated in A. S. Atl., Tab. XLIX, fig. 13, from Loch Davin, Scotl., must surely be referred to this.

***Neidium Iridis** (Ehr.) Cl. Cl. Syn. I, 69. V. H. Trt., Tab. V, fig. 212 (Nav. Ir.).
5 samples (S.W. 3, E. 2).
Ubiquist, Grl., Fz. J.

Neidium islandicum sp. nov., Tab. nost. I, fig. 6.
Long: 30 μ, lat: 7 μ.
Valva elliptice-lanceolata, apicibus rotundatis. Raphe area hyalina angusta, mediam partem valvæ versus patescente ibique in fasciam latam dilatata, cincta. Lineis inframarginalibus distinctis. Striis ægre perspiciendis.
Brunavíkurstrand (E.) H. Js.

Neidium lineare sp. nov., Tab. nost. I, fig. 7.
Long: 41 μ, lat: 6,4 μ.
Valva lineari, apicibus rotundatis. Raphe area hyalina angusta, media in parte valvæ in fasciam satis latam dilatata. Lineis inframarginalibus distinctis.
Vallanes (E.) B. P.
This small form is possibly related to, but not identical with Neid. bisulcatum.

Neidium panduriforme sp. nov., Tab. nost. I, fig. 8.
Long: 22 μ, lat: 8 & 9,5 μ.
Valva panduriformi, linea inframarginali instructa. Raphe media

in parte valvæ modo conspicua. Striæ delicatissimæ, et apicales et transapicales, adsunt.

Reykjarfjord (N). In a hot spring.

I am not sure as to the classification of this small form. Considering the marginal line, I am inclined to place it under Neidium.

Neidium productum (W. Sm.) Cl. Cl. Syn. I, 69. V. H. Trt., Tab. V, fig. 218. (Nav. Irid. prod.).

Staðastaður (S.W.), H. Js., Syðri Garðar (S.W.) H. Js., Vatnsdalsá (N.) St.
Area: Eur., As., Am.

Diploneis Ehr. 1840. Cl. Syn. I, 76.

Diploneis Boldtiana Cl. Cl. Syn. I, 92. Cl. Finl., Tab. II, fig. 12.

4 samples (S. 1, S.W. 2, N.W. 1).
Area: Eur.

Var. *robusta* A. Cl. A. Cl. Finl. 12, Tab. I, fig. 8.

Spóastadir (S.) A. F.
Area: Eur.

***Diploneis elliptica** (Ktz.) Cl. Cl. Syn. I, 92. V. H. Trt., Tab. IV, fig. 156, 1st fig. (Navicula ell.).

140 samples (S. 29, S. W. 35, N. W. 1, N. 26, E. 42, s. l. 7). Hot springs: 18.
Area: Ubiquist, Grl., Fz. J.

***Diploneis ovalis** (Hilse) Cl. Cl. Syn. I, 92. V. H. Trt., Tab. IV, fig. 156, 2d fig. (Nav. ell. ovalis).

49 samples (S. 7, S.W. 12, N.W. 1, N. 8, E. 20, s. l. 1). Hot spring: 1.
Area: Eur., Am., Aust., Grl., J. M., B. E.

Var. *oblongella* Nægeli. Cl. Syn. I, 93. V. H. Trt., Tab. IV, fig. 157 (Nav. ell. oblong.).

86 samples (S. 15, S.W. 16, N.W. 1, N. 5, E. 45, s. l. 4). Hot springs: 5.
Area: Eur., Af., As., Am.

Forma *subinflata*, Tab. nost. I, fig. 9.

Long: 38 μ, lat: 9 & 10 μ, str. 14 in 10 μ, apices versus densioribus.

Valva lineari, media in parte leniter inflata, ceterum Dipl. ov. obl. simili.

Reykjavík (S.W.) C. H. O.

Doubtless it is this form about which Hustedt (Sudet., 67) under Dipl. ov. obl. adds: "Zuweilen sind die Exemplare in der Mitte leicht transapikal erweitert."

Forma *pumila* Grun. Cl. Syn. I, 92. Grun. Oest. Ung., Tab. XXX, fig. 61 (Nav. ov. pum.).

Hrossholt (S.W.) A. F. In a hot spring.
Area: Eur., As.

Diploneis Puella (Schum.?) Cl. Cl. Syn. I, 92. V. H. Trt., Tab. IV, fig. 158 (Nav. ell. minima).

Mývatn (N.) Rd., Akureyri (N.) B. P.
Area: Eur., Af., Spb.

Diploneis subovalis Cl. Cl. Syn. I, 96, Tab. I, fig. 27, Tab. nost. I, fig. 10.

Stóri Kroppur (S.W.) B. P.
Area: New Zealand.

I have given a delineation of the form found by me, as it differs somewhat from Cleve's figure. About its identity with Dipl. subov. I have no doubt whatever.

Naviculæ orthostichæ Cl. Cl. Syn. I, 107.

Navicula cuspidata Ktz. Cl. Syn. I, 109. V. H. Trt., Tab. IV, fig. 190.

5 samples (S. 1, SW. 1, N. 1, E. 2).
Area: Ubiquist, B. E.

Var. *ambigua* Ehr. Cl. Syn. I, 110. V. H. Trt., Tab. IV, fig. 192 (Nav. amb.).

9 samples (S. 3, S.W. 2, N. 2, E. 2). Hot spring: 1.
Area: Ubiquist, Grl.

Var. *Heribaudi* M. Per. Cl. Syn. I, 110. Herib. Auv., Tab. IV, fig. 16.

Reykjavík (S.W.) B. P.
Area: Eur. (fossil.).

Gyrosigma Hassall 1845. Cl. Syn. I, 112.

Gyrosigma acuminatum (Ktz.) Cl. Cl. Syn. I, 114. V. H. Trt., Tab. VII, fig. 274 (Pleuros. acum.).

4 samples (S.W. 2, N.W. 1, N. 1).
Area: Eur., Af., As.

***Gyrosigma attenuatum** (Ktz.) Cl. Cl. Syn. I, 115. V. H. Trt., Tab. VII, fig. 271 (Pleuros. atten.).

Reykjavík (S.W.) C. H. O., Grímsey (N.) O. D.
Area: Eur., Af., As., Am.

Frustulia Ag. 1824. Cl. Syn. I, 121.

Frustulia islandica sp. nov., Tab. nost. I, fig. 11.

Long: 46 μ, lat: 9 μ.

Valva lanceolata, apicibus leniter attenuatis. Raphe intra costas siliceas duas sita. Nodulis terminalibus ab apicibus remotis. Striis subtilissimis et, quoad perspicere potui, radiantibus, media in parte valvæ deficientibus ibique fasciam latam relinquentibus.

Sælsundslækur (S.) A. F.

Frustulia rhomboides (Ehr.) Cl. var. *saxonica* Rabh. Cl. Syn. I, 123. V. H. Trt., Tab. V, fig. 250 (Van Heurckia rhomb. crassin.).

24 samples (S. 4, S.W. 11, N. 2, E. 7). Hot springs: 2.
Area: Ubiquist, Grl., B. E., Spb.

Var. *leptocephala* Øst. Øst. Østg. Fersk. 257, Tab. I, fig. 1.

7 samples (S. 2, S.W. 3, N. 2). Hot spring: 1.
Area: Grl.

Frustulia vulgaris Thw. Cl. Syn. I, 122. V. H. Trt., Tab. V, fig. 252 (Van Heur. vulg.).

116 samples (S. 28, S.W. 32, N.W. 4, N. 12, E. 39, s. l. 1). Hot springs: 10.
Area: Ubiquist, Grl.

Amphipleura Ktz. 1844. Cl. Syn. I, 125.

Amphipleura pellucida Ktz. Cl. Syn. I, 126. V. H. Trt., Tab. V, fig. 253.

9 samples (S. 3, S.W. 2, E. 4).
Area: Eur., As.

Naviculæ mesolejæ Cl. 1894. Cl. Syn. I, 127.

Navicula bacilliformis Grun. Cl. Syn. I, 131. V. H. Trt., Tab. XXVII, fig. 774.

17 samples (S. 3, S.W. 3, N. 1, E. 10).
Area: Eur., As., Am., Aust.

Navicula Heufleriana Grun. Cl. Syn. I, 130. V. H. Syn., Tab. IV, fig. 1 a (Stauroneis Heufleri).

5 samples (S. 3, N. 1, E. 1).
Area: Eur., Grl., Fz. J.

Navicula mutica Ktz. forma *Cohni* Hilse. Cl. Syn. I, 129. V. H. Trt., Tab. IV, fig. 167 (Nav. mut.).

20 samples (S. 6, S.W. 6, N.W. 2, N. 4, E. 1). Hot springs: 3.
Area: Ubiquist, Grl., J. M., Spb., Fz. J.

Forma *Göppertiana* Bleisch. Cl. Syn. I, 129. V. H. Trt., Tab. IV, fig. 168.

Vallanes (E.) H. Js.
Area: Eur., As., Am., Grl.

Navicula nivalis Ehr. Cl. Syn. I, 130. V. H. Trt., Tab. IV, fig. 178 (Nav. mut. quinquenodis).

5 samples, all N. Hot springs: 4.
Area: Eur., Af., Aust., Grl., Fz. J.

*Navicula Pupula Ktz. Cl. Syn. I, 131. V. H. Trt., Tab. V, fig. 226, 1st fig.

29 samples (S. 5, S.W. 9, N. 6, E. 9). Hot springs: 3.
Area: Ubiquist, Grl.

Navicula Rotæana Rabh. Cl. Syn. I, 128. V. H. Syn., Tab. XIV, figs. 17—19.

5 samples (S.W. 2, N. 1, E. 2).
Area: Eur., Aust., Grl., J. M., B. E., Spb., Fz. J.

Var. *oblongella* Grun. Cl. l. c. V. H. Syn. l. c., fig. 21.

8 samples (S.W. 3, N. 2, E. 2, S.L. 1). Hot spring: 1.

Navicula Seminulum Grun. Cl. Syn. I, 128. V. H. Trt., Tab. V, fig. 228.

Eystri Rangá (S.) A. F., Vík (S.) H. Js., Thingvellir (S.W.) E. W. & Ho.
Area: Eur., As., Am., Grl., B. E., Spb., Fz. J.

Var. *fragilaroides* Grun. Cl. Syn. l. c. V. H. Syn., Tab. XIV, fig. 10.
Berufjörður (E.) H. Js.
Area: Eur.

Naviculæ entolejæ Cl. 1894. Cl. Syn. I, 131.

*Navicula contenta Grun. var. *biceps* Arnott. Cl. Syn. I, 132. V. H. Trt., Tab. V, fig. 240.

17 samples (S. 6, S.W. 5, N. 2, E. 4). Hot spring: 1.
Area: Eur., As., Grl.

Naviculæ bacillares Cl. 1894. Cl. Syn. I, 136.

*Navicula Bacillum Ehr. Cl. Syn. I, 137. V. H. Trt., Tab. V, fig. 222.

5 samples (S. 2, S.W. 1, N. 1, E. 1).
Area: Eur., As., Am., Aust.

Var. *densestriata* var. nov., Tab. nost. I, fig. 12.

Long: 37 μ, lat: 8 μ.

Valva lineari, apicibus rotundatis. Raphe area hyalina angustissima, media in parte valvæ in areolam rotundatam dilatata, cincta. Striis subtilissimis, radiantibus, in medio aliquantulum spatiatis.

Ingjaldshóll (S.W.) H. Js.

Var. *lepida* Greg. Cl. Syn. I, 137, Tab. V, fig. 14.
Skeidarársandur (S.) St.
Area: Eur., Am.

Var. *minor* H. V. H. Cl. Syn. l. c. V. H. Trt., Tab. V, fig. 223.
Aðalvík (N.W.) C. H. O.
Area: Eur., Aust.

Navicula Pseudobacillum Grun. Cl. Syn. I, 137. V. H. Trt., Tab. V, fig. 224.
5 samples (S. 2, S.W. 2, E. 1).
Area: Eur., Af., As., Aust., Grl.

Var. *lanceolata* Øst. Øst. D. D. 40, Tab. 1, fig. 29.
Mývatn (N.) B. P.
Area: Eur.

Naviculæ decipientes Grun. 1880. Cl. Syn. I, 138.

Navicula crucicula W. Sm. Cl. Syn. I, 139. V. H. Trt., Tab. IV, fig. 138.
7 samples (S.W. 5, N.W. 1, E. 1).
Area: Eur., Af., As., Aust., Grl.

Var. *capitata* Øst. Øst. D. D. 42, Tab. I, fig. 30.
Skeiðarársandur (S.) St.
Area: Eur.

Navicula integra W. Sm. Cl. Syn. I, 141. V. H. Trt., Tab. IV, fig. 174.
Skeiðarársandur (S.) St., Reykjavík (S.W.) B. P.
Area: Eur.

Navicula protracta Grun. Cl. Syn. I, 140. V. H. Trt., Tab. IV, fig. 173 (Nav. crucic. protr.).
9 samples (S. 5, S.W. 3, E. 1).
Area: Eur., Af.

***Navicula Semen** Ehr. Cl. Syn. I, 138. Grun. Fz. J., Tab. 1, fig. 34.
49 samples (S. 4, S.W. 6, N.W. 2, N. 8, E. 29). Hot springs: 2.
Area: Eur., Am., Fz. J.

Navicula subtilissima Cl. Cl. Syn. I, 141. Cl. Finl., Tab. II, fig. 15.
Reykjavík (S.W.) C. H. O.
Area: Eur., Spb.

Naviculæ microstigmaticæ Cl. 1894. Cl. Syn. I, 141.

Stauroneis Ehr. 1843. Cl. Syn. I, 144—151.

***Stauroneis acuta** W. Sm. Cl. Syn. I, 150. V. H. Trt., Tab. I, fig. 51.
Máfahlið (S.W.) H. Js., Hofsá (N.) O. D.
Area: Eur., As., Am., Aust., Grl., Fz. J.

***Stauroneis anceps** Ehr. Cl. Syn. I, 147. V. H. Trt., Tab. I, fig. 55.
66 samples (S. 13, S.W. 8, N. 9, E. 36). Hot spring: 1.
Area: Ubiquist, Grl., J. M., B. E., Spb., Fz. J.
Under Staur. anc. I also include var. amphicephala Ktz. V. H. Trt., Tab. I, fig. 57, as this can scarcely be distinguished from the type.

Var. *birostris* Ehr. Cl. Syn. l. c. Cl. Grl. & Argent., Tab. XVI, fig. 5.
Egilstaðir (E.) B. P.
Area: Eur., Am.

Var. *elliptica* var. nov., Tab. nost. I, fig. 13.

Long: 26 μ, lat: 7,2 μ.

Valva elliptica, apices subcapitatos versus attenuata. Raphe area hyalina, mediam partem valvæ versus patescente, cincta. Stauro satis lato. Striis subtilissimis, radiantibus.

Hreiðarsstaðir (E.) B. P.

*Var. *gracilis* Ehr. Cl. Syn. I, 147. A. S. Atl., Tab. CCXLII, fig. 7 & 12.

Gljúfurholtsá (S.) B. P., Stóri Kroppur (S.W.) B. P., Mývatn (N.) Rd.
Area: Eur., Am.

Var. *hyalina* Br. & Per. Cl. Syn. l. c. Hérib. Auv., Tab. III, fig. 19.

4 samples, all E.
Area: Eur., Aust.

*Var. *linearis* Ehr. Cl. Syn. l. c. V. H. Trt., Tab. 1, fig. 56.

Isafjord (N.W.) B. P., Njardvík (E.) H. Js., Sævarendi (E.) H. Js.
Area: Eur., Aust.

Var. *siberica* Grun. Cl. Syn. l. c. Cl. & Grun. A. D., Tab. III, fig. 65.

9 samples (S. 2, S.W. 4, E. 3).

Stauroneis bifissa sp. nov., Tab. nost., fig. 14.

Long: 34 μ, lat: 8 μ.

Valva lanceolata, apicibus productis. Raphe area hyalina, mediam partem valvæ versus patescente, cincta. Stauro satis lato, utrisque in lateribus linea singula instructa. Striis inconspicuis.

Glammarstaðavatn (S.W.) B. P., Vallanes (E.) B. P.

Stauroneis elegantula sp. nov., Tab. nost. I, fig. 15.

Long: 28 μ, lat: 5,5 μ.

Valva elliptica, apices capitatos versus attenuata. Raphe area hyalina angusta, mediam partem valvæ versus patescente, cincta. Stauro latissimo. Striis inconspicuis.

Reykholt (S.W.) H. Js.

Stauroneis Javanica Grun. Cl. Syn. I, 150. Grun. Nov., Tab. I, fig. 14. Øst. Østg. Ferskv., Tab. I, fig. 4.

4 samples (S.W. 2, E. 2).
Area: Eur., As., Am., Aust., Grl.

In a sample from a valley near Isafjord (N.W.) B. P., I have found a Staroneis javanica of the following dimensions: length 78 μ, width 21 μ, consequently shorter and comparatively broader than the type.

Stauroneis Legumen Ehr. Cl. Syn. I, 149. V. H. Trt., Tab. I, fig. 59.

8 samples (S. 1, SW. 1, N.W. 2, N. 3, E. 1).
Area: Eur., Af., As., Am., Grl.

Stauroneis obtusa Lgst. Cl. Syn. I, 149. Lgst. Spb., Tab. I, fig. 11.
Ketilsstaðir (S.W.), H. Js.
Area: J. M., Spb., Fr. J.

Stauroneis parvula Grun. Var. *producta* Grun. Cl. Syn. I, 149. V. H. Syn., Tab. IV, fig. 12.
31 samples (S. 2, S.W. 14, N.W. 3, N. 3, E. 9).
Area: Eur., Grl.

Var. *capitata* var. nov., Tab. nost. I, fig. 16.
Long: 46 μ, lat: 10 μ.
Valva elliptica, apicibus capitatis, diaphragmate distincto instructis. Raphe area hyalina distincta cincta. Stauro satis angusto. Striis subtilissimis, radiantibus.
Reykjavík (S.W.), Stp.
This form is nearest to Staur. parv. prod. forma subcapitata in my D. D. P. 47, Tab. II, fig. 34, but to me it seems nevertheless differing sufficiently for placing it as a special variety.

Stauroneis perexilis sp. nov., Tab. nost. I, fig. 17.
Long: 20 μ, lat: 4,5 μ.
Valva lanceolata, apicibus diaphragmate instructis. Raphe area hyalina angusta, mediam partem valvæ versus patescenti, cincta. Structuram ullam valvæ perspicere non potui.
Reykjavík (S.W.), H. Js.

***Stauroneis Phonicenteron** Ehr. Cl. Syn. 1, 148. V. H. Trt., Tab. I, fig. 50.
65 samples (S. 6, S.W. 20, N.W. 3, N. 10, E. 25, s. l. 1). Hot spring: 1.
Area: Ubiquist, Grl.

Var. *amphilepta* Ehr. Cl. Syn. I, 149. Hérib. Auv., Tab. III, fig. 18.
30 samples (S. 6, S.W. 7, N.W. 1, N. 2, E. 14).
Area: Eur., Afr., Aust., Grl., B. E.

Stauroneis Smithi Grun. Cl. Syn. I, 150. V. H. Trt., Tab. I, fig. 58.
Skeiðarársandur (S.) St., Vallanes (E., two samples), H. Js.
Area: Eur., As., Am.

S. Stefanssoni sp. nov., Tab. nost. II, fig. 18.
Long: 46 μ, lat: 8 μ, str. 20 in 10 μ.
Valva lanceolata, margine undulato, in medio leniter inciso. Apicibus apiculatis, diaphragmate distincto instructis. Raphe area hyalina angusta cincta. Stauro bifisso. Striis radiantibus.
Skeiðarársandur (S.) St.
This pretty and characteristic form probably belongs to the group of St. Smithi. It has the median constriction in common with St. Smithi var. incisa: Pant. in Pant. Bel. S., 27, Tab. II, fig. 45, but differs otherwise to such extent, that I do not think it can be classed with this form; nor can it be identical with Schizostauron Karsteni O. M. in Ch. Nyassa, 88, Tab. II, figs. 17—18. It undoubtedly deserves a place as a distinct species.

Cymbella Ag. 1830. Cl. Syn. I, 156.

***Cymbella æqualis** W. Sm. Cl. Syn. I, 170. V. H. Trt., Tab. I, fig. 26 (C. subæqu.) & fig. 27 (C. obtusa).

12 samples (S. 8, S.W. 18, N.W. 1, N. 2, E. 13). Hot spring: 1.
Area: Eur., Afr., As., Am., Grl.

Cymbella affinis Ktz. Cl. Syn. I, 171. V. H. Trt., Tab. I, fig. 31.

7 samples (S. 1, S.W. 2, E. 4).
Area: Ubiquist, Grl., Spb.

***Cymbella amphicephala** Nægeli. Cl. Syn. I, 164. V. H. Trt., Tab. I, fig. 25.

15 samples (S. 3, S.W. 1, E. 11).
Area: Ubiquist, Grl., Spb., Fr. J.

Cymbella angustata W. Sm. Cl. Syn. I, 161. Lgst. Spb. Tab. II, fig. 10.

7 samples (S.W. 3, E. 4).
Area: Eur., Grl., Spb.

***Cymbella aspera** Ehr. Cl. Syn. I, 175. V. H. Trt. I, fig. 35 (C. gastroides).

44 samples (S. 2, S.W. 18, NW. 4, N. 3, E. 22). Hot spring: 1.
Area: Ubiquist, Fr. J.

Var. *dubravicensis* Grun. Cl. Syn. l. c. Grun. Foss. Oestr. Tab. XXIX, fig. 30.

Mývatn (N.), Rd.
Area: Eur.

***Cymbella Cesatii** Rabh. Cl. Syn. I, 160. V. H. Trt., Tab. III, fig. 143 (Navicula Ces.).

Reykjavík (S.W), H. Js.
Area: Eur., Am., Grl., Spb.

***Cymbella Cistula** Hempr. Cl. Syn. I, 173. V. H. Trt., Tab. I, fig. 40.

100 samples (S. 38, S.W. 27, N. 5, E. 22, s. l. 2). Hot spring: 1.
Area: Ubiquist, Grl., Spb.

Var. *arctica* Lgst. Cl. Syn. l. c. Lgst. Spb., Tab. II, fig. 21 (Cymb. variab. arct.).

Möðruvellir (S.W.), B. P.
Area: Eur., As., B. E., Spb.

Var. *Caldogastensis* Prud. Prud. Lacs du Jura IV. P. 22, Tab. I, fig. 1. Tab. nost. II, fig. 19.

Long: 126 μ, lat: 23 μ. Str. 8 in 10 μ, distincte punctatis.

Valva cymbiformi, margine ventrali in medio leniter inflata. Raphe area hyalina satis lata, media in parte valvæ in aream rotundatam dilatata, cincta. Utraque in parte areæ centralis puncta soli-

taria adsunt, et quidem 5 in parte dorsali, 7 in parte ventrali. Nodulis terminalibus ab apicibus remotis.

Laugarvatn (S.), A. F.
Area: Eur.

This Cymbella is decidedly Prudent's above mentioned variant of C. Cist. but hardly identical with Cymb. Nordenskjöldi O. M. (O. M. Patag. P. 25, Tab. I, fig. 18) which has a similar double set of puncta.

Var. *maculata* Ktz. Cl. Syn. I, 173. V. H. Trt., Tab. I, fig. 41.

Gljúfurholtsá (S.) B. P., Sælulækr (S.W.) A. F., Staðarhraun (S.W.) A. F.
Area: Eur., Am., Grl., Spb., Fz. J.

Cymbella cuspidata Ktz. Cl. Syn. I, 160. V. H. Trt., Tab. I, fig. 23.

23 samples (S. 5, S.W. 8, N. 3, E. 7).
Area: Ubiquist, Grl.

***Cymbella cymbiformis** (Ag.) Ktz. Cl. Syn. I, 172. V. H. Trt., Tab. I, fig. 38.

20 samples (S. 2, S.W. 9, N. 1, E. 8). Hot springs: 2.
Area: Ubiquist.

Cymbella dubia sp. nov., Tab. nost. II, fig. 20.

Long: 43 μ, lat: 6,4 μ. Str. 12,5 in 10 μ.

Valva lineari, apicibus rotundatis. Raphe obliqua, area hyalina, media in parte valvæ unilateraliter in areolam rotundatam dilatata, cincta. Striis per totam valvam radiantibus.

Mjóanes (E.) B. P.

By reason of the oblique raphe, the striæ radiating throughout and the unilateral central area, I have considered it proper placing this form as a Cymbella.

Cymbella Ehrenbergi Ktz. Cl. Syn. I, 165. V. H. Trt., Tab. I, fig. 22 (greatest fig.).

23 samples (S. 8, S.W. 6, N. 3, E. 6).

Var. *delecta* A. S. Cl. Syn. l. c. A. S. Atl., Tab. IX, fig. 17 (Cymb. del.).

Mývatn (N.), B. P.
Area: Eur., Am., Aust., Grl.

Cymbella gracilis Rabh. Cl. Syn. I, 169. V. H. Trt., Tab. XXVIII, fig. 791 bis b (Encyon. grac.) and 791 bis c (Enc. lunatum).

79 samples (S. 4, S.W. 26, NW. 3, N. 14, E. 31, s. l. 1). Hot springs: 2.
Area: Ubiquist, Grl.

Cymbella helvetica Ktz. Cl. Syn. I, 174. V. H. Trt., Tab. I, fig. 43.

57 samples (S. 11, SW. 22, N. 6, E. 17, s. l. 1). Hot springs: 2.
Area: Eur., Grl.

***Cymbella heteropleura** Ehr. var. *minor* Cl. Cl. Syn. I, 167. A. S. Atl., Tab. IX, fig. 52.

41 samples (S. 4, S.W. 9, N.W. 2, N. 8, E. 17, s. l. 1). Hot springs: 2.
Area: Eur., As., Grl., Spb.

Cymbella incerta Grun. var. *naviculacea* Grun. Cl. Syn. I, 170. Cl. Grl. & Arg., Tab. XVI, fig. 11.

7 samples (S.W. 5, E. 2). Hot spring: 1
Area: Eur., Grl.

Cymbella islandica sp. nov., Tab. nost. II, fig. 21.

Long: 100 μ, lat: 11 μ, str. 12 in 10 μ, subtiliter punctatis.

Valva cymbiformi, margine ventrali fere recta. Apicibus acutis. Raphe area hyalina angusta, media in parte valvæ in aream longinam, marginem ventralem versus aliquantum dilatata, cincta.

Egilstaðir (E.) B. P.

Cymbella Jonssoni sp. nov., Tab. nost. II, fig. 22.

Long: 56 μ, lat: 9 μ, str. 10 in 10 μ, apices versus densioribus, indistincte punctatis.

Valva anguste lanceolata. Raphe area hyalina, media in parte valvæ in aream asymmetricam dilatata, cincta. Striis per totam valvam radiantibus.

Owing to the radiating striation and the non-symmetrical central area I assume this form to be a Cymbella. It has probably nothing to do with Cymb. inc. naviculacea.

Cymbella lanceolata Ehr. Cl. Syn. I, 174. V. H. Trt., Tab. I, fig. 37.

99 samples (S. 25, S.W. 20, N. 12, E. 10, s. l. 2). Hot springs: 2
Area: Eur., Af., As., Am.

Var. *cornuta* Ehr. Cl. Syn. l. c. Øst. D. D., Tab. II, fig. 43.

8 samples (S.W. 5, E. 3).
Area: Eur.

Var. *ventricosa* A. Cl. A. Cl. Finl. P. 19, Tab. I, fig. 17 (C. lanc. inflata).

Reykjavík (S.W.) C. H. O.
Area: Eur.

***Cymbella lapponica** Grun. Cl. Syn. I, 165, Tab. IV, fig. 28.

26 samples (S. 5, S.W. 10, N.W. 1, N. 1, E. 9). Hot spring: 1.
Area: Eur.

Cymbella linearis sp. nov., Tab. nost. II, fig. 23.

Long: 67 μ, lat: 6,4 μ, str. 12 in 10 μ.

Valva lineari, apicibus rostratis. Raphe directa, fissuris terminalibus recurvatis. Striis per totam valvam radiantibus, in apicibus deficientibus, media in parte valvæ areolam rotundatam relinquentibus, ceterum raphen attingentibus.

Staðastaður (S.W.) H. Js.

This form is without doubt a Cymbella; the peculiar course of the raphe at the apices and the striation radiating throughout, seem to point

in this direction. It is hardly identical with Cymb. amphioxys (Ktz.? Grun.) Cl. (see Le Diatomiste II, 145, Tab. IX, fig. 6) which however it somewhat resembles.

Cymbella marginata sp. nov., Tab. nost. II, fig. 24.

Long: 46 μ, lat: 7 μ, str. 20 in 10 μ.

Valva elliptice-lanceolata. Raphe obliqua. Fissuris terminalibus in eandem partem valvæ declinantibus. Striis marginalibus, parallelis, aream apicalem latam circa raphen relinquentibus.

Egilstaðir (S.), B. P.

Cymbella microcephala Grun. Cl. Syn. I, 160. V. H. Trt., Tab. I, fig. 34.

8 samples (S. 2, S.W. 3, E. 3). Hot spring: 1.
Area: Eur., Am., Grl.

Cymbella naviculiformis Auersw. Cl. Syn. I, 166. V. H. Trt., Tab. I, fig. 24 (C. cusp. navicl.).

52 samples (S. 6, S.W. 19, N. 10, E. 16, s. l. 1). Hot springs: 3.
Area: Eur., As., Am., Aust., Grl., B. E., Spb.

***Cymbella parva** W. Sm. Cl. Syn. I, 172. V. H. Trt., Tab. I, fig. 39 (C. cymbif. parva).

200 samples (S. 40, S.W. 56, NW. 1, N. 22, E. 76, s. l. 5). Hot springs: 9.
Area: Eur., Af., As., Am., Grl., B. E., Fz. J.

Cymbella prostrata Berk. Cl. Syn. I, 167. V. H. Trt., Tab. I, fig. 44 (Encyon. prost.).

Krókur (S.) H. Js.
Area: Eur., Af., As., Am.

Cymbella recta sp. nov., Tab. nost. II, fig. 25.

Long: 105 μ, lat: 18 μ, str. 11 in 10 μ, distincte punctatis.

Valva lanceolata, apicibus rotundalis, raphe directa, media in parte valvæ in aream satis latam dilatata, cincta. Striis parallelis.

Thingvellir (S.W.). B. P.

Cymbella sinuata Greg. Cl. Syn. I, 170. V. H. Trt., Tab. XXV, fig. 699 (C. abnormis).

10 samples (S.W 6, N. 2, E. 2).
Area: Eur., Af., As., Austr., Grl., B. E.

Cymbella stauroneiformis Lgst. Cl. Syn. I, 165. Lgst. Spb., Tab. I, fig. 15.

Ormastaðir (E.) B. P.
Area: B. E., Spb.

Cymbella subconstricta sp. nov., Tab. nost. II, fig. 26.

Long: 42 μ, lat: 6 μ, str. 16 in 10 μ, subtiliter punctatis.

Valva fere lineari, margine ventrali in medio leniter incurvata. Striis radiantibus, in apicibus deficientibus, media in parte ventrali

valvæ abbreviatis, ibique areolam elongatam relinquentibus, ceterum raphen attingentibus.

Reykjavík (S.W.) H. Js.

Cymbella turgida Greg. Cl. Syn. I, 168. V. H. Trt., Tab. I, fig. 45 (Encyon. turg.).

Borgarnes (E.) H. Js.
Area: Eur., As., Am., Aust., Grl.

*__Cymbella ventricosa__ Ktz. Cl. Syn. I, 168. V. H. Trt., Tab. I, figs. 46, 47 & 49 (Encyon. cæsp. & ventric.).

247 samples (S. 43, S.W. 71, N.W. 3, N. 35, E. 92, s. l. 3). Hot springs: 5
Area: Ubiquist, Grl., B. E., Spb., Fz. J.

Gomphonema Ag. 1824. Cl. Syn. I, 178.

*__Gomphonema acuminatum__ Ehr. Cl. Syn. I, 184. V. H. Trt., Tab. VIII, fig. 299.

63 samples (S. 10, S.W. 23, N. 9, E. 21). Hot springs: 2.

Forma *coronata* Ehr. Cl. Syn. l. c. V. H. Trt. l. c. fig. 300.

47 samples (S. 10, S.W. 14, NW. 1, E. 21, s. l. 1). Hot spring: 1.

Var. *elongatum* W. Sm. Cl. Syn. l. c. V. H. Syn., Tab. XXIII, fig. 22.

Skaftafellssysla (S.) St., Vallanes (E.), H. Js.

Forma *pusilla* Grun. Cl. Syn. l. c. V. H. Syn. l. c. fig. 19.

11 samples (S. 1, S.W. 1, E. 9).

Forma *trigonocephala* Ehr. Cl. Syn. l. c. V. H. Syn. l. c. fig. 18.

9 samples (S.W. 3, N. 6). Hot springs: 2.
Area for Gomph. acum. with var.: Eur., Af., As., Am., Grl.

__Gomphonema angustatum__ Ktz. var. *productum* Grun. Cl. Syn. I, 181. V. H. Trt., Tab. VIII, fig. 314 (G. ang.).

87 samples (S. 9, SW. 28, NW. 5, N. 9, E. 36). Hot springs: 3.
Area: Eur., Af., As., Am., Grl., B. E., Spb., Fz. J.

*__Gomphonema constrictum__ Ehr. Cl. Syn. I, 186. V. H. Trt., Tab. VII, fig. 296.

70 samples (S. 9, S.W. 11, N.W. 1, N. 11, E. 38). Hot spring: 1.
Area: Ubiquist.
In a sample from Desjamyri (E.) H. Js. I have found a form which corresponds well with *G. const.* forma *curta* in V. H. Trt., Tab. VIII, fig. 298.

*__Gomphonema gracile__ Ehr. var. *auritum* Al. Br. Cl. Syn. I, 182. V. H. Trt., Tab. VII, fig. 311.

18 samples (S. 4, S.W. 2, N.W. 1, N. 9, E. 1, s. l. 1). Hot springs: 1.
Area: Eur., Af., Am., B. E.

Var. *dichotomum* W. Sm. Cl. Syn. l. c. V. H. Trt. l. c. fig. 310.

4 samples (S. 1, S.W. 1, N. 1, E. 1). Hot springs: 2.
Area: Ubiquist.

Var. *naviculaceum* W. Sm. Cl. Syn. I, 183. V. H. Trt. l. c. fig. 309.
13 samples (S.W. 6, N. 3, E. 3, s. l. 1). Hot spring: 1.
Area: Eur., Af., As., Aust.

Gomphonema intricatum Ktz. Cl. Syn. I, 181. V. H. Trt., Tab. VII, fig. 313.
Höfdabrekka (S.) H. Js.
Area: Eur., Af., As., Am., B. E.

Var. *dichotomum* Ktz. Cl. Syn. I, 182. V. H. Syn., Tab. XXIV, figs. 30—31.
Reykjavík (S.W) H. Js., Stykkishólmur (S.W.) H. Js.
Area: Eur., Am., Aust.

Var. *Vibrio* Ehr. Cl. Syn. l. c. V. H. Syn. l. c. figs. 26—27 (G.Vibrio).
Isafjord (N.W.) B. P.
Area: Eur., As.

Gomphonema irregulare sp. nov., Tab. nost. II, fig. 27.
Long: 60 μ, lat: 10 μ.
Valva clavata, apice superiori subcapilata. Raphe area hyalina satis lata, media in parte valvæ in fasciam unilateralem dilatata, cincta. Striis punctatis, lenites radiantibus et irregulariter distributis, uno in latere superiori 6 in 10 μ, altero in latere 9 in 10 μ, apices versus densioribus.
Vallanes (E.) B. P.).

Gomphonema islandicum sp. nov., Tab. nost. II, fig. 28.
Long: 46 μ, lat: 9 μ, str. 11 in 10 μ, punctatis.
Valva subclavata, margine undulata, apices versus attenuata. Striis subradiantibus, apices versus in raphen perpendicularibus, in apicibus deficientibus. Raphe area hyalina, media in parte valvæ in fasciam latam dilatata, cincta, qua in fascia punctum unilaterale solitarium et striæ paucæ abbreviatæque adsunt.
Ingjaldshóll (S.W.) H. Js.
This form is possibly related to, but not identical with, the »Sporangialform« of Gomph. tergestinum Grun. given in A. S. Atl., Tab. CCXXXIV, fig. 39, which H. Reichelt considers should be referred to G. semiapertum Grun.

Gomphonema Lagerheimi A. Cl. A. Cl. Lul. Lappm. 22, Tab. I, fig. 15.
Ketilstaðir (S.W) H. Js.
Area: Eur.

***Gomphonema lanceolatum** Ehr. var. *insigne* Grun. Cl. Syn. I, 183. V. H. Syn., Tab. XXIX, figs. 39—41.
Krossá (S.) A. F., Reykjavík (S.W.) H. Js.
Area: Ubiquist.

Gomphonema medio-constrictum sp. nov., Tab. nost. II, fig. 29.

Long: 108 μ, lat: 10 & 12 μ, str. 12 in 10 μ, punctatis.

Valva clavata, media in parte constricta. Raphe area hyalina, media in parte valvæ in areolam rotundatam dilatata, cincta. Striis radiantibus, uno in latere in medio deficientibus ibique fasciam unilateralem, in qua striæ singulæ et punctum solitarium adsunt, relinquentibus.

Fljótsdalur (E.) B. P.

***Gomphonema olivaceum** Lyngb. Cl. Syn. I, 187. V. H. Trt., Tab. VII, figs. 315—316.

15 samples (S. 7, S.W. 3, N. 2, E. 3).
Area: Eur., Af., As., Am., Grl.

Var. *calcareum* Cl. Cl. Syn. I, 188. Cl. Sv. & N. Diat., Tab. IV, fig. 7.

Skeiðarársandur (S.) St.
Area: Eur., Am.

Var. *stauroneiforme* Grun. Cl. Syn. l. c. A. S. Atl., Tab. CCXXXIII, figs. 22—24.

Ulfjólsvatn (S.) A. F.
Area: Eur., As.

Gomphonema parvulum Ktz. Cl. Syn. I, 180. A. S. Atl., Tab. CCXXXIV, figs. 1—15 & 18—19.

160 samples (S. 23, S.W. 44, N.W. 4, N. 35, E. 52, S.E. 2). Hot springs: 5.
Area: Ubiquist, Grl., Fz. J.

***Gomphonema subclavatum** Grun. Cl. Syn. I, 183. V. H. Trt., Tab. VII, fig. 304 (G. mont. subcl.).

222 samples (S. 37, S.W. 58, N.W. 6, N. 32, E. 85, s. l. 4). Hot springs: 4.
Area: Ubiquist.

Var. *montanum* Schum. Cl. Syn. I, 184. V. H. Trt. l. c., fig. 303 (G. mont.).

8 samples (N. 1, E. 7).
Area: Eur., Af., Am.

Var. *Mustela* Ehr. Cl. Syn. l. c. V. H. Syn., Tab. XXIV, figs. 4—6 (G. Must.).

14 samples (S. 1, S.W. 3, N. 2, E. 8).
Area: Eur., Af., As., B. E., Spb.

Gomphonema subtile Ehr. Cl. Syn. I, 182. V. H. Trt., Tab. XXIX, fig. 811.

Hórnafjörðr (E.) St., Vallanes (E.) H. Js.
Area: Eur., Am.

Naviculæ minusculæ Cl. 1895. Cl. Syn. II, 3.

Navicula Atomus Nægeli var. *circularis* Øst. Øst. Koss., 84, Tab. I, fig. 10.
Apavatn (S.) A. F., Reykjavík (S.W) H. Js.
Area: As.

***Navicula lucidula** Grun. Cl. Syn. II, 4. V. H. Syn., Tab. XIV, fig. 40.
Apavatn (S.) A. F., Husavík (N.) B. P.
Area: Eur., As., Grl.

Navicula minuscula Grun. Cl. Syn. II, 4. V. H. Syn., Tab. XIV, fig. 3.
Hvitá (S.) A. F.
Area: Eur., As.

Navicula pelliculosa (Bréb.) Hilse. Cl. Syn. II, 3. V. H. Syn, Tab. XIV. fig. 32.
Skeiðarársandur (S.W.) St.
Area: Eur.

Anomoeoneis Pfitzer 1871. Cl. Syn. II, 5.

Anomoeoneis brachyura (Bréb.) Grun. Cl. Syn. II, 7. V. H. Syn., Tab. XII, figs. 8—9 (Nav. serians minor & minima).
8 samples (S. 4, E. 4).
Area: Ubiquist.

Anomoeoneis exilis (Ktz.) Grun. Cl. Syn. II, 8. V. H. Trt., Tab. IV, fig. 198.
11 samples (S.W. 9, E. 2). Hot spring: 1.
Area: Eur., Grl.

Anomoeoneis sculpta (Ehr.) Cl. Cl. Syn. II, 6. V. H. Trt., Tab. IV, fig. 194 (Nav. sculpt.).
Reykjavík (3 samples) H. Js.
Area: Ubiquist.

Anomoeoneis sphærophora (Ktz.) Cl. Cl. Syn. II, 6. V. H. Trt., Tab. IV, fig. 195 (Nav. sphær.).
Reykjavík (S.W.) H. Js.
Area: Ubiquist.

Anomoeoneis zellensis (Grun.) Cl. Cl. Syn. II, 7. V. H. Syn., Tab. XII, fig. 14 (Nav. zell.).
Reykjavík (S.W.) C. H. O. In a hot spring.
Area: Eur., Grl.

Naviculæ heterostichæ Cl. 1895. Cl. Syn. II, 8.

Navicula cocconeiformis Greg. Cl. Syn. II, 9. V. H. Trt., Tab. XXVII, fig. 729.
13 samples (S. 3, S.W. 7, N. 1, E. 2).
Area: Eur., As., Am., Grl., J. M., B. E., Spb.

Naviculæ lineolatæ Cl. 1895. Cl. Syn. II, 10.

Navicula anglica Ralfs. Cl. Syn. II, 22. V. H. Trt., Tab. III, fig. 136.
25 samples (S. 7, SW. 6, N. 6, E. 6). Hot springs: 2.
Area: Eur., Af., As., Am., Grl.

Var. *minuta* Cl. Cl. Syn. l. c. Øst. Koss., Tab. I, fig. 5.
Skeiðarársandur (S.) St., Ulfjólsvatn (S.) A. F.
Area: Eur., As., Am., B. E.

Var. *subsalsa* Grun. Cl. Syn. l. c. V. H. Trt., Tab. III, fig. 137.
10 samples (S. 1, S.W. 2, N.W. 2, E. 5).
Area: Eur., Grl.

Navicula anguste-fasciata sp. nov., Tab. nost. III, fig. 30.
Long: 43 μ, lat: 9 μ, str. 12 in 10 μ, indistincte punctatis.
Valva lineari, apicibus late rostratis. Extremitatibus medianis raphes in eandem partem vergentibus. Raphe mediam partem valvæ versus area hyalina, sensim patescente et fasciam angustam efficiente, cincta. Striis radiantibus, apices versus convergentibus.
Staðastaður (S.W.) H. J.

Navicula Boyei sp. nov., Tab. nost. III, fig. 31.
Long: 14 μ, lat: 7 μ, str. 12 in 10 μ.
Valva late-lanceolata, apicibus truncatis. Striis debilissimis et vix perspiciendis, media in parte valvæ paululum spatiatis, apices versus densioribus, radiantibus et per totam valvam raphen attingentibus.
Hallormstaðr (E.) B. P.

Navicula cincta Ehr. Cl. Syn. II, 16. V. H. Trt., Tab. III, fig. 105.
49 samples (S. 11, S.W. 18, N.W. 1, N. 8, E. 10, s. l. 1). Hot springs: 2.
Area: Eur., Af., As., Am., Grl., J. M., B. E., Fz. J.

Var. *angusta* Grun. Cl. Syn. II, 17. V. H. Syn., Tab. VII, fig. 17.
Reykjarfjord (N.W.)? In a hot spring.
Area: Eur., As., Am., Aust.

Var. *Heufleri* Grun. Cl. Syn. II, 16. V. H. Trt., Tab. III, fig. 106.
Arnafellskvisl (S.) St.
Area: Eur., Af., Am.

Navicula cryptocephala Ktz. Cl. Syn. II, 14. V. H. Trt., Tab. III, fig. 122.
53 samples (S. 25, S.W. 15, N. 3, E. 9, s. l. 1). Hot springs: 2.
Area: Eur., Af., As., Am., Grl.

Var. *exilis* Ktz. Cl. Syn. l. c. V. H. Trt. l. c., fig. 124.
25 samples (S. 10, S.W. 11, N. 2, E. 1, s. l. 1). Hot spring: 1.
Area: Eur., As., Am.

Navicula curte-striata sp. nov., Tab. nost. III, fig. 32.

Long: 22 μ, lat: 7 μ, str. 10 in 10 μ, subtiliter punctatis.

Valva elliptice-lanceolata. Extremitatibus medianis raphes in eandem partem vergentibus. Striis marginalibus, aream apicalem latam lanceolatam relinquentibus, leniter radiantibus, apices versus convergentibus.

Ingjaldshóll (S.W.) H. Js.

Navicula dicephala (Ehr.) W. Sm. Cl. Syn. II, 21. V. H. Trt., Tab. III, fig. 138.

56 samples (S. 8, S.W. 16, N. 12, E. 19, s. l. 1). Hot springs: 7.
Area: Eur., Af., As., Am., Grl.

Var. *undulata* var. nov., Tab. nost. III, fig. 33.

Long: 25 μ, lat: 8 μ, str. 10 in 10 μ.

Valva triundulata, ceterum ut in typo.

Torfastaðir (S.) A. F. In a hot spring.

This form has nothing to do with Nav. Motshii Meist. (Schw. 147, Tab. XXII, fig. 16), neither with Nav. integra W. Sm. var. gibba Pant. in Pant. Bal. 47, Tab. V, fig. 113.

Navicula exilior sp. nov., Tab. nost. III, fig. 34.

Long: 13 μ, lat: 4 μ, str. 10 in 10 μ.

Valva anguste-elliptica. Raphe area hyalina angusta cincta. Striis per totam valvam radiantibus.

Reykir (S.) A. F.

Navicula Gastrum Ehr. Cl. Syn. II, 22. V. H. Trt., Tab. III, fig. 134 (the two first figs.).

Hvitá (S.) A. F.
Ubiquist, Grl.

Var. *exigua* Grun. Cl. Syn. II, 23. V. H. Trt. l. c. 3rd fig.

10 samples (S. 7, S.W. 1, N. 1, E. 1).
Area: Eur., Aust.

Navicula gracilis Ehr. Cl. Syn. II, 17. V. H. Trt., Tab. III, fig. 109.

Laugafells Laug (N.) St., Hornafjörðr (E.) St. Hot spring: 1.
Area: Eur., Af., As., Am., Grl.

Var. *schizonemoides* M. V. H. Cl. Syn. l. c. V. H. Trt. l. c., fig. 110.

8 samples (S. 5, E. 3). Hot spring: 1.
Area: Eur.

Navicula hungarica Grun. Cl. Syn. II, 16. Grun. Oest. Ung., Tab. XXX, fig. 42.

7 samples (S. 2, S.W. 3, N. 1, E. 1).
Area: Eur., As., Am., B. E.

Var. *capitata* Ehr. Cl. Syn. l. c. V. H. Trt., Tab. III, fig. 127 (Nav. humilis).

7 samples (S.W. 5, N. 2). Hot spring: 1.
Area: Eur., As., B. E.

Navicula Fustis sp. nov., Tab. nost. III, fig. 35.

Long: 46 μ, lat: 6,4 μ, str. 12 in 10 μ.

Valva lineari, apicibus leniter attenuatis. Raphe obliqua, area hyalina angusta cincta. Striis per totam valvam radiantibus.

Egilstaðir (E.) B. P.

Navicula islandica sp. nov., Tab. nost. III, fig. 36.

Long: 22 μ, lat: 8 μ, str. 20 in 10 μ, subtiliter punctatis.

Valva elliptica. Raphe area hyalina, mediam partem valvæ versus aliquantulum dilatata, cincta. Striis per totam valvam radiantibus, medianis duabus valde spatiatis.

Sævarendi (E.) B. P.

Navicula Jonssoni sp. nov., Tab. nost. III, fig. 37.

Long: 23 μ, lat: 8 μ.

Valva elliptica, apices rostratos versus attenuata. Raphe area hyalina angustissima cincta. Striis subtilissimis et, quoad perspicere potui, per totam valvam radiantibus.

Hafnarhólmi (E.) H. Js.

Possibly this form is related to, but not identical with Nav. cryptocephala var. latior Jul. Dannf. in Diat. o. t. Balt. p. 26, Tab. II, fig. 12.

Navicula lanceolata (Ag.) Ktz. Cl. Syn. II, 21. V. H. Trt., Tab. III, fig. 139.

Thjórsá (S.) A. F., Staðastaður (S.W.) H. Js.
Area: Eur., Af., Am., Aust., Grl.

Var. *Cymbula* Donk. Cl. Syn. II, 22. V. H. Syn., Tab. VII, fig. 32.

4 samples (S.W. 3, E. 1).
Area: Eur., As.

Var. *latior* Dannf. Cl. Syn. l. c. Dannf. Balt., Tab. II, fig. 12 (N. cryptoc. lat.).

Laxá (S.) A. F.
Area: Eur.

Var. *phyllepta* Ktz. Cl. Syn. l. c. V. H. Trt., Tab. III, fig. 141.

Thórsá (S.) A. F.
Area: Eur.

Navicula ludloviana A. S. Cl. Syn. II, 24. A. S. Atl., Tab. XLVI, fig. 15.

7 samples (S. 2, S.W. 1, E. 4).
Area: Am.

Navicula lyrigera sp. nov., Tab. nost. III, fig. 38.

Long: 20 μ, lat: 11 μ, str. 20 in 10 μ.

Valva late lanceolata, apicibus attenuatis. Raphe area hyalina angusta cincta. Striis debilissimis, difficiliter perspiciendis, utroque in latere ita abruptis, ut figura lyræformis, male autem definita, existat.

Fresh-water sampl.: Grímsey (N.) O. D., Marine sampl.: Skerjafjörður (S.W.) H. Js., Thörishólmi (S.W.) H. Js.

This form has some resemblance to Navicula bifissa A. S. in A. S. Atl., Tab. CCXII, fig. 33, but it is much more closely striated, and the lateral areas are not so distinctly defined. Nav. bifissa is from Yokohama (therefore probably a marine form). As regards Nav. lyrigera, I have found it in 3 samples, of which one is a fresh-water sample solely containing fresh-water forms; the two others are salt-water samples, both however mixed with fresh-water forms; for this reason I have considered it best placing it as a fresh-water form.

***Navicula oblonga** Ktz. Cl. Syn. II, 21. V. H. Trt., Tab. III, fig. 100.

Sydri Gardar (S.W.) H. Js., Staðastaður (S.W.) H. Js.

Area: Ubiq.

Navicula Ostenfeldi sp. nov., Tab. nost. III, fig. 39.

Long: 24 μ, lat: 4 μ.

Valva anguste-lanceolata, apicibus capitatis. Raphe media in parte valvæ area hyalina longina cincta. Striis inconspicuis.

Krisuvík (S.) C. H. O.

Navicula peregrina Ehr. Cl. Syn. II, 18. V. H. Trt., Tab. III, fig. 101.

8 samples (S.W. 6, N. 1, E. 1).

Area: Eur., Af., As., Am.

Var. *Menisculus* Schum. Cl. Syn. l. c. V. H. Trt. l. c., fig. 103.

4 samples (S. 1, S.W. 2, E. 1).

Area: Eur., Af., As., Am.

Var. *Meniscus* Schum. Cl. Syn. l. c. V. H. Trt. l. c., fig. 102.

6 samples (S. 1, S.W. 2, N. 2, E. 1). Hot spring: 1.

Area: Eur., Af., As., Am., Grl.

Var. *polaris* Cl. Syn. l. c. Lgst. Spb., Tab. II, fig. 3.

Reykholt (S.W.) H. Js., Grímsey (N.) O. D.

Area: Eur., Grl., B. E., Spb.

In a sample from Hánefsstaðaeyrar (E.) H. Js., I have found a Nav. pereg. with 12 striæ on 10 μ being thus more closely striated than the typical form.

Navicula pinnularioides sp. nov., Tab. nost. III, fig. 40.

Long: 36 μ, lat: 6,4 μ, str. 8 in 10 μ.

Valva lineari apices rostratos versus attenuata. Raphe area hyalina satis lata cincta. Striis per totam valvam radiantibus, in

medio uno in latere valvæ deficientibus ibique fasciam unilateralem satis latam relinquentibus.

Fljótsdalur (E.) B. P.

When I place this form under Nav. lineolatæ, it is owing to the striæ which, by great enlargement, assume the peculiar "woollen" appearance, indicating a finer structure.

*Navicula radiosa Ktz. Cl. Syn. II, 17. V. H. Trt., Tab. III, fig. 112.

286 samples (S. 66, S.W. 77, N.W. 4, N. 38, E. 97, s. l. 4). Hot springs: 8.

Area: Eur., Af., As., Am., Grl., B. E., Spb.

*Navicula Reinhardti Grun. Cl. Syn. II, 20. V. H. Trt., Tab. III, fig. 132.

5 samples (S. 3, N. 1, E. 1).

Area: Eur., As., Am., Grl., B. E.

Var. *Yenisseyensis* Grun. Cl. Syn. l. c. Cl. & Gr. A. D., Tab. II, fig. 30 (N. digitr. striolata).

Alftatjörn (E.) B. P.

Area: As.

Navicula rhyncocephala Ktz. Cl. Syn. II, 15. V. H. Trt., Tab. III, fig. 119.

21 samples (S. 7, S.W. 10, N. 1, E. 2, s. l. 1). Hot spring: 1.

Area: Ubiquist, Grl., B. E.

Var. *amphiceros* Ktz. Cl. Syn. l. c. V. H. Trt. l. c., fig. 120.

7 samples (S.W. 6, N. 1).

Area: Eur., Aust.

Navicula Salinarum Grun. Cl. Syn. II, 19. V. H. Trt., Tab. III, fig. 108.

Apavatn (S.) A. F. Skeiðarársandur (S.) St.

Area: Eur., Af., Am., Spb.

Navicula semifasciata sp. nov., Tab. nost. III, fig. 41.

Long: 27 μ, lat: 9 μ, str. 12 in 10 μ, subtiliter punctatis.

Valva rhomboidea, apicibus subcapitatis. Raphe area hyalina angustissima, mediam partem valvæ versus patescente, ibique in fasciam latam unilateralem dilatata, cincta. Striis radiantibus, apices versus convergentibus densioribusque.

Krókur (S.) H. Js.

Navicula spatiata sp. nov., Tab. nost. III, fig. 42.

Long: 16 μ, lat: 8 μ, str. 14 in 10 μ, obscure punctatis.

Valva elliptica. Raphe area angusta cincta. Striis medianis valde spatiatis, cetera in parte valvæ radiantibus, apices versus leniter curvatis.

Apavatn (S.) A. F.

Navicula Thingvallæ sp. nov., Tab. nost. III, fig. 43.

Long: 25 μ, lat: 7,2 μ, str. 16 in 10 μ, subtiliter punctatis.

Valva elliptica, apicibus capitatis. Raphe area hyalina angusta, media in parte valvæ in fasciam latam dilatata, cincta. Striis radiantibus, apices versus convergentibus. In fascia striæ singulæ, longæ abbreviatæque, adsunt.

Thingvallavatn (S.W.) A. F.

***Navicula Tuscula** Ehr. Cl. Syn. II, 19. V. H. Trt., Tab. IV, fig. 166.

6 samples (S.W. 1, N. 2, E. 3).

Area: Eur., Af., As., Am., Grl., B. E., Spb.

Var. *Strösei* Øst. Øst. D. D., 84. Ströse Kliek., Tab. 1, fig. 28 (Staur. dilat.).

11 samples (S. 4, S.W. 5, N. 1, E. 1).

Area: Eur.

Navicula viridula Ktz. Cl. Syn. II, 15. V. H. Trt., Tab. III, fig. 115.

12 samples (S.W. 2, N. 9, E. 1).

Area: Ubiquist.

Var. *silesiacensis* Grun. Cl. Syn. l. c. V. H. Trt. l. c., fig. 116.

74 samples (S. 23, S.W. 20, N.W. 1, N. 14, E. 16). Hot springs: 2.

Area: Eur., Grl.

Navicula vulpina Ktz. Cl. Syn. II, 15. V. H. Trt., Tab. III, fig. 111.

9 samples (S. 2, S.W. 3, E. 4).

Area: Eur., As., Am., Aust., Grl.

Naviculæ punctatæ Cl. 1895. Cl. Syn. II, 37.

***Navicula amphibola** Cl. Cl. Syn. II, 45. Lgst. Spb., Tab. II, fig. 7 (Nav. punct. asym.).

24 samples (S. 1, S.W. 2, N. 6, E. 15).

Area: Eur., As., Am., Grl., B. E., Spb., Fz. J.

Navicula lacustris Greg. Cl. Syn. II, 44. Cl. Finl., Tab. II, fig. 14.

4 samples (S. 3, E. 1).

Area: Eur., Am.

Navicula pusilla W. Sm. Cl. Syn. II, 41. V. H. Trt., Tab. IV, fig. 186.

40 samples (S. 5, S.W. 17, N.W. 3, N. 9, E. 6). Hot springs: 5.

Area: Ubiquist, Grl., J. M.

Pinnularia Ehr. 1843. Cl. Syn. II, 71.

Gracillimæ Cl. 1895. Cl. Syn. II, 74.

Pinnularia gracillima Greg. Cl. Syn. II, 74. V. H. Syn., Tab. VI, fig. 24 (Nav. grac.).

6 samples (S. 3, S.W. 2, E. 1).

Area: Eur., As., Grl., J. M., Fz. J.

Pinnularia leptosoma Grun. Cl. Syn. II, 74. V. H. Syn., Tab. XII, fig. 29 (Nav. lept.).

6 samples (S.W. 4, N. 2). Hot springs: 3.
Area: Eur., Grl.

Var. *undulata* var. nov., Tab. nost. III, fig. 44.

Long: 42 μ, lat: 5,4 μ, str. 16 in 10 μ.

Valva lineari, leniter undulata. Raphe area hyalina angusta, media in parte valvæ in fasciam satis latam dilatata, cincta. Striis subradiantibus, apices versus convergentibus.

Mývatn (N.) Rd.

Pinnularia molaris Grun. Cl. Syn. II, 74. V. H. Syn., Tab. VI, fig. 19 (Nav. mol.).

Hrafnagil (N.) H. Js., Gautavík (E.) H. Js. Hot spring: 1.
Area: Eur., As., Am., Aust.

Pinnularia sublinearis Grun. Cl. Syn. II, 74. V. H. Trt., Tab. II, fig. 78 (Nav. subl.).

15 samples (S. 2, S.W. 3, N. 4, E. 6).
Area: Eur., Grl., J. M.

Capitatæ Cl. 1895. Cl. Syn. II, 75.

***Pinnularia appendiculata** Ag. Cl. Syn. II, 75. V. H. Trt., Tab. II, fig. 93 (Nav. app.).

19 samples (S. 3, S.W. 10, N. 1, E. 5). Hot springs: 2.
Area: Ubiquist, Grl.

Var. *budensis* Grun. Cl. Syn. l. c. V. H. Syn., Tab. VI, figs. 27—28 (Nav. app. bud.).

Grafarbakki (S.) A. F., Hrafnagil (N.) H. Js., Snæfell (E.) B. S. Hot springs: 2.
Area: Hot springs, Eur., New Zealand.

***Pinnularia Brauni** Grun. Cl. Syn. II, 75. V. H. Trt., Tab. II, fig. 95 (Nav. Br.).

Brunavíkurstrand (E.) H. Js.
Area: Ubiquist.

Pinnularia interrupta W. Sm. f. *stauroneiformis* Cl. Cl. Syn. II, 76. V. H. Trt., Tab. II, fig. 97 (Nav. mesolepta Termes).

30 samples (S. 4, S.W. 13, N.W. 1, N. 9, E. 3). Hot springs: 5.
Area: Eur., As., Am., Aust., Grl.

F. *biceps* Cl. Cl. Syn. l. c. Lgst. Spb., Tab. 1, fig. 5 (Nav. bicapitata).

10 samples (S. 1, S.W. 4, N. 1, E. 4).
Area: Eur., As., Am., Aust., Grl., Spb., Fz. J.

Pinnularia mesolepta Ehr. var. *augusta* Cl. Cl. Syn. II, 76. A. S. Atl., Tab. XLV, fig. 62 (Nav. gracillima).

17 samples (S. 3, S.W. 5, N.W. 1, N. 3, E. 5). Hot spring: 1.
Area: Eur., Am.

Var. *polyonca* Bréb. Cl. Syn. l. c. V. H. Trt., Tab. II, fig. 99.

10 samples (S. 1, S.W. 5, E. 4).
Area: Eur.

Var. *stauroneiformis* Grun. Cl. Syn. l. c. A. S. Atl., Tab. XLV, figs. 52—53.

55 samples (S. 11, S.W. 20, N.W. 1, N. 5, E. 18). Hot springs: 5.
Area: Eur., Af., Am., Grl., J. M., F. J.

Pinnularia microstauron Ehr. Cl. Syn. II, 77. V. H. Syn, Tab. VI, fig. 9 (Nav. biceps hybrida).

11 samples (S. 3, S.W. 2, N.W. 1, E. 1). Hot spring: 1.
Area: Ubiquist, Grl., J. M., Spb., Fz. J.

Pinnularia Oculus Øst. Øst. Østg. Ferskv., 269, Tab. I, fig. 6.

7 samples (S. 1, S.W. 1, N. 1, E. 4).
Area: Eur., Grl.

Pinnularia perexilis sp. nov., Tab. nost. III, fig. 45.

Long: 17 μ, lat: 2,7 μ.

Valva linearis, in medio inflata, apicibus capitatis. Striis subtilissimis et, quoad perspicere potui, per totam valvam radiantibus, media in parte valvæ aliquantulum spatiatis.

Laugaá (S.W.) A. F.

In spite of the striation radiating all throughout, at least as far as I can see, I consider that this small form requires its place among Pinn. capitatæ.

Pinnularia subcapitata Greg. Cl. Syn. II, 75. V. H. Trt., Tab. II, fig. 91 (Nav. subc.).

51 samples (S. 11, S.W. 16, N.W. 1, N. 8, E. 15). Hot springs: 2.
Area: Ubiquist, Grl., J. M., Spb., Fz. J.

Var. *paucistriata* Grun. Cl. Syn. l. c. V. H. Trt. l. c., fig. 92 (Nav. sub. pauc.).

Hvitá (S.) A. F.
Area: Eur.

Divergentes Cl. 1895. Cl. Syn. II, 77.

***Pinnularia Brebissoni** Ktz. Cl. Syn. II, 78. V. H. Trt., Tab. II, fig. 82 (Nav. Bréb.).

34 samples (S. 1, S.W. 9, N. 6, E. 17, s. l. 1). Hot spring: 1.
Area: Eur., Af., As., Am., Grl., J. M., Spb.

*Var. *diminuta* H.V.H. Cl.Syn.1.c.V.H.Trt.1.c., fig. 84 (N.Breb.dim.).

8 samples (S. 1, S.W. 1, N. 1, E. 4, S. L. 1). Hot spring: 1.
Area: Eur., Am., Grl.

Var. *linearis* O. M. O. M. Rieseng., 25, Tab. III, fig. 12.

Yttri Skógar (S.), H. Js.
Area: Eur.

Pinnularia bryophila sp. nov., Tab. nost. III, fig. 46.

Long: 43 μ, lat: 9,6 μ, str. 12 in 10 μ.

Valva lineari, apicibus rotundatis. Raphe area hyalina lata, media in parte valvæ, in fasciam, in qua uno in latere stria singula adest, dilatata cincta. Fissuris terminalibus et extremitatibus medianis raphes in partes diversas inclinantibus. Striis radiantibus, apices versus convergentibus.

Seyðisfjord (E.) B. P. On moss.

***Pinnularia divergens** W. Sm. var. *elliptica* Grun. Cl. Syn. II, 79. Grun. Fz. J., Tab. 1, fig. 19 (Nav. div. ell.).

64 samples (S. 6., S.W. 16, N.W. 2, N. 7, E. 33). Hot spring: 1.
Area: Eur., Af., Am., Aust., Grl., Fr. J.

Var. *elongata* Øst. Øst. D. D., 98, Tab. III, fig. 68.

Staðastaður (S.W.) H. Js.
Area: Eur.

***Pinnularia divergentissima** Grun. Cl. Syn. II, 77. V. H. Syn., Tab. VI, fig. 32 (Nav. div.).

9 samples (S. 2, SW. 3, E. 4).
Area: Eur., As., Am., Aust., Grl., J. M., Spb.

Pinnularia islandica sp. nov., Tab. nost. III, fig. 47.

Long: 82 μ, lat: 14 μ, str. 9 in 10 μ.

Valva fere lineari, apicibus rotundatis. Raphe area hyalina satis lata, mediam partem versus patescente ibique aream longinam magnam efficiente, cincta. Striis radiantibus, apices versus convergentibus.

Skutustaðir (N.) B. P., Lagarfljót (E.) B. P.

Pinnularia karelica Cl. Cl. Syn. II, 78. Cl. Finl., Tab. I, fig. 6. A. S. Atl., Tab. CCCXI, figs. 14—15.

Seyðisfjord (E.) B. P.

Var. *rostrata* var. nov., Tab. nost. III, fig. 48.

Long: 41 μ, lat: 11 μ, str. 12 in 10 μ.

Valva lineari, apicibus late rostratis. Raphe area hyalina, media in parte valvæ in aream magnam rotundatam dilatata, cincta.

Grímsá (E.) B. P.

The somewhat wider striation notwithstanding, this form must surely be considered as a var. of Pinn. karelica.

*Pinnularia Legumen Ehr. Cl. Syn. II, 78. V. H. Trt., Tab. II, fig. 98 (Nav. Leg.).

Reykjanes (N.) Thor., in a hot spring, Ulfsbær (N.) B. P.
Area: Ubiquist, Grl.

Var. *longa* A. Cl. f. *interrupta* A. Cl. Finl., 28, Tab. 1, fig. 26.

Torfastaðir (S.) A. F., in a hot spring.
Area: Eur.

Pinnularia parallela Brun var. *crassa* Øst. Øst. D. D., 99, Tab. III, fig. 64.

Staðastaður (S.W.) H. Js.
Area: Eur.

Pinnularia platycephala Ehr. Cl. Syn. II, 79. Cl. Finl., Tab. II, fig. 1. A. S. Atl., Tab. CCCX, figs. 6—8.

Fróðarheiði (S.W.) H. Js.
Area: Eur., Grl., J. M.

Distantes Cl. 1895. Cl. Syn. II, 80.

Pinnularia alpina W. Sm. Cl. Syn. II, 81. V. H. Trt., Tab. XXV, fig. 705 (Nav. alp.).

Sandbrekka (E.) H. Js., Seyðisfjord (E.) B. P.
Area: Eur.

Var. *linearis* var. nov., Tab. nost. III, fig. 49.

Long: 64 μ, lat: 14,4 μ, str. 5 in 10 μ.

Valva lineari, apicibus rotundatis. Raphe area hyalina, media in parte valvæ in aream rotundatam dilatata, cincta. Fissuris terminalibus semicircularibus. Striis radiantibus, apices versus convergentibus.

Sævarendi (E.) B. P.

Owing to the radiate-convergent striæ, I consider this form should rather be classed with Pinnularia alpina than with Pinn. lata. It has hardly anything to do with Pinn. borealis.

*Pinnularia Balfouriana Grun. Cl. Syn. II, 80, Tab. I, fig. 18. A. S. Atl., Tab. CCCXIII, figs. 29—31.

6 samples (S. 2, S.W. 1, N. 2, E. 1). Hot springs; 2.
Area: Eur., Fz. J.

*Pinnularia borealis Ehr. Cl. Syn. II, 80. V. H. Trt., Tab. II, fig. 77.

195 samples (S. 32, S.W. 49, N.W. 9, N. 39, E. 64, s.l. 2). Hot springs: 17. Never in great numbers in the samples.
Area: Ubiquist, Grl., J. M., B. E., Sp., Fz. J.

Var. *brevicostata* Hust. Hust. Sud., 82, Tab. nost. III, fig. 50.

Long: 25 μ, lat: 7 μ, str. 5 in 10 μ.

Valva sublineari, apicibus capitatis. Striis marginalibus, aream apicalem latam relinquentibus.

Hrafnagil (N.) H. Js., in a hot spring, Ulfsbær (N.) B. P.

Area: Eur.

This form I consider identical with Hustedt's var. brevicostata, of which no figure is given.

Var. *linearis* Hérib. Hérib. Auv. III, 45, Tab. XIII, fig. 20.

15 samples (S. 6, S.W. 5, N. 1, E. 3).

Area: Eur.

Pinnularia intermedia (Lgst.) Cl. Cl. Syn. II, 80. Lgst. Spb., Tab. I, fig. 3 (Nav. int.).

12 samples (S.W. 4, N. 4, E. 4). Hot spring: 1.

Area: Eur., Aust., Grl., B. E., Spb., Fz. J.

Pinnularia lata (Bréb.) Cl. Cl. Syn. II, 81. Grun. Fz. J., Tab. I, fig. 14 (Nav. lata).

32 samples (S. 10, S.W. 3, N.W. 4, N. 6, E. 8, s. l. 1). Hot springs: 4.

Area: Eur., As., Am., Aust., Grl., J. M., Fz. J.

Var. *minor* Grun. Cl. Syn. l. c. Grun. l. c., figs. 16—17 (Nav. lat. min.).

Hofsfjall (N.) O. D., Seyðisfjarðarheiði (E.) H. Js.

Area: Casp. Sea, J. M., Spb., Fz. J.

In a sample from Reykjavík (S.W.) H. Js. I have found a Pinn. lata forma minima, of which I give a figure on tab. nostr. III fig. 51. Its dimensions are: length 27 μ, width 8 μ, str. 4,5 in 10 μ.

Tabellarieæ Cl. 1895. Cl. Syn. II, 81.

Pinnularia Brandeli Cl. var. *linearis* var. nova, Tab. nost. III, fig. 52.

Long: 47 μ, lat: 8 μ, str. 12 in 10 μ.

Valva lineari, apicibus rotundatis. Raphe area hyalina satis angusta, media in parte valvæ in fasciam satis latam dilatata, cincta. Utroque in latere fasciæ striola fere linearis adest. Fissuris terminalibus semicircularibus.

Torfastaðir (S.) A. F., in a hot spring.

Undoubtedly a somewhat wider striated variant of Pinn. Brand.

Pinnularia densestriata sp. nov., Tab. nost. III, fig. 53.

Long: 50 μ, lat: 6,4 μ, str. 20 in 10 μ.

Valva lineari, leniter undulata, apicibus rostratis. Raphe area hyalina lata, media in parte valvæ in fasciam latam dilatata, cincta. Striis radiantibus, apices versus convergentibus.

Hallormstaðr (E.) B. P.

I am not sure as to the place of this form within the several groups of Pinnularia. Possibly, owing to the close striation, it ought to be classed with Pinn. gracillimæ, against which however speaks the broad area and the transapical fasciæ.

***Pinnularia mesogongyla** Ehr. Cl. Syn. II, 84. Cl. Finl., Tab. 1, fig. 11.
28 samples (S. 1, S.W. 14, N.W. 1, N. 2, E. 2). Hot springs: 3.
Area: Eur., Am., Grl.

Var. *interrupta* Cl. Syn. l. c. Cl. Finl. l. c., fig. 10.
Skaftafellssysla (S.) St., Hornafjörðr (E., two samples) St.
Area: Eur., Grl., Fz. J.

***Pinnularia stauroptera** (Grun.) Cl. Syn. II, 82. A. S. Atl., Tab. XLV, figs. 48—50 (Nav. staur.).
33 samples (S. 4, S.W. 13, N. 3, E. 12, s. l. 1). Hot springs: 2.
Area: Eur., As., Am., Aust., Fz. J.

Var. *interrupta* Cl. Syn. II, 83. V. H. Trt., Tab. II, figs. 85—86 (Nav. staur. et Nav. staur. parva).
35 samples (S. 6, S.W. 12, N.W. 1, N. 3, E. 13). Hot springs: 2.
Area: Eur., Af., Am., Aust., Grl.

Pinnularia subsolaris (Grun.) Cl. Syn. II, 84. V. H. Syn., Tab. VI, fig. 17 (Nav. Legumen vix undulata).
Ketilsstaðir (S.W) H. Js.
Area: Eur., Af., Am., Aust., Grl.

Brevistriatæ Cl. 1895. Cl. Syn. II, 85.

***Pinnularia acrosphæria** (Bréb.) Cl. Syn. II, 86. A. S. Atl., Tab. XLIII, fig. 16 (Nav. acrosph.).
Reykjavík (S.W.) C. H. O., Mývatn (N.) Rd.
Area: Eur., Af., As., Am.

Pinnularia brevicostata Cl. Cl. Syn. II, 86. Cl. Finl. I, fig. 5.
47 samples (S. 4, S.W. 17, N.W. 1, N. 8, E. 22, s. l. 1). Hot springs: 3.
Area: Eur., As.

Var. *islandica* var. nov., Tab. nost. III, fig. 54.
Long: 36 μ, lat: 8 μ, str. 9 in 10 μ.
Valva lineari, apicibus rotundatis. Raphe area hyalina lata, media in parte valvæ in fasciam dilatata, cincta. Striis parallelis, apices versus leniter convergentibus.
Vallanes (E.) B. P.

Var. *leptostauron* Cl. Cl. Syn. II, 86. A. S. Atl., Tab. XLIII, fig. 25 (sine nomine).
5 samples (S.W. 3, E. 2).

***Pinnularia hemiptera** (Ktz.) Cl. Cl. Syn. II, 85. Hérib. Auv. (Nav. hemipt. Bielawzki).
Lagarfljót (E.) B. P.
Area: Eur., Af., As., Am.

Var. *interrupta* Cl. Syn. l. c. Øst. D. D., Tab. III, fig. 67.
Ulfjólsvatn (S.) A. F., Reykjavík (S.W.) H. Js.
Area: Eur., As.

Pinnularia nodosa (Ehr.) Cl. Cl. Syn. II, 87. A. S. Atl., Tab. XLV, fig. 58 (Nav. nod.).
Egilstaðir (E.) B. P.
Area: Eur., Am.

Pinnularia parva (Greg.) Cl. Cl. Syn. II, 87. Grun. Oest. Ung., Tab. XXX, fig. 37 (Nav. parvula).
10 samples (S. 1, S.W. 4, N. 2, E. 3).
Area: Eur., As., Am., Aust., Grl.

Var. *Lagerstedti* Cl. Cl. Syn. l. c. Lgst. Spb., Tab. II, fig. 4 (Nav. parvula).
13 samples (S. 4, S.W. 5, N. 1, E. 4).
Area: B. E., Spb.

Var. *minuta* var. nov., Tab. nost. IV, fig. 55.
Long: 16 μ, lat: 4 μ, str. 10 in 10 μ.
Valva anguste lanceolata, fere lineari. Striis marginalibus, aream apicalem latam relinquentibus.
Hvitá (S.) A. F.

P. paulensis Grun. Cl. Syn. II, 86, Tab. I, fig. 20.
Hofsfjall (N.) O. D.
Area: Am., Grl.

P. subundulata sp. nov., Tab. nost. IV, fig. 56.
Long: 75 μ, lat: 9 μ, str. 10 in 10 μ.
Valva lineari, leniter undulata, apicibus rotundatis. Raphe area hyalina lata, media in parte valvæ in fasciam latam dilatata, cincta. Fissuris terminalibus semicircularibus. Striis radiantibus, apices versus convergentibus.
Mývatn (E.) Rd.

P. Thoroddseni sp. nov., Tab. nost. IV, fig. 57.
Long: 27 μ, lat: 7 μ, str. 10 in 10 μ.
Valva lineari-lanceolata, apicibus obtusis. Raphe leniter arcuata, area hyalina satis lata, media in parte valvæ in fasciam latam dilatata, cincta. Striis subradiantibus, apices versus leniter convergentibus.
Reykjanes (N.W.) Thor. in a hot spring.

Majores Cl. 1895. Cl. Syn. II, 88.

***Pinnularia Dactylus** (Ehr.) Cl. Cl. Syn. II, 90. V. H. Trt., Tab. II, fig. 68 (Nav. nobilis Dact.).
Aðalvík (N.W.) C. H. O.
Area: Eur., Af., Am.

Pinnularia gigantea sp. nov., Tab. nost. IV, fig. 58.

Long: 260 μ, lat: 36 μ, str. 5,5 in 10 μ.

Valva lineari, apicibus rotundatis. Raphe obliqua, area angustissima cincta. Extremitatibus medianis raphes approximatis, fissuris terminalibus semicircularibus. Striis in medio subradiantibus, deinde parallelis, apices versus leniter convergentibus.

Staðastaður (S.W.) H. Js.

Pinnularia major (Ktz.) Cl. Cl. Syn. II, 89. V. H. Trt., Tab. II, fig. 69 (Nav. maj.).

111 samples (S. 18, S.W. 34, N.W. 4, N. 10, E. 43, s. l. 2). Hot springs: 4.

Area: Ubiquist.

Var. *linearis* Cl. Cl. Syn. l. c. W. Sm. Syn., Tab. XVIII, fig. 162 (Pinn. major).

Staðastaður (S.W.) H. Js.

Area: Eur., Af., Am.

Pinnularia secernenda A. S. Cl. Syn. II, 88. A. S. Atl., Tab. XLIII, fig. 13 (Nav. secern.).

Egilstaðir (E.) B. P.

Area: Am.

Complexæ Cl. 1895. Cl. Syn. II, 90.

Pinnularia æstuarii Cl. Cl. Syn. II, 93. Tab. I, fig. 16.

Grímsey (N.) O. D.

Area: Eur., Am.

Pinnularia distinguenda Cl. Cl. Syn. II, 92. Cl. Finl., Tab. I, fig. 1 (Pinn. vir. disting.).

4 samples (S. 1, S.W. 3].

Area: Ubiquist.

Pinnularia flexuosa Cl. Cl. Syn. II, 93. Tab. I, fig. 23.

4 samples, all E.

Area: Am.

***Pinnularia icostauron** (Grun.) Cl. Cl. Syn. II, 93. Cl. & Grun. A. D., Tab. 1, fig. 14 (Nav. vir. icost.).

4 samples (S. 1, N.W. 2, E. 1).

Area: Eur., Am., Grl.

***Pinnularia nobilis** (Ehr.) Cl. Cl. Syn. II, 92. V. H. Trt., Tab. II, fig. 67 (Nav. nob.).

6 samples (S. 1, S.W. 3, E. 1, s. l. 1).

Area: Eur., As., Am.

Pinnularia streptoraphe Cl. Cl. Syn. II, 93. A. S. Atl., Tab. XLII, fig. 7 (Nav. sp.).

49 samples (S. 3, S.W. 19, N.W. 3, N. 4, E. 20). Hot springs: 3.
Area: Eur., Am., Grl., Fz. J.

Var. *minor* Cl. Cl. Syn. l. c. Cl. Finl., Tab. I, fig. 2 (Pinn. vir. minor).

Reykjavík (S.W.) Grld., Vallanes (E.) H. Js.
Area: Eur., Grl.

***Pinnularia viridis** (Nitsch) Cl. Cl. Syn. II, 91. V. H. Trt., Tab. II, fig. 70 (Nav. vir.).

214 samples (S. 39, S.W. 44, N.W. 12, N. 25, E. 82, s. l. 2). Hot springs: 10.
Area: Ubiquist.

Var. *commutata* Grun. Cl. Syn. l. c. A. S. Atl., Tab. XLV, figs. 35 – 37 (Nav. comm.).

148 samples (S. 21, S.W. 31, N.W. 5, N. 24, E. 66, s. l. 1). Hot springs: 6.
Area: Eur., Am., Aust., Grl.

Var. *fallax* Cl. Cl. Syn. l. c. V. H. Trt., Tab. II, fig. 71 (Nav. vir. comm.).

6 samples (S. 2, S.W. 2, E. 2).
Area: Eur., Am., Aust., Grl., Fz. J.

Var. *intermedia* Cl. Cl. Syn. l. c. A. S. Atl., Tab. XLII, figs. 9 – 10 (Nav. major).

Thingvellir (S.W.) E. W. & Ho., Reykjavík (S.W.) C. H. O., Mývatn (N.) Rd.
Area: Eur., Af., As., Aust., Grl., J. M.

Var. *leptogongyla* Grun. Cl. Syn. l. c. A. S. Atl., Tab. XLV, figs. 26—28 (Nav. leptog.).

Ketilstaðir (S.W.), H. Js., Vallanes (E.) H. Js.
Area: Eur.

Var. *rupestris* Hantsch. Cl. Syn. II, 92. A. S. Atl. l. c., fig. 42 (Nav. rupest.).

12 samples (S. 2, S.W. 5, N.W. 1, N. 1, E. 3). Hot springs: 3.
Area: Eur., Am., Grl., Fz. J.

Amphora Ehr. 1840. Cl. Syn. II, 99.

Subgenus *Amphora* Cl. 1895. Cl. Syn. II, 100.

Amphora cimbrica Øst. Øst. D. D., 110, Tab. III, fig. 72.

Hornarfjörðr (E.) St.
Area: Eur.

*Amphora ovalis Ktz. Cl. Syn. II, 104. V. H. Trt., Tab. 1, fig. 15.
159 samples (S. 38, S.W. 37, N.W. 14, N. 22, E. 44, s. l. 4). Hot springs: 6.
Area: Ubiquist, Grl., B. E., Spb.

Var. *Pediculus* Ktz. Cl. Syn. II, 105. V. H. Trt. l. c., fig. 19.
41 samples (S. 14, S.W. 14 N. 5, E. 8). Hot springs: 3.
Area: Ubiquist, B. E., Fz. J.

Amphora perpusilla Grun. Cl. Syn. II, 105. V. H. Trt., Tab. I, fig. 12.
Vík (S.) H. Js., Grímsey (N.) O. D.
Area: Eur., Af., As.

Subgenus *Halamphora* Cl. 1895. Cl. Syn. II, 117.

*Amphora coffæiformis Ag. Cl. Syn. II, 120. V. H. Trt., Tab. I, fig. 6.
6 samples, all S. Hot spring: 1.
Area: Ubiquist, Grl.

Amphora dubiosa sp. nov., Tab. nost. IV, fig. 59.
Long: 20 μ, lat: 8 μ.
Valva semilanceolata, apicibus valde capitatis. In parte apicali valvæ striæ duæ raphoideæ adsunt. Structuram ullam valvæ perspicere non potui.
Spinstaðir (S.) A. F.
Owing to the amphora-like shape and the two striæ, resembling raphes, of this small form, I have classed it with Amphora. Possibly it is closest related to A. Normani Rabh.

Amphora Normani Rabh. Cl. Syn. II, 119. V. H. Trt., Tab. I, fig. 4.
Syðri Garðar (S.W.) H. Js.
Area: Eur., Af., As., Am., Fz. J.

Amphora protracta Pant. var. *gallica* Hérib. Hérib. Auv. III, 61, Tab. XIII, fig. 1.
8 samples (S. 3, S.W. 1, N. 1, E. 3). Hot springs: 2.
Area: Eur., Am.

Amphora veneta Ktz. Cl. Syn. II, 118. A. S. Atl., Tab. XXVI, figs. 74—80.
4 samples (S. 1, S.W. 1, N. 1, E. 1). Hot spring: 1.

Mastogloia Thwaites 1848. Cl. Syn. II, 142.

Mastogloia elliptica Ag. var. *Dansei* Thw. Cl. Syn. II, 152. V. H. Trt., Tab. II, fig. 64 (M. Dansei).
13 samples (S. W. 2, N.W. 1, N. 4, E. 6). Hot springs: 5.
Area: Eur., Af., Am., Aust.

Mastogloia Grevillei W. Sm. Cl. Syn. II, 146. V. H. Trt., Tab. II, fig. 65.

Hornarfjörðr (E.) St.
Area: Eur., Af., Am.

***Mastogloia Smithi** Thw. var. *lacustris* Grun. Cl. Syn. II, 152. V. H. Trt., Tab. II, fig. 61.

Hrossholt (S.W.) A. F., in a hot spring.
Area: Eur., Spb.

Monoraphideæ

Achnantheæ Cl. 1895. Cl. Syn. II, 163.

Rhoicosphenia Grun. 1860. Cl. Syn. II, 165.

Rhoicosphenia curvata (Ktz.) Grun. Cl. Syn. II, 165. V. H. Trt., Tab. VII, fig. 319.

86 samples (S. 39, S.W. 17, N.W. 2, N. 16, E. 11, s. l. 1). Hot springs: 9.
Area: Ubiquist, Grl., Spb., Fz. J.

Cocconeis (Ehr. 1835) Grun. 1868. Cl. Syn. II, 168.

Subgenus *Cocconeis* Cl. 1895. Cl. Syn. II, 168.

Cocconeis Placentula Ehr. Cl. Syn. II, 169. V. H. Trt., Tab. VIII, fig. 341.

126 samples (S. 44, S.W. 37, N.W. 1, N. 18, E. 25, s. l. 1). Hot springs: 7.
Area: Ubiquist.

Subgenus *Eucocconeis* Cl. 1895. Cl. Syn. II, 173.

Cocconeis flexella Ktz. Cl. Syn. II, 179. V. H. Trt., Tab. VIII, fig. 322 (Achnanthidium flex.).

54 samples (S. 1, S.W. 26, N. 5, E. 21, s. l. 1). Hot springs: 2.
Area: Eur., Af., As., Am.

Var. *intermedia* Øst. Øst. D. Exp. 244, Tab. XIV, fig. 12.

Unaós (E.) H. Js.
Area: Grl.

Cocconeis minuta Cl. Cl. Syn. II, 179. Lgst. Spb., Tab. II, fig. 16 (C. Thwaitesi v. arctica).

4 samples (S. 1, S.W. 3).
Area: Eur., Grl., Spb., Fz. J.).

Var. *alpestris* Br. Cl. Syn. II, 180. Le Diat. II, Tab. V, fig. 15.
Hof (N.), Gautavík (E.) H. Js.
Area: Eur., Grl.

Subgenus *Microneis* Cl. 1895. Cl. Syn. II, 187.

Achnanthes affinis Grun. Cl. Syn. II, 190. V. H. Trt., Tab. VIII, fig 329.

Thingvellir (S.W.) E. W. & Ho.
Area: Eur., Am., Aust.

Achnanthes Biassolettiana Ktz. Cl. Syn. II, 189. V. H. Trt., Tab. VIII, fig. 331.

24 samples (S. 4, S.W. 4, N. 3, E. 12, s. l. 1).
Area: Eur., Am., J. M.

Achnanthes Boyei sp. nov., Tab. nost. IV, fig. 60.

Long: 30 μ, lat: 6 μ, str. 12,5 in 10 μ, subtiliter punctatis.

Valva anguste lanceolata, paululum asymmetrica.

Hypotheca: Raphe area hyalina angusta, media in parte valvæ in fasciam latam dilatata, cincta. Striis per totam valvam radiantibus.

Epitheca: Striis media in parte valvæ uno in latere deficientibus, altero in latere paululum abbreviatis. Ceterum forma hypothecæ simili.

4 samples (N. 3, E. 1), all B. P.

***Achnanthes delicatula** Ktz. Cl. Syn. II, 190. V. H. Trt., Tab. VIII, fig. 330.

Spóastaðir (S.) A. F., Eidistjörn (S.W.) C. H. O.
Area: Eur., Af., As., Grl.

Achnanthes exigua Grun. Cl. Syn. II, 190. V. H. Syn., Tab. XXVII, figs. 29—30.

7 samples (S. 3, S.W. 4). Hot spring: 1.
Area: Ubiquist.

***Achnanthes exilis** Ktz. Cl. Syn. II, 189. V. H. Trt., Tab. VIII, fig. 333.

Reykjavík (S.W.) C. H. O., in a hot spring.
Area: Eur., Af., As.

Achnanthes linearis W. Sm. Cl. Syn. II, 188. V. H. Trt., Tab. VIII, fig. 335.

4 samples (S. 1, N. 2, E. 1).
Area: Eur., As., Am., Grl., Fz. J.

Achnanthes minutissima Ktz. Cl. Syn. II, 188. V. H. Trt., Tab. VIII, fig. 334.

27 samples (S. 4, S.W. 11, N. 3, E. 8, s. l. 1). Hot springs: 3.
Area: Eur., Af., As., Am., Grl., J. M., B. E., Spb.

Under A. minut. I include var. cryptocephala (cnfr. Cl. l. c.), which can hardly be kept apart from the typical species.

Achnanthes tylophora (Reichelt) Cl. Reich. Schöhsee, 199 (Stauron. tyl.), A. S. Atl., Tab. CCXLII, figs. 17—18 (Achn. exigua).

Apavatn (S., two samples) A. F.
Area: Eur.

Subgenus *Achnanthidium* (Ktz. 1844) Heib. 1863. Cl. Syn. II, 191.

Achnanthes Calcar Cl. Cl. Syn. II, 174. Cl. Finl., Tab. III, fig. 8.

6 samples (S. 2, S.W. 1, N. 2, E. 1).
Area: Eur.

Cleve places this species under "Eucocconeis". When I have moved it from there, it is owing to the horseshoe marking, which, it seems to me, approaches it to the group of Achn. lanceolata.

Achnanthes coarctata (Brés.) Cl. Syn. II, 192. V. H. Trt., Tab. VIII, fig. 327.

39 samples (S. 9, S.W. 8, N.W. 1, N. 6, E. 13, s. l. 2). Hot spring: 1.
Area: Eur., Af., As., Am., Grl., J. M., B. E., Spb.

I have given a figure of a square form of A. coarctata on Tab. nost. IV, fig. 61. It resembles somewhat the A. coarct. elineata Lgst., figured in O. M. Pat., Tab. 1, fig. 8, which variant, however, is referred by Cleve, l. c. to the typical species. I found it in a sample from Vík (S.) H. Js.

***Achnanthes lanceolata** Bréb. Cl. Syn. II, 191. V. H. Trt., Tab. VIII, fig. 336.

140 samples (S. 53, S.W. 29, N.W. 10, N. 10, E. 38). Hot springs: 9.
Area: Ubiquist.

Var. *capitata* O. M. O. M. Pat., 8, Tab. I, figs. 6—7.

Krókur (S.) H. Js., Skutustaðir (E. two samples) B. B.
Area: Am.

Var. *dubia* Grun. Cl. Syn. II, 192. V. H. Trt., Tab. VIII, fig. 337.

Apavatn (S.) A. F.
Area: Eur., Am.

Var. *elliptica* Cl. Cl. Syn. l. c. Cl. Finl., Tab. III, figs. 10—11.

Apavatn (S.) A. F., Hornafjörðr (E.) St.
Area: Eur.

Var. *færöensis* Ost. Øst. Fær. Freshw. 277, fig. 44.

58 samples (S. 22, S.W. 7, N.W. 1, N. 1, E. 17, s. l. 3). Hot springs: 2.
Area: Eur., B. E.

Var. *subinflata* var. nov., Tab. nost. IV, fig. 62.

Long: 15 μ, lat: 4 μ, str. 14 in 10 μ.

Valva lineari, in medio paululum inflata, apicibus rotundatis. Striis per totam valvam radiantibus.

Hypotheca: Striis media in parte valvæ deficientibus, ibique fasciam latam relinquentibus.

Epitheca: Uno in latere mediæ partis valvæ spatium hyalinum, soleæ equinæ instar, adest.

Egilstaðir (E.) B. P., Hornafjörðr (E.) St.

This small form is hardly identical with Hustedt's Ach. lanc. ventricosa (cnfr. Hust. Sud. 64, Tab. II, fig. 321; it seems to me, it should rather be placed close to Ach. lanc. færöensis.

Achnanthes Peragalli Brun & Hérib. Cl. Syn. II, 192. Øst. D. D., Tab. IV, fig. 85.

Apavatn (S.) A. F., Úlfjólsvatn (S.) A. F.

Area: Eur.

Achnanthes rhyncocephala A. Cl. A. Cl. Finl., 43, Tab. IV, fig. 85.

Husavík (N.) B. P., Grimsá (E.) B. P.

Area: Eur.

Kalyptoraphideæ

Eschatoraphideæ

Surirella Turpin 1827. V. H. Trt., 368.

Surirella asymmetrica sp. nov., Tab. nost. IV, fig. 63.

Long: 40 μ, lat: 10 μ.

Valva elliptice-lanceolata, margine una recta, altera autem convexa. Area apicali angusta. Canaliculis in margine recta omnino 14, in margine convexa omnino 7.

In a flowing off from Geysir (S.W.) A. F.

***Surirella biseriata** Bréb. V. H. Trt., 369, Tab. XII, fig. 575.

34 samples (S. 6, S.W. 8, N.W. 1, N. 7, E. 12). Hot springs.

Area: Eur., Af., As., Am.

Surirella Engleri O. M. f. angustior. O. M. Nyassa, 28, Tab. 1, fig. 5. A. S. Atl. CCXLV, fig. 14.

Laugavatn (S.) B. P. Möðruvellir (S.W.) B. P.

Area: Af.

Surirella granulata Øst. var. *elliptica* var. nov., Tab. nost. IV, fig. 64.

Long: 72 μ, lat: 20 μ, canalic. 2,7 in 10 μ.

Valva elliptica, irregulariter punctata, area apicali angustissima.

Reykjavík (S.W.) C. H. O.

This form answers in every respect, except by the exterior contour, to Sur. granulata Øst. in Øst. Koss. 91, Tab. II, fig. 17.

Surirella islandica sp. nov., Tab. nost. IV, fig. 65.

Long: 28 μ, lat: 7 μ, canalic. 5 in 10 μ.

Valva lineari-elliptica, canaliculis marginalibus.

Vallanes (E.) B. P.

This small form reminds somewhat of the S. minuta Bréb., figured in Pant. Bal., Tab. XI, fig. 286. As to the claim of this appellation see besides O. M. Pat., pag. 37—38.

Surirella Jónssoni sp. nov., Tab. nost. IV, fig. 66.

Long: 81 μ, lat: 9 μ, canaliculis 5,5 in 10 μ.

Valva lineari, delicatissime transverse lineata, apicibus cuneatis. Linea apicalis vix conspicua adest.

Desjamýri (E.) H. Js.

This form is possibly related to, though hardly identical with Sur. gracilis Grun., V. H. Syn., Tab. LXXIII, fig. 16, which shows a similar transversal striation of very fine rows of puncta.

Surirella linearis W. Sm. V. H. Trt., 369. A. S. Atl., Tab. XXIII, fig. 27.

21 samples (S. 3, S.W. 5, N. 7, E. 6).
Area: Eur., Af., As., Am., Spb.

Var. *constricta* Grun. De Toni Syll., 568. A. S. Atl., Tab. XXIII, fig. 28.

8 samples (S. 1, S.W. 2, N. 2, E. 3).
Area: Eur., Am.

Surirella Mölleriana Grun. Øst. Fær. Freshw. 285, fig. 49. A. S. Atl., Tab. LVI, figs. 21—22.

11 samples (S. 1, S.W. 5, N. 2, E. 3).
Area: Eur., As., Am.

Surirella ovalis Bréb. var. *angusta* Ktz. V. H. Trt. 373, Tab. XIII, fig. 590.

21 samples (S. 3, S.W. 5, N. 3, E. 10).
Area: Eur., Af., As., Am., Grl., Spb., Fz. J.

Var. *minuta* Bréb. V. H. Trt. l. c., Tab. c., fig. 588.

23 samples (S. 1, S.W. 5, N. 3, E. 14). Hot springs: 2.
Area: Eur., Af., As., Am., Grl., B. E.

*Var. *ovata* Ktz. V. H. Trt. l. c., Tab. c., fig. 587.

97 samples (S. 34, S.W. 28, N.W. 2, N. 16, E. 17). Hot springs: 5.
Area: Eur., Af., As., Am., Grl., B. E., Spb., Fz. J.

I have found nearly circular forms of this variant in two samples from Borg (S.W.) B. P., Slutnes (N.) B. P.

Var. *pinnata* W. Sm. V. H. Trt. l. c., Tab. c., fig. 591.

36 samples (S. 9, S.W. 9, N.W. 1, N. 3, E. 14).
Area: Eur., Spb.

Var. *panduriformis* W. Sm. W. Sm. Syn. I, 33. V. H. Syn., Tab. LXXIII, fig. 11.

11 samples (S. 4, S.W. 2, E. 5).
Area: Eur.

Surirella robusta Ehr. V. H. Trt. 371, Tab. XII, fig. 577. A. S. Atl., Tab. XXIII, fig. 3 (Sur. rob. valida).

Laugarvatn (S., two samples) B. P.
Area: Eur.

Var. *splendida* Ktz. V. H. Trt. l. c., Tab. c., fig. 578.

Apavatn (S.) B. P.
Area: Eur., Af., Am.

Surirella turgida W. Sm. V. H. Trt. 372, Tab. XXXI, fig. 867.

Thingvallavatn (S.W.) C. H. O.
Area: Eur.

Stenopterobia Bréb. in litteris. Hust. Sur., 114.

Stenopterobia intermedia Lewis. Hust. Sud., 115. Lew. interm. F., Tab. 1, fig. 2 (Surirella interm.).

Reykjavík (S.W.) H. Js.
Area: Eur., Af., Am., Grl.

Campylodiscus Ehr. 1841. V. H. Trt., 375.

***Campylodiscus hibernicus** Ehr. var. *noricus* Ehr. V. H. Trt. 379, Tab. XIV, fig. 594.

6 samples (S. 1, S.W. 2, N. 2, E. 1).
Area: Eur., B. E.

On tab. nost. IV, fig. 67, I have given a delineation of a fragment of a Campylodiscus, which I have not been able to refer to any species known by me. It was found in a "small waterhole near Geitaberg".

Cymatopleura W. Sm. 1851. V. H. Trt., 366.

***Cymatopleura elliptica** (Bréb.) W. Sm. V. H. Trt. 367, Tab. XII, fig. 480 b.

10 samples (S. 1, S.W. 4, N. 2, E. 3).
Area: Eur., Af., As., Am.

***Cymatopleura Solea** (Bréb.) W. Sm. V. H. Trt. 367, Tab. XII, fig. 482 b.

52 samples (S. 20, S.W. 11, N. 4, E. 17). Hot springs: 2.
Area: Eur., Af., As., Am., B. E.

Tropidoraphideæ

Hantzschia Grun. 1877. V. H. Trt., 380.

*Hantzschia amphioxys (Ehr.) Grun. V. H. Trt. 381, Tab. XV, fig. 483 b.

176 samples (S. 31, S.W. 37, N.W. 2, N. 31, E. 73, s. l. 2). Hot springs: 9.

Area: Eur., Af., As., Am., Grl., J. M., B. E., Spb., Fz. J.

Var. *constricta* Pant. Pant. Bal. S. 83, Tab. IX, fig. 141.

Vallanes (E.) H. Js.

Area: Eur.

*Var. *elongata* Grun. V. H. Trt. 381, Tab. XV, fig. 487 b.

22 samples (S. 2, S.W. 4, N. 2, E. 14). Hot spring: 1.

Area: Eur., Af., Am., Aust.

Hantzschia dubravicensis Grun. Grun. Øst. Ung. 140, Tab. XXIX, fig. 23. Tab. nost. V, fig. 68.

Long: 94 μ, lat: 7 μ, punct. carinal. 5 in 10 μ, str. 16 in 10 μ, subtiliter punctatis.

Margine carinali in medio leniter incurvata, margine altera fere recta.

Lagarfljót (E.) B. P.

Area: Eur.

Grunow l. c. places this species as a Hantzschia, but with a query. This is however undoubtedly correct. When I give a figure of it, it is because the form found by me is substantially larger and on the whole somewhat more elegantly built than Grunow's H. dubrav., but I have no doubt whatever that they are identical.

Hantzschia truncata sp. nov., Tab. nost. V, fig. 69.

Long: 43 μ, lat: 10 μ, punct. carinal. 5,5 in 10 μ, str. 14 in 10 μ, punctatis.

Valva hantzschioidea, apicibus curte truncatis. Punctis carinalibus partim confluentibus.

Hrafnagil (N.) H. Js., in a hot spring.

Hantzschia virgata (Roper) Grun. var. *leptocephala* Øst. Øst. D. D. 144, Tab. IV, fig. 96.

Skeiðarársandur (S.) St.

Area: Eur.

Hantzschia forma abnormis, Tab. nost. V, fig. 70.

Long: 104 μ, lat: 12,8 μ, str. 20 in 10 μ, subtilissime punctatis.

Valva hantzschioidea, apicibus capitatis. Adest area hyalina apicalis angusta, utrisque in lateribus serie punctorum, irregulariter distributorum, inclusa.

Lagarfljót (E.) B. P.

I consider this form abnormal, and have therefore not classified it as an independent species.

Nitzschia (Hassall 1845, W. Smith) Grun. ch. em. 1880. V. H. Trt. 382.

Tryblionella (W. Sm. ex p.) Grun. V. H. Trt. 384.

Nitzschia angustata (W. Sm.) Grun. V. H. Trt. 385, Tab. XV, fig. 498.

11 samples (S. 2, S.W. 4, N. 3, E. 2). Hot spring: 1.

Area: Eur., As., Am.

In a sample from Geysir, Blesö (S.W.) Stp., I have found a Nitzschia angustata, a delineation of which I have given on Tab. nost. V, fig. 71. Its dimensions are: long: 72 μ, lat: 54 μ, str. 14 in 10 μ punctatis. It has more attenuated apices than the typical N. ang.

Nitzschia debilis (Arnott) Grun. V. H. Trt. 385, Tab. XV, fig. 498.

Reykir (S.) Stp.

Area: Eur., Grl., J. M., Spb., Fz. J.

Apiculatæ Grun. 1880. V. H. Trt. 387.

Nitzschia apiculata (Greg.) Grun. V. H. Trt. 387, Tab. XV, fig. 505.

18 samples (S. 2, S.W. 3, E. 12, s. l. 1).

Area: Eur., As., Am., Grl., B. E.

Dubiæ Grun. 1880. V. H. Trt. 388.

Nitzschia commutata Grun. V. H. Trt. 389, Tab. XV, fig. 512.

4 samples (S. 1, S.W. 1, N. 2). Hot spring: 1.

Area: Eur., Af., As.

Nitzschia Jonssoni sp. nov., Tab. nost. V, fig. 72.

Long: 48 μ, lat: 7 μ, punct. carin. 6,5 in 10 μ, str. subtilissimis.

Valva hantzschioidea, apicibus moderate productis. Punctis carinalibus prolongatis, medianis duobus spatiatis.

Seyðisfjord (E.) H. Js.

Nitzschia Nathorsti Brun. Brun J. M. et E. Gr. 9, Tab. II, fig. 5.

7 samples (S. 5, N. 2). Hot spring: 1.

Area: Grl., J. M., Fz. J.

Nitzschia serians Rabh. Cl. & Gr. A. D. 78. V. H. Syn., Tab. LIX, fig. 23.

Thingvellir (S.W.) E. W. & Ho.

Area: Eur., As.

Nitzschia stagnorum Rabh. Cl. & Gr. A. D. 78. V. H. Syn., Tab. LIX, fig. 24.

Berufjörðr (E.) H. Js.

Area: Eur., Af., As.

*Nitzschia thermalis (Ktz.) Grun. V. H. Trt. 389, Tab. XV, fig. 509.
16 samples (S. 8, S.W. 4, E. 4). Hot springs: 3.
Area: Eur., Af., As.

Var. *minor* Hilse. Cl. & Gr. A. D. 78. V. H. Syn., Tab. LIX, fig. 22.
7 samples (S. 1, S.W. 3, N. 1, E. 1, s. l. 1). Hot spring: 1.
Area: Eur., Grl., Fz. J.

Grunowia Rabh. 1864. V. H. Trt. 390.

*Nitzschia Denticula Grun. V. H. Trt. 390, Tab. XV, fig. 514.
28 samples (S. 1, S.W. 3, N.W. 1, N. 8, E. 14, s. l. 1). Hot springs: 4.
Area: Eur., Af., As., Am., Grl., Spb.

*Nitzschia sinuata (W. Sm.) Grun. V. H. Trt. 390, Tab. XV, fig. 516.
26 samples (S. 2, S.W. 5, N.W. 1, N. 4, E. 13, s. l. 1). Hot springs: 4.
Area: Eur., As., Am., Spb.

Dissipatæ Grun. 1880. V. H. Trt. 394.

Nitzschia dissipata (Ktz.) Grun. V. H. Trt. 394, Tab. XVI, fig. 525.
Keldur (S.) A. F., Höfðabrekka (S.) H. Js., Thingvallavatn (S.W.) C. H. O.
Area: Eur., Af., As., Am., B. E., Spb.

Sigmoideæ Grun. 1880. V. H. Trt. 395.

*Nitzschia sigmoidea (Ehr.) W. Sm. V. H. Trt. 395, Tab. XVI, fig. 528.
13 samples (S. 2, S.W. 3, N. 5, E. 3). Hot spring: 1.
Area: Eur., Af., As., Am.

Sigmata Grun. 1880. V. H. Trt. 396.

*Nitzschia Sigma W. Sm. V. H. Trt. 396, Tab. XVI, fig. 531.
Reykjavík (S.W. in two samples) H. Js.
Area: Ubiquist, Grl.

Var. *Clausi* Hantzsch. Grun. Casp. S. 119. V. H. Syn., Tab. LXVI, fig. 10.
11 samples (S. 10, S.W. 3, N. 1). Hot springs.
Eur., Grl., Fz. J.

Lineares Grun. 1880. V. H. Trt. 398.

Nitzschia Kittli Grun. Grun. Oest. Ung. 155, Tab. XXIX, figs. 24—25.
6 samples (S. 3, S.W. 1, N. 1, E. 1).
Area: Eur.

*Nitzschia linearis (Ag.) W. Sm. V. H. Trt. 399, Tab. XVI, fig. 542.
15 samples (S. 9, S.W. 1, N.W. 1, N. 1, E. 3). Hot springs: 2.
Area: Eur., Af., As., Am., Grl.

Nitzschia vitrea Norman var. *recta* Hentzsch. V. H. Trt. 400, Tab. XVI, fig. 547.

Ulfjólsvatn (S.) A. F.
Area: Eur., As., Am., Grl.

Var. *Salinarum* Grun. V. H. Trt. 399, Tab. XVI, fig. 546.

Arnafellskvisl (S.) St., Vestmannaeyjar (S.) St.
Area: Eur.
In Denmark I have found the identical form in fresh-water (cnfr. Ost. D. D. 161).

Nitzschia Oestrupi Pant. Pant. Lac. Peis. 36, Tab. III, fig. 145.

Arnafellskvisl (S.) St., Skaptafellssysla (S.) St.
Pantocsek (l. c.) refers this species to a new section "Constrictæ". I think it might very well be placed under "Lineares", closest to N. Kittli.

Lanceolatæ Grun. 1880. V. H. Trt. 400.

Nitzschia amphibia Grun. V. H. Trt. 403, Tab. XVII, fig. 563.

55 samples (S. 14, S.W. 17, N. 11, E. 12, s. l. 1). Hot springs: 17.
Area: Eur., Af., Am.

Var. *acutiuscula* Grun. Cl. & Gr. A. D. 98. V. H. Syn., Tab. LXVIII, figs. 19—22.

Laugarvatn (S.) A. F.
Area: Eur., Am., Aust.

Var. *Frauenfeldi* Grun. Cl. & Gr. A. D. 98. V. H. Syn., Tab. c., fig. 18.

12 samples (S. 4, S.W. 4, N. 2, E. 2). Hot spring: 1.
Area: Eur., Am., Aust.

Nitzschia Frustulum (Ktz.) Grun. V. H. Trt., 403, Tab. XVII, fig. 564.

6 samples (S. 3, N. 1, E. 2). Hot spring: 1.
Area: Eur., Af., Am., Grl., J. M., Spb., Fz. J.

Nitzschia glaberrima sp. nov., Tab. nost. V, fig. 73.

Long: 64 μ, lat: 3 μ.

Valva lineari, apicibus subcapitatis. Structuram ullam valvæ perspicere non potui. Una in margine valvæ autem puncta minutissima et innumerabilia adsunt.

Reykjavík (S.W.) H. Js.
I consider this form must be placed under "Lanceolatæ" possibly nearest to Nitz. gracilis.

Nitzschia Hantzschiana Rbh. var. *glacialis* Grun. Cl. & Grun. A. D. 99. V. H. Syn., Tab. LXIX, fig. (N. Frust. glac.).

7 samples (S.W. 5, E. 2).
Area: Eur., Grl., Spb., Fz. J.

Nitzschia Heufleriana Grun. Cl. & Grun. A. D. 96. V. H. Syn., Tab. LXVIII, figs. 13—14.

Eyjólfsstaðir, Breiðalsá, Hólmanes (all E.) H. Js.
Area: Eur., B. E., Fz. J.

Nitzschia intermedia Hantzsch. Cl. & Gr. A. D. 95. V. H. Syn., Tab. LXIX, fig. 10.

9 samples (S. 4, S.W. 3, E. 2).
Area: Eur., Am.

***Nitzschia Kützingiana** Hilse. Cl. & Gr. A. D. 96. V. H. Syn., Tab. LXIX, figs. 24—26.

Hornarfjörðr (E.) St.
Area: Eur., Am., B. E.

Nitzschia mucronata sp. nov., Tab. nost. V, fig. 74.

Long: 18 μ, lat: 2 μ.

Valva anguste-lanceolata, apicibus acutis. Punctis carinalibus minutissimis innumerabilibusque. Structuram ullam valvæ perspicere non potui.

Minni Laxá (S.) A. F.

Nitzschia Palea (Ktz.) W. Sm. V. H. Trt. 401, Tab. XVII, fig. 514.

83 samples (S. 26, S.W. 23, N.W. 2, N. 14, E. 16, s.l. 2). Hot springs: 2.
Area: Eur., Af., As., Am., Fz. J.

Var. *fonticola* Grun. V. H. Trt. 402, Tab. c., fig. 557.

6 samples (S. 3, S.W. 2, N. 1). Hot spring: 1.
Area: Eur., As.

Var. *minuta* Bleisch. Cl. & Gr. A. D. 96. V. H. Syn., Tab. LXIX, fig. 23.

Laugarvatn (S.) A. F., Grimstaðir (E.) B. P.
Area: Eur., Grl., J. M., Fz. J.

Var. *tenuirostris* Grun. V. H. Trt. 402, Tab. XVII, fig. 556.

20 samples (S. 8, S.W. 2, N. 2, E. 7, s.l. 1). Hot spring: 1.

Nitzschia subtilis Grun. V. H. Trt. 401, Tab. XVII, fig. 552.

Reykjavík (S.W.) H. Js., Thingvellir (S.W.) E. W. & Ho.
Area: Eur., Af., Am., Grl.

Rhopalodia O. Müller. O. M. Afr. XI, 57.

***Rhopalodia gibba** (Ktz.) O. M. O. M. Rhop. 65. V. H. Trt., Tab. IX, figs. 352 a. b. (Epithemia g.).

216 samples (S. 48, S.W. 48, N.W. 3, N. 40, E. 73, s.l. 4). Hot springs: 11.
Area: Eur., Af., As., Am., Grl.

Rhopalodia gibberula (Ehr.) O. M. var. *Van Heurcki* forma *a* O. M. El. Kab. 292. V. H. Trt., Tab. IX, fig. 361 (Epith. gib. producta).

69 samples (S. 13, S.W. 22, N.W. 3, N. 15, E. 16). Hot springs: 13.
Area: Eur., Af., As., Am.

*Var. *rupestris* (W. Sm.) O. M. O. M. El. Kab. 292. W. Sm. Syn., Tab. I, fig. 12 (Epith. rup.).

50 samples (S. 7, S.W. 17, N.W. 2, N. 9, E. 15). Hot springs.
Area: Eur., Af., Am.

Rhopalodia gracilis O. M. O. M. Rhop. 63, Tab. II, fig. 6.

6 samples (S,W. 1, N. 3, E. 2).
Area: Af.

Rhopalodia parallela O. M. O. M. Rhop. 64. V. H. Trt., Tab. IX, fig. 353 (Epith. gib. parall.).

43 samples (S. 4, S.W. 12, N.W. 1, N. 7, E. 19). Hot springs: 5.
Area: Eur., Af., As., Am.

Rhopalodia uncinata O. M. O. M. Rhop. 63, Tab. II, figs. 3 – 4.

Thingvallavatn (S.W.) C. H. O.
Area: Af.

Rhopalodia ventricosa O. M. O. M. Rhop. 64. V. H. Trt., Tab. IX, fig. 354 (Epith. vent.).

196 samples (S. 61, S.W. 38, N.W. 1, N. 32, E. 63, s. l. 1). Hot springs.
Area: Eur., Af., As., Am., Grl.

Gonyraphideæ

Epithemia Bréb. 1838. V. H. Trt. 394.

***Epithemia Argus** Ktz. V. H. Trt. 296, Tab. IX, fig. 355.

32 samples (S. 7, S.W. 12, N. 3, E. 8, s. l. 2). Hot springs: 4.
Area: Eur., Af., As., Am.

Epithemia Hyndmanni W. Sm. V. H. Trt. 295, Tab. IX, fig. 350.

8 samples (S. 2, N. 3, E. 3).
Area: Eur.

Epithemia Sorex Ktz. V. H. Trt. 295, Tab. IX, fig. 355.

40 samples (S. 15, S.W. 6, N. 10, E. 9).
Area: Eur., Af., As., Grl.

Var. *amphicephala* Øst. Øst. Østg. Ferskv. 271, Tab. 1, fig. 9.

13 samples (S. 2, N. 2, E. 8, s. l. 1). Hot spring: 1.
Area: Grl.

***Epithemia turgida** (Ehr.) Ktz. V. H. Trt. 294, Tab. IX, fig. 346 & 348 (E. t. granulata).

139 samples (S. 35, S.W. 33, N.W. 2, N. 32, E. 33, s. l. 4). Hot springs: 3.

Area: Eur., Af., As., Am., Grl.

Under Ep. turgida I include var. granulata, which can scarcely be kept apart from the typical species.

Var. *capitata* Fricke. A. S. Atl., Tab. CCL, fig. 7.

Hallormstaðir (E.) B. P.

Area: Eur.

Differs only from the type by having capitate apices.

Forma anomala cnfr. Ost. D. D. 169, Tab V, fig. 110.

Varmá (S.) B. P., Skutustaðir (N.) B. P., Lagarfljót (E.) B. P.

This peculiar form which I, l. c., referring to Heiberg's Ep. globifera (cnfr. Heib. consp. 103, Tab. VI, fig. 22) placed as an abnormity of E. turgida, might be the sporangial form of this species. It has been found in 3 samples all containing plenty of E. turgida.

***Epithemia Zebra** (Ehr.) Ktz. V. H. Trt. 296, Tab. IX, fig. 357.

264 samples (S. 62, S.W. 63, N.W. 6, N. 41, E. 88, s. l. 4), Hot springs: 15.

Area: Eur., Af., As., Am.

Var. *longicornis* M. Per. & Hérib. Hérib. Auv. 128, Tab. III, fig. 14.

Laxá (S.) A. F., Vallanes (E.) H. Js., Hallormstaðir (E.) B. P.

Area: Eur.

Var. *longissima* M. Per. & Hérib. Hérib. l. c. 128, Tab. c., fig. 13.

8 samples (S.W. 5, E. 3). Hot spring: 1.

Area: Eur.

Var. *proboscidea* Grun. V. H. Trt. 297, Tab. IX, fig. 358.

23 samples (S. 7, S.W. 2, N. 3, E. 11). Hot springs: 4.

Area: Eur.

Brachyraphideæ

Eunotia (Ehr.) 1837. Char. emend. H. Van Heurch. V. H. Trt. 298.

***Eunotia Arcus** Ehr. V. H. Trt. 299, Tab. IX, fig. 362.

13 samples (S. 1, S.W. 4, N. 4, E. 4).

Area: Eur., Af., As., Am., Grl., Spb.

Var. *bidens* Grun. V. H. Trt. l. c., Tab. c., fig. 365.

4 samples (S. 1, S.W. 2, E. 1).

Area: Eur., Grl.

Var. *minor* Grun. V. H. Trt. l. c., Tab. c., fig. 363.

5 samples (S.W. 2, E. 3).

Area: Eur., Grl.

Var. *tenella* Grun. Schönf. Germ. 116. V. H. Syn., Tab. XXXIV, figs. 5—6.

Thingvellir (S.W.) E. W. & Ho., Reykjavík (S.W.) H. Js.

Var. *uncinata* Grun. V. H. Trt. 299, Tab. IX, fig. 364.

Alftatjörn (E.) B. P.

Area: Eur.

Eunotia bidentula W. Sm. V. H. Trt. 302, Tab. XXX, fig. 828.

Mosfellsheiði (S.W.) C. H. O., Seyðisfjord (E.) B. P.

Area: Eur.

Eunotia diodon Ehr. V. H. Trt. 303, Tab. XXX, figs. 829—830.

8 samples (S.W. 3, N.W. 1, N. 1, E. 3).

Area: Eur., Af., As., Am., Grl., Spb.

Var. *diminuta* Grun. A. Cl. Lul. Lappm. 28. V. H. Syn., Tab. XXXIII, fig. 7.

West Iceland St., Seyðisfjord (E.) B. P.

Eunotia elegans Øst. Øst. D. D. 172, Tab. V, fig. 105.

Staðastaður (S.W.) H. Js.

Area: Eur.

Eunotia exigua Bréb. V. H. Trt. 300, Tab. IX, fig. 369.

West Iceland St.

Area: Eur., Am.

Eunotia Faba (Ehr.) Grun. var. *densestriata* Øst. Øst. D. D. 173, Tab. V, fig. 107.

Reykjavík (S.W.) C. H. O., Grimstaðir (N.) B. P., Vallanes (E.) H. Js. Hot spring: 1.

Area: Eur., Grl.

Eunotia flexuosa Ktz. V. H. Trt. 304, Tab. IX, fig. 387.

Ulfsbær (N.) B. P.

Area: Eur.

***Eunotia gracilis** (Ehr.) Rbh. V. H. Trt. 300, Tab. IX, fig. 368.

48 samples (S.W. 25, N. 7, E. 16). Hot spring: 1.

Area: Eur., Afr., Am., Grl., J. M., B. E., Spb., Fz. J.

Eunotia impressa Ehr. var. *angusta* Grun. A. Cl. Lul. Lappm. 31. V. H. Syn., Tab. XXXV, fig. 1.

30 samples (S.W. 14, N.W. 3, N. 3, E. 10). Hot springs: 2.

Area: Eur.

Eunotia islandica sp. nov. Tab. nost. V, fig. 75.

Long: 68 μ, lat: 10 μ, str. 16 in 10 μ, subtiliter punctatis.

Valva arcuata, margine dorsali bigibba. Apicibus recurvatis.

Seyðisfjord (E.) B. P.

Not having been able to refer this form to any known species of Eunotia, I have thought it proper describing it as a new species.

Eunotia lunaris (Ehr.)Grun. V. H. Trt. 303, Tab. IX, fig. 384.

94 samples (S. 4, S.W. 36, N.W. 3, N. 9, E. 41, s. l. 1). Hot springs: 2.

Area: Eur, As., Am.

Var.? *alpina* Grun. De Ton. Syll. 808 (Pseudeun. alp.). V. H. Syn., Tab. XXXV, fig. 5.

4 samples, all S.W.

Var. *bilunaris* (Ehr.) Grun. V. H. Trt. 304, Tab. IX, fig. 386.

Hallormstaðr (E.) B. P.
Area: Eur.

Var. *subarcuata* (Naeg.) Grun. V. H. Trt. l. c., Tab. c., fig. 385.

Minni Laxá (S.) A. F., West Iceland St.

Eunotia major (W. Sm.) Rabh. V. H. Trt. 300, Tab. IX, fig. 366.

4 samples (S.W. 3, E. 1). Hot spring: 1.
Area: Eur., Grl.

Var. *bidens* (Greg.) W. Sm. V. H. Trt. l. c., Tab. c., fig. 367.

Vallanes (E.) H. Js.
Area: Eur.

Eunotia Monodon Ehr. A. Cl. Lul. Lappm. 28. V. H. Syn., Tab. XXXIII, fig. 3.

Eiðar (E.) H. J.
Area: Eur., Grl.

Eunotia Nymanniana Grun. A. Cl. Lul. Lappm. 33. V. H. Syn., Tab. XXXIV, fig. 8.

4 samples (S.W. 2, E. 2).
Area: Eur., Am., Grl.

Eunotia paludosa Grun. De Ton. Syll. 798. V. H. Syn., Tab. XXXIV, fig. 9.

Husavík (N.) B. P., Skutustaðir (E.) B. P.
Area: Eur.

***Eunotia parallela** Ehr. A. Cl. Lul. Lappm. 28. V. H. Syn., Tab. XXXIV, fig. 16.

Ketilstaðir (SW.) H. Js., Omundarfjord (N.W.) B. P., Hof (N.) O. D.
Area: Eur., As., Am., Grl., Spb., Fz. J.

***Eunotia pectinalis** (Ktz.) Rbh. V. H. Trt. 300, Tab. IX, figs. 370—371.

9 samples (S.W. 5, N.W. 1, E. 3).
Area: Eur., Af., As., Am., Grl.

*Var. *minor* (Klz.) Rbh. A. Cl. Lul. Lappm. 31. V. H. Syn., Tab. XXXIII, figs. 20—21.

42 samples (S. 20, N.W. 2, N. 8, E. 12). Hot spring: 1.
Area: Eur., Af., As., Am., Grl., Fz. J.

Var. *stricta* Rbh. A. C. I. c. 31. V. H. Syn., Tab. c., fig. 18.

6 samples (S. 1, S.W. 1, E. 4).
Area: Eur.

Eunotia polyglyphis Grun. A. C. Lul. Lappm. 30. V. H. Syn., Tab. XXXIV, fig. 33.

4 samples (S. 1, S.W. 1, N.W. 1, E. 1). Hot spring.
Area: Eur.

Eunotia prærupta Ehr. V. H. Trt. 302., Tab. IX, fig. 376.

41 samples (S. 3, S.W. 10, N.W. 2, N. 17, E. 9). Hot springs: 3.
Area: Eur., Grl.

Var. *bidens* V. H. Trt. 302, Tab. IX, fig. 379.

16 samples (S. 6, S.W. 2, N. 1, E. 7).
Area: Eur., Grl., J. M., Fz. J.

Var. *bigibba* Ktz. V. H. Trt. l. c., Tab. c., fig. 380. V. H. Syn., Tab. XXXIV, fig. 27 (E. big. pumila).

6 samples (S. 1, S.W. 1, N. 2, E. 2).
Area: Eur., Grl., Fz. J.

Var. *curta* Grun. V. H. Trt. l. c., Tab. c., fig. 377.

82 samples (S. 7, S.W. 41, N.W. 1, N. 7, E. 26). Hot springs: 5.
Area: Eur., Am., Grl., Fz. J.

Var. *laticeps* Grun. A. Cl. Lul. Lappm. 34. V. H. Syn., Tab. XXXIV, fig. 25 (E. pr. lat. curta).

Reykjanes (N.) K. Rsv., Eiðar (E.) H. Js.
Area: Eur., Grl., J. M., Fz. J.

Eunotia robusta Ralfs var. *Diadema* Ralfs V. H. Trt. 303, Tab. IX, fig. 381, 1st fig.

17 samples (S.W. 5, N. 2, E. 10). Hot spring: 1.
Area: Eur., Am., Grl., Spb.

Eunotia tridentula Ehr. var. *perminuta* Grun. A. Cl. Lul. Lappm. 28. V. H. Syn., Tab. XXXIV, fig. 30.

Rauðimalur (S.W.) A. F., West Iceland St., Eyjólfsstaðir (E.) H. Js.
Area: Eur., Grl.

Eunotia Triodon Ehr. V. H. Trt. 303, Tab. IX, fig. 383.

9 samples (S. 1, SW. 5, N. 1, E. 2). Hot spring: 1.
Area: Eur., Am., Grl., Spb.

***Eunotia Veneris** Ktz. V. H. Trt. 301, Tab. XXX, fig. 826.

Vík (S.) H. Js.
Area: Eur.

Var. *obtusiuscula* Grun. V. H. Trt. l. c., Tab. c,, fig. 387.

Ketilsstaðir (S.W.), H. Js.
Area: Eur.

Arraphideæ

Ceratoneis Ehr. 1840. V. H. Trt. 305.

*Ceratoneis Arcus Ktz. V. H. Trt. 306, Tab. X, fig. 401.

126 samples (S. 37, S.W. 28, N.W. 5, N. 15, E. 40, s. l. 1). Hot springs: 8.
Area: Eur., Am., Grl., J. M., B. E., Spb., Fz. J.

Synedra Ehr. 1831. V. H. Trt. 307.

*Synedra Acus (Ktz.) Grun. V. H. Trt. 311, Tab. X, fig. 420.

Apavatn (S.) A. F., Staðastaður (S.) A. F., Laugaá (S.W.) A. F.
In a sample from Arnarstapi (S.W.) H. Js. I have found a form analogous to Syn. Acus var. amphicephala H. L. Sm. V. H. Syn., Tab. XXXIX, fig. 8 (S. delicatiss. amphic.).

*Var. *delicatissima* W. Sm. V. H. Trt. 312, Tab. X, fig. 421.

33 samples (S. 3, S.W. 5, N. 12, E. 13).
Area: Eur., As., Am.

Var. *mesoleja* Grun. V. H. Syn., Tab. XXXIX, fig. 6 (Syn. delic. mesol.).

8 samples (S. 5, S.W. 2, N. 1). Hot spring: 1.
Area: Eur.

Synedra amphicephala Ktz. V. H. Trt. 313, Tab. X, fig. 429.

Fróðarheiði (S.W.) H. Js.
Area: Eur., Am.

Var. *austriaca* Grun. De Ton. Syll. 660. V. H. Syn. XXXIX, figs. 16 a & b.

Eystri Rangá (S.), Fróðarheiði (S.W.) H. Js., Kolbeinsá (N.W.) H. Js.
Area: Eur.

Synedra capitata Ehr. V. H. Trt. 313, Tab. X, fig. 427.

17 samples (S. 2, S.W. 3, N. 4, E. 8). Hot spring: 1.
Area: Eur., As.

Synedra famelica Ktz. var. *minuscula* Grun. De Ton. Syll. 660. V. H. Syn., Tab. XXXIX, fig. 13.

5 samples (S. 2, S.W. 2, E. 1).
Area: Eur.

Synedra familiaris Ktz. forma major. De Ton. Syll. 667. V. H. Syn., Tab. XL, fig. 16.

Ketilstaðir (S.W.) H. Js., Skutustaðir (N.) B. P.
Area: Eur.

Synedra pulchella Ktz. V. H. Trt. 309, Tab. X, fig. 402.

22 samples (S. 1, S.W. 15, N. 4, E. 2). Hot spring: 1.
Area: Eur., Af., As., Am., Grl.

Var. *naviculacea* Grun. De Ton. Syll. 652. V. H. Syn., Tab. XLI, fig. 8.

Grimsey (N.) O. D.
Area: Eur.

Synedra radians (Ktz.) Grun. V. H. Trt. 312, Tab. X, fig. 423.

7 samples (S. 3, S.W. 4, E. 1).
Area: Eur., As., Grl.

Synedra rostrata Pant. Pant. Bal. S. 76, Tab. VIII, fig. 4.

12 samples (S. 2, S.W. 4, N. 7). Hot spring: 1.
Area: Eur.

Hustedt claims in Sud. p. 46, that Syn. rostrata is to be considered a sporangial form "aus dem Gebiet der Synedra Ulna".

Synedra rumpens Ktz. var.? *fragilaroides* Grun. cnfr. De Ton. 680. V. Syn., Tab. XL, fig. 12.

38 samples (S. 14, S.W. 14, N.W. 1, N. 4, E. 4, s. l. 1). Hot springs: 3.
Area: Eur., Am.

Var. *islandica* var. nov., Tab. nost. V, fig. 76.

Long: 36 μ, lat: 3,2 μ, str. 20 in 10 μ.

Valva lineari, apices versus leniter attenuata. Striis media in parte valvæ aream nudam relinquentibus.

Hallormstaðr (E.) B. P.

I have placed this small Synedra as a variant of S. rumpens, possibly to be placed nearest to S. rump. genuina (V. H. Syn., Tab. XL, fig. 14), owing to its close striation; for the same reason perhaps related to S. (Vaucheriæ var.?) capitellata Grun. (V. H. Syn., Tab. XL, fig. 26).

***Synedra Ulna** (Nitzsch) Ehr. V. H. Trt. 310, Tab. X, fig. 409.

207 samples (S. 50, S.W. 50, N.W. 6, N. 32, E. 69). Hot springs: 11
Area: Eur., Af., As., Am., Grl.

Var. *amphirhynchus* Ehr. V. H. Trt. 311, Tab. X, fig. 414.

Minni Laxá (S.) A. F.
Area: Eur.

Var. *Danica* Ktz. V. H. Trt. l. c., Tab. c., fig. 415.

148 samples (S. 33, S.W. 30, N. 18, E. 67). Hot springs: 7.
Area: Eur., Af., Grl., B. E.

In 60 samples (S. 12, S.W. 16, N.W. 1, N. 2, E. 25, s. l. 4) and in 2 hot springs I have noted S. Ulna, which however could not be determined accurately, they being only present as fragments or lying on the connecting zone.

Var. *longissima* W. Sm. V. H. Trt. 310, Tab. c., fig. 412.

Laugaá (S.) A. F., Krókur (S.) H. Js., Hornarfjörðr (E.) St.
Area: Eur., Af.

Forma *arcuata* Tab. nost. V, fig. 77 (× 333).

Long. chordæ arcus 302,4 μ, lat: sagittæ arcus 64,5 μ, str. 11 in 10 μ.

Valva arcuata, in medio leniter inflata.

I think this form can only be considered as a curved form of S. Ulna longissima.

Asterionella Hassall 1850. V. H. Trt. 320.

*Asterionella formosa Hass. var. *gracillima* (Hantzsch) Grun. V. H. Trt. 321, Tab. XI, fig. 440.

8 samples, all S.W.

Area: Ubiquist, Grl.

Fragilaria Lyngbye 1819. V. H. Trt. 323.

Fragilaria Baculus sp. nov., Tab. nost. V, fig. 78.

Long: 24 μ, lat: 3,2 μ, str. 12,5 in 10 μ.

Valva lineari, apicibus rotundatis. Area apicali angustissima. Striis parallelis.

Egilstaðir (E.) B. P.

*Fragilaria capucina Desmz. V. H. Trt. 325, Tab. XI, fig. 446.

Skeiðarársandur (S.) St., Krókur (S.) H. Js.

Area: Eur., Af., As., Am., Grl., Spb., Fz. J.

Var. *acuminata* Grun. V. H. Trt. l. c., Tab. c., fig. 449.

Steinsmyri (S.) H. Js.

Area: Eur., As., Am.

Var. *acuta* Grun. V. H. Trt. l. c., Tab. c., fig. 448.

9 samples (S. 7, S.W. 2).

Var. *lanceolata* Grun. Hust. Sud. 38. V. H. Syn, Tab. XLV, fig. 5.

Thjórsá (S.) A. F.

Area: Eur., Am.

*Var. *mesolepta* Rbh. V. H. Trt. 325, Tab. XI, fig. 447.

Skeiðarársandur (S.) St.

Area: Eur.

*Fragilaria construens (Ehr.) Grun. V. H. Trt. 325, Tab. XI, fig. 450.

52 samples (S. 16, S.W. 19, N. 7, E. 10). Hot spring: 1.

Area: Eur., Af., As., Am., Grl., B. E.

Var. *binodis*. V. H. Trt. 326, Tab. c., fig. 452.

14 samples (S. 6, S.W. 5, N.W. 1, E. 2).

Area: Eur., Af., Am.

Var. *pumila* Grun. V. H. Syn., Tab. XLV, fig. 21 a.

Kirkjubær (S.) H. Js.
Area: Eur., As.

Var. *semibinodis* Øst. Øst. D. D. 190, Tab. V. fig. 115.

Laxá (S.) A. F.
Area: Eur.

Var. *Venter* Grun. V. H. Trt. 325, Tab. XI, fig. 451.

53 samples (S. 11, S.W. 14, N. 11, E. 17).
Area: Eur., Af., Am., Grl.

***Fragilaria crotonensis** (A. M. Edwards) Kitton. V. H. Trt. 324, Tab. XI, fig. 444.

10 samples (S.W. 1, N. 1, E. 8).
Area: Eur.

Fragilaria intermedia Grun. V. H. Trt. 326 (F. tenuicollis Heib. interm.). V. H. Syn., Tab. XLV, figs. 9—11.

85 samples (S. 42, S.W. 25, N. 5, E. 10, s. l. 3). Hot springs: 2.
Area: Eur., As., Grl.

Fragilaria lapponica Grun. A. C. Lul. Lappm. V. H. Syn., Tab. XLV, fig. 35.

Ulfjólsvatn (S.) A. F., Apavatn (S.) A. F.
Area: Eur., Grl.

Fragilaria mutabilis (W. Sm.) Grun. V. H. Trt. 326, Tab. XI, fig. 454.

39 samples (S. 11, S.W. 4, N. 6, E. 17, s. l. 1). Hot spring: 1.
Area: Eur., Af., As., Am., Grl.

Var. *elliptica* Schum. f. minor. Meist. S. 66 (Fr. ellipt). V. H. Syn., Tab. XLV, figs. 16—17.

16 samples (S. 6, S.W. 6, E. 4).
Area: Eur., As., Am.

Var. *inflata* var. nov., Tab. nost. V, fig. 79.

Long: 36 μ, lat: 6,4 μ, str. 8,5 in 10 μ.

Valva lineari, in medio inflata, apicibus rotundatis. Striis parallelis, aream apicalem satis latam relinquentibus.

Hallormstaðr (E.) B. P.

*Var. *intercedens* Grun. V. H. Syn., Tab. XLV, fig. 13.

9 samples (S. 5, S,W. 1, N.W. 1, E. 2). Hot spring: 1.
Area: Eur., As.

Var. *minutissima* Grun. V. H. Syn., Tab. c., fig. 14.

Skeiðarársandur (S.) St., Mývatn (N.) Rd.
Area: Eur., Am.

Fragilaria parasitica W. Sm. W. Sm. Syn. II, 19, Tab. LX, fig. 375.

8 samples (S. 3, S.W. 3, N. 1, E. 1).
Area: Eur., Af., As.

Fragilaria producta Lgst. Lgst. Spb. 15, Tab. I, fig. 1 (F. æqualis prod.).

41 samples (S. 6, S.W. 12, N.W. 2, N. 8, E. 13).
Area: B. E., Spb.

Fragilaria rhombica sp. nov., Tab. nost. V, fig. 80.

Long: 16 μ, lat: 7 μ, str. 10 in 10 μ.

Valva rhomboidea, apices subcapitatos versus valde attenuata. Striis mediam partem valvæ versus obliterantibus ibique areolam centralem relinqventibus.

Grímsey (N.) O. D.

I think this small Fragilaria is probably to be considered as an intermediate form between F. constr. venter and F. Harrisoni.

Fragilaria Smithiana Grun. V. H. Syn., Tab. XLV, fig. 1.

Ulfjólsvatn (S.) A. F.
Area: Eur.

Fragilaria triundulata sp. nov., Tab. nost. V, fig. 81.

Long: 26 μ, lat: 6,7 μ, str. 16,6 in 10 μ.

Valva leniter triundulata, apicibus capitalis. Striis marginalibus, aream apicalem latam relinquentibus.

Apavatn (S.) B. P.

This form has nothing to do with Fr. construens var. triundulata Reichelt (cnfr. Øst. Diat. Afl. 57, Tab. II, fig. 15). Possibly it is more closely related to Frag. trigibba Pant. (Pant. Bal. S. 79, Tab. IX, fig. 224), but it is scarcely identical with it.

Fragilaria undata W. Sm. V. H. Trt. 324. A. S. Atl., Tab. CCXC, figs. 48—61.

5 samples (S.W. 2, N. 1, E. 2).
Area: Eur., Grl.

In tab. nostr., fig. 82, I have given a figure of a particularly elegantly built form of Frag. undata. It was found in a sample from West Iceland, St.

***Fragilaria virescens** Ralfs. V. H. Trt. 323, Tab. XI, fig. 442.

30 samples (S. 5, S.W. 15, N.W. 1, N. 5, E. 3, s. l. 1).
Area: Eur., Af., As., Am., Grl.

Var.? *exigua* Grun. V. H. Syn., Tab. XLIV, figs. 2—3.

6 samples (S. 2, N. 2, E. 1, s. l. 1). Hot spring: 1.
Area: Eur.

Meridion Agardh 1847. V. H. Trt. 347.

***Meridion circulare** Ag. V. H. Trt. 347, Tab. XI, fig. 474.

347 samples (S. 60, S.W. 71, N.W. 15, N. 40, E. 157, s. l. 4). Hot springs: 12.
Area: Eur., Af., As., Am., Grl.

Forma anormalis, cnfr. A. S. Atl., Tab. CCLXVII, figs. 37—40, which figures F. Fricke thinks can be understood thus: fig. 37, "vielleicht Auxospore"; figs. 38—39, "vielleicht teratologische Auxosporen"; fig. 40, "vielleicht die Zelle zweiter oder folgender Generation".

10 samples (S. 1, S.W. 3, E. 6). In these samples varying in different ways.

Diatoma de Candolle 1805. V. H. Trt. 348.

***Diatoma hiemale** (Lyngbye) Heib. V. H. Trt. 350. A. S. Atl., Tab. CCLXVII, figs. 16—33 (Diat. hiem. mesodon).

258 samples (S. 57, S.W. 64, N.W. 11, N. 33, E. 91, s. l. 2). Hot springs: 10.

Area: Eur., As., Am., Grl.

The reason, why I place this form as a Diat. hiemale, and in addition cite figures of D. hiemale, is, that I consider Heiberg (Consp. D. 58) is right when he says "it is perfectly clear that it (o: var. mesodon) is only a short form of Diatoma hiemale", and that "specimens of both forms are by Lyngbye determined as Fragilaria (now Diatoma) hiemale". It is especially the short form met with in Icelandic material.

Diatoma elongatum Ag. V. H. Trt. 349, Tab. XI, fig. 467.

Ulfjólsvatn (S.) A. F., Reykjavík (S.W.) H. Js., Hallormstaðr (E.) B. P.

Area: Eur., Af., As., Am., Grl.

Var. *minus* Grun. A. S. Atl., Tab. CCLXVIII, figs. 60—61.

Krossá (S.) H. Js., Stykkishólmur (S.W) H. Js.

Area: Eur., Am.

Var. *tenue* Ag. V. H. Trait. 349, Tab. XI, fig. 468.

35 samples (S. 10, S.W. 15, N.W. 1, N. 2, E. 6, s. l. 1). Hot spring: 1.

Area: Eur., Am., Spb., Fz. J.

***Diatoma vulgare** Bory. V. H. Trt. 348, Tab. XI, fig. 465.

43 samples (S. 12, S.W. 12, N.W. 2, N. 7, E. 10).

Area: Eur., Af., As., Am., Grl., Fz. J.

Denticula Ktz. 1844. V. H. Trt. 351.

***Denticula elegans** Ktz. V. H. Trt. 351, Tab. XXXI, fig. 860.

10 samples (S. 1, S.W. 3, N. 5, E. 1). Hot spring: 1

Area: Eur., Am.

Denticula islandica sp. nov., Tab. nost. V, fig. 83.

Long: 40 μ, lat: 4 μ, costis 6,25 in 10 μ.

Valva lineari, apicibus subacutis. Costis seriebus punctorum subtilissimorum interpositis.

Vallanes (E.) B. P.

Possibly this form is nearest related to Dent. subtilis Grun. (V. H. Syn., Tab. XLIX, figs. 10—13), although it differs from this, especially in

size, or it is perhaps related to Dent. lauta Bail. (V. H. Syn., Tab. XLIX, figs. 1—2), but it is hardly identical with either of these.

Denticula subtilis Grun. V. H. Trt. 352, Tab. XI, fig. 464.
5 samples (S.W. 2, E. 3).
Area: Eur., Af., As., Am.

Denticula tenuis Klz. V. H. Trt. 352, Tab. XI, fig. 461.
5 samples (S.W. 3, E. 2).
Area: Eur., Af., As., Am.

Diatomella Greville 1855. V. H. Trt. 353.

***Diatomella Balfouriana** Grev. V. H. Trt. 353, fig. 104.
168 samples (S. 20, S.W. 55, N.W. 5, N. 34, E. 54). Hot springs: 7.
Area: Eur., Am., Grl., B. E., Spb., Fz. J.

Tabellaria Ehr. 1839. V. H. Trt. 356.

***Tabellaria fenestrata** (Lyngb.) Ktz. V. H. Trt. 356, Tab. XI, fig. 477.
108 samples (S. 17, S.W. 39, N.W. 2, N. 7, E. 43). Hot springs: 2.
Area: Eur., Af., As., Am., Grl.

***Tabellaria flocculosa** (Roth) Ktz. V. H. Trt. 357, Tab. XI, fig. 478.
192 samples (S. 36, S.W. 60, N.W. 6, N. 28, E. 60, s. l. 2). Hot springs: 10.
Area: Eur., Af., As., Am., Grl., J. M., B. E., Spb., Fz. J.

Tetracyclus (Ralfs) Grun. 1862. V. H. Trt. 357.

Tetracyclus emarginatus W. Sm. W. Sm. Syn. II, 38. Hérib. Auv., Tab. III, fig. 27.
30 samples (S. 4, S.W. 14, N. 5, E. 7).
Area: Eur.

CENTRICÆ

Rhizosolenia (Ehr., Brightw.) H. Perag. emend. 1892.

*Rhizosolenia eriense H. L. Smith. Ostenf. Thingv. 1123, Tab. II, figs. 1—3.

Thingvallavatn (S.W.) C. H. O.
Area: Eur., Am.
Found by C. H. Ostenfeld, not by myself.

*Rhizosolenia paludosa O. Zacharias. Ostenf. Thingv. 1124, Tab. II, figs. 4—5.

Thingvallavatn (S.W.) C. H. O.
Area: Eur.
Found by C. H. Ostenfeld, not by myself.

Melosira Ag. 1824. V. H. Trt. 438.

Melosira ambigua O. M. O. M. Nyas. 283, Tab. IV, figs. 9—10.

Minni Laxá (S.) A. F., Seyðisfjarðarheiði (E.) H. Js., Eyjólfstaðir (E.) H. Js.
Area: Eur., Af., As.

*Melosira arenaria Moore. V. H. Trt. 443, Tab. XIX, fig. 621.

Thingvallavatn (S W.) C. H. O.
Area: Eur., As.
Found by O. H. Ostenfeld (cnfr. Ostf. Thingv. 1115), not by myself.

*Melosira crenulata Ehr. O. M. Nyas. 263. V. H. Trt., Tab. XIX, fig. 618.

27 samples (S. 9, S.W. 2, N. 5, E. 11).
Area: Eur., Af., As., Am.

*Melosira distans (Ehr.) Ralfs var. *alpigena* Grun. O. M. Nyas. 271. V. H. Syn. LXXXVI, figs. 28—29.

55 samples (S. 4, SW. 13, N.W. 5, N. 4, E. 29).
Area: Eur.

Var. *nivalis* (W. Sm.) Grun. O. M. Nyas. 272. V. H. Syn., Tab. c., figs. 25—27.

21 samples (S.W. 6, N.W. 2, N. 7, E. 6). Hot spring: 1.
Area: Eur., Grl.

*Melosira granulata (Ehr.) Ralfs. O. M. Nyas. 267. O. M. Mut., Tab. XVII, figs. 9—10.

7 samples (S. 1, S.W. 4, N. 1, E. 1).
Area: Eur., Af., As., Am., Grl., Fz. J.

*Melosira islandica O. M. O. M. Pleom. 56, Tab. I, figs. 1—3.
11 samples (S.W. 9, E. 2).
Area: Iceland.

*Melosira italica Ktz. var. *tenuis* (Ktz.) O. M. O. M. Nyas. 265. V. H. Syn., Tab. LXXXVIII, figs. 9 a, 10, 13, 14 (13—14 M. crenulata ambigua).
123 samples (S. 22, S.W. 22, N.W. 1, N. 22, E. 56). Hot springs: 2.
Area: Eur., Af., Am., Grl.

*Var. *tenuissima* (Grun.) O. M. O. M. Nyas. 265. V. H. Syn., Tab. c., fig. 11 & 16 (16 M. Binderiana).
20 samples (S. 3, S.W. 11, N. 3, E. 3).
Area: Eur., Af.

Melosira lævis (Ehr.) Grun. O. M. Nyas. 265. A. S. Atl., Tab. CLXXXI, fig. 84.
6 samples (S. 1, S.W. 2, E. 3).
Area: Eur., B. E.

*Melosira Roeseana Rabh. V. H. Trt. 442, Tab. XIX, fig. 614.
11 samples (S. 3, S.W. 1, N. 2, E. 5).
Area: Eur., Fær., Grl., J. M., Spb.

Melosira Stefanssoni sp. nov., Tab. nost. V, fig. 84.
Diam. 9—14 μ.
Disco plano, margine serie manifesta granularum prædita. Interiori parte disci granulis satis magnis, centro-punctatis et irregulariter distributis, repleta.
S. l. (West-Iceland) St.
This Melosira is perhaps related to fig. 41 in A. S. Atl., Tab. CLXXXI, but it lacks the inner ring on the discus. That form of A. S. is from the Pitt River (Oregon) and is according to Grove M. distans var. scalaris Grun., while Cleve takes it to be a variety of Mel. crenulata.

*Melosira Varennarum M. Pér. & Hérib. Hérib. Diat. d'Auv. 189, Tab. V, figs. 12—14.
6 samples (S.W. 5, E. 1).
Area: Eur.

Melosira varians Ag. V. H. Trt. 441, Tab. XVIII, fig. 611.
113 samples (S. 48, S.W. 22, N.W. 2, N. 23, E. 17, s. l. 1). Hot springs: 4.
Area: Eur., Af., As., Am., Grl.

Cyclotella Ktz. 1833. V. H. Trt. 445.

Cyclotella antiqua W. Sm. V. H. Trt. 446, Tab. XXII, fig. 652.
18 samples (S. 3, S.W. 4, N. 1, E. 10).
Area: Eur., As., Grl., Spb.

Cyclotella comta (Ehr.) Ktz. V. H. Trt. 446, Tab. XXII, fig. 653. Ostenf. Thingv. 1115, Tab. I, figs. 9—10.

Thingvallavatn (S.W.) C. H. O.
Area: Eur., Af., As.
Found by C. H. Ostenfeld, not by myself.

Cyclotella Kützingiana Chauvin. V. H. Trt. 447, Tab. XXII, fig. 657.
18 samples (S. 1, SW 3, N. 1, E. 13).
Area: Eur., Af., As.

Cyclotella Meneghiniana Ktz. V. H. Trt. 447, Tab. XXII, fig. 656.
6 samples (S.W. 5, E. 1).
Area: Eur., Af., As., Am.

Stephanodiscus (Ehr. 1845) Grun. emend. 1880.

Stephanodiscus Astræa (Ehr.) Grun. Cl. & Gr. A. D. 114. V. H. Syn., Tab. XCV, fig. 5.

Krisuvík (S.) C. H. O.
Area: Eur., Af., As., Grl., Fz. J.

The following are forms of fresh-water Diatoms (including a few forms from brackish water) not found again by me, but by other Diatomologists, without their having definitely localised them.

Ceratoneis Arcus (Ehr.) Kütz. var. *amphioxys* Rabh. Rabh. Süssw. 37, Tab. IX, fig. 4. Found by Belloc.

Cyclotella minutissima. Unknown to me. Perhaps identic with Cyclotella minutula Ktz. = Stephanodiscus Astræa (Ehr.) Grun. var. minutulus (Ktz.) Grun. V. H. Syn. CXCV, figs. 7—8 or with Cyclotella operculata (Ag.) Kütz. var. minutula (Ktz.) Br. Brun Diat. Alp. & Jura 133, Tab. I, fig. 7. F. b. E. Belloc.

Cymbella norvegica Grun. Cl. Syn. I, 169. A. S. Atl., Tab. X, fig. 41. F. b. P. T. Cleve.

This Cymbella is very closely related to C. gracilis Rabh. (cnfr. Cl: l. c.) and is hardly a different species.

Denticula obtusa W. Sm. W. Sm. Syn. II, 19, Tab. XXXIV, fig. 292. F. b. E. Belloc.

This species is without doubt identical with Nitzschia Denticula Grun.

Gomphonema geminatum Lyngb. Cl. Syn. I, 186. V. H. Trt., Tab. XXIX, fig. 10. F. b. E. Belloc.

Mastogloia Brauni Grun. Cl. Syn. II, 158. V. H. Trt., Tab. II, fig. 66. F. b. E. Belloc.

Mastogloia Smithi Thwaites v. *lanceolata* Grun. Cl. Syn. II, 152. Pant. foss. Ung. III, Tab. XXXV, fig. 520. F. b. E. Belloc.

Navicula binodis Ehr. Cl. Syn. I, 129. V. H. Trt., Tab. V, fig. 235. F. b. E. Belloc.

Navicula scutelloides W. Sm. Cl. Syn. II, 40. V. H. Trt., Tab. XXVII, fig. 763. F. b. C. Hansen.

Neidium amphigomphus Ehr. Cl. Syn. I, 69. V. H. Trt., Tab. V, fig. 213 (Nav. Iridis amphig.). F. b. E. Belloc.

Nitzschia acicularis W. Sm. V. H. Trt. 405, Tab. XVII, fig. 571. F. b. E. Belloc.

Nitzschia communis Rabh. V. H. Trt. 402, Tab. XVII, fig. 560. F. b. E. Belloc.

Nitzschia obtusa W. Sm. V. H. Trt. 397, Tab. XVI, fig. 537. F. b. E. Belloc.

Nitzschia parvula W. Sm. W. Sm. Syn. I, 41, Tab. XIII, fig. 106. F. b. E. Belloc.

Nitzschia Sigma W. Sm. v. *Sigmatella* Grun. V. H. Trt. 397, Tab. XVI, fig. 535. F. b. E. Belloc.

TABULAR SURVEY

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Sph.	Fz.J.	S.	S.W.	N.W.	N.	E.	s.l.
	Achnanthes																
1	affinis	×			×	×							×				
2	Biasolettiana	×			×			×				×	×		×	×	×
3	Calcar	×											×		×	×	
4	coarctata	×	×	×	×		×	×	×	×		×	×	×	×	×	×
5	delicatula	×	×	×			×					×	×				
6	exigua	×	×	×	×	×						×	×				
7	exilis	×	×	×									×				
8	lanceolata	×	×	×	×	×						×	×	×	×	×	
9	— capitata				×							×				×	
10	— dubia	×			×							×					
11	— elliptica	×										×				×	
12	— færoensis	×										×	×	×	×	×	×
13	linearis	×		×	×		×				×	×			×	×	
14	minutissima	×	×	×	×		×	×	×	×		×	×		×	×	×
15	Peragalli	×										×					
16	rhyncocephala	×													×	×	
17	tylophora	×										×					
	Amphipleura																
18	pellucida	×		×								×	×			×	
	Amphora																
19	cimbrica	×														×	
20	coffæiformis	×	×	×	×	×	×					×					
21	Normani	×	×	×	×						×		×				
22	ovalis	×	×	×	×	×	×		×	×		×	×	×	×	×	×
23	— Pediculus	×	×	×	×	×			×		×	×	×		×	×	
24	perpusilla	×	×	×								×			×		
25	protracta gallica	×			×							×	×		×	×	
26	veneta	×	×	×	×	×						×	×		×	×	
	Anomoeoneis																
27	brachysira	×	×	×	×	×	×					×				×	
28	exilis	×					×									×	
29	sculpta	×	×	×	×	×							×				
30	sphærophora	×	×	×	×	×							×				
31	zellensis	×					×						×				
	Asterionella																
32	formosa gracill.	×	×	×	×	×	×						×				
	Caloneis																
33	alpestris	×				×						×	×			×	
34	amphisbæna	×	×	×	×		×		×			×	×				

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Spb.	Fz.J.	S.	S.W.	N.W.	N.	E.	s.l.
35	bacillaris	×		×	×							×				×	
36	bodonensis	×														×	
37	Clevei	×		×			×	×		×	×				×		
38	fasciata	×	×	×	×	×	×	×		×	×	×	×		×	×	×
39	ladogensis	×										×	×		×	×	
40	obtusa	×														×	
41	Silicula genuina	×	×	×	×	×	×		×			×	×	×	×	×	×
42	— alpina	×					×	×		×	×	×	×		×	×	
43	— biconstricta	×														×	
44	— inflata	×										×	×				
45	— subventricosa			×									×				
46	— ventricosa	×		×			×				×		×				
	Campylodiscus																
47	hibernicus noricus	×							×			×	×		×	×	
	Ceratoneis																
48	Arcus	×			×		×	×	×	×	×	×	×	×	×	×	×
	Cocconeis																
49	flexella	×	×	×	×							×	×		×	×	×
50	— intermedia						×									×	
51	minuta	×					×			×	×	×	×				
52	— alpestris	×						×							×	×	
53	Placentula	×	×	×	×	×						×	×	×	×	×	×
	Cyclotella																
54	antiqua	×		×			×			×		×	×		×	×	
55	comta	×	×	×									×				
56	Kützingiana	×	×	×								×	×		×	×	
57	Meneghiniana	×	×	×	×								×			×	
	Cymatopleura																
58	elliptica	×	×	×	×							×	×		×	×	
59	Solea	×	×	×	×				×			×	×		×	×	
	Cymbella																
60	æqualis	×	×	×	×		×					×	×	×	×	×	
61	affinis	×	×	×	×	×	×			×		×	×		×		
62	amphicephala	×	×	×	×	×	×			×	×	×	×			×	
63	angustata	×					×			×			×			×	
64	aspera	×	×	×	×	×					×	×	×	×	×	×	
65	— dubravic.	×														×	
66	Ceratii	×			×		×			×			×				
67	Cistula	×	×	×	×	×	×			×		×	×		×	×	×

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Ar.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Spb.	Fz.J.	S.	S.W.	N.W.	N.	E.	s.l.
68	Cistula arctica	×		×					×	×			×				
69	— Caldogast.	×										×					
70	— maculata	×			×		×			×	×	×	×				
71	cuspidata	×	×	×	×	×	×					×	×		×	×	
72	cymbiformis	×	×	×	×	×						×	×		×	×	
73	Ehrenbergi	×	×	×	×		×					×	×		×	×	
74	— delecta	×		×	×		×								×		
75	gracilis	×	×	×	×	×	×					×	×	×	×	×	×
76	helvetica	×					×					×	×		×	×	×
77	heteropleura min.	×		×			×			×		×	×	×	×	×	×
78	incerta navic.	×					×						×			×	
79	lanceolata	×	×	×	×							×	×		×	×	×
80	— cornuta	×											×				
81	— ventricosa	×											×				
82	lapponica	×										×	×	×	×	×	
83	microcephala	×			×		×					×	×			×	
84	naviculiformis	×		×	×	×	×		×	×		×	×	×	×	×	×
85	parva	×		×	×	×	×		×		×	×	×	×	×	×	×
86	prostrata	×	×	×	×							×					
87	sinuata	×	×	×		×	×		×		×		×		×	×	
88	stauroneiformis								×	×						×	
89	turgida	×		×	×	×	×									×	
90	ventricosa	×	×	×	×	×	×		×	×	×	×	×	×	×	×	×
	Denticula																
91	elegans	×			×							×	×		×	×	
92	subtilis	×	×	×	×								×			×	
93	tenuis	×	×	×	×								×			×	
	Diatoma																
94	hiemale	×		×	×		×					×	×	×	×	×	×
95	elongatum	×	×	×	×		×					×	×			×	
96	— minus	×			×							×	×				
97	— tenue	×			×					×	×	×	×			×	×
98	vulgare	×	×	×	×		×				×	×	×	×	×	×	
	Diatomella																
99	Balfouriana	×			×		×		×	×	×	×	×	×	×	×	
	Diploneis																
100	Boldtiana	×										×	×	×			
101	— robusta	×										×					
102	elliptica	×	×	×	×	×	×				×	×	×	×	×	×	×
103	ovalis	×			×	×	×	×	×			×	×	×	×	×	×

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Spb.	Fz.J.	S.	S.W.	N.W.	N.	E.	s.l.
104	ovalis oblongella	×	×	×	×							×	×	×	×	×	×
105	— pumila	×		×									×				
106	Puella	×	×												×	×	
107	subovalis				×	×							×				
	Epithemia																
108	Argus	×	×	×	×							×	×		×	×	×
109	Hyndmanni	×										×			×	×	
110	Sorex	×	×	×								×	×		×	×	×
111	— amphiceph.						×					×			×	×	×
112	turgida	×	×	×	×		×						×		×	×	×
113	— anom.	×														×	
114	— capitata	×														×	
115	Zebra	×	×	×	×							×	×	×	×	×	×
116	— longicornis	×	×	×	×							×				×	
117	— longissima	×											×			×	
118	— proboscidea	×										×	×		×	×	
	Eunotia																
119	Arcus	×	×	×	×		×			×		×	×		×	×	
120	— bidens	×					×					×	×			×	
121	— minor	×					×					×				×	
122	— tenella	×											×				
123	— uncinata	×														×	
124	bidentula	×											×			×	
125	Diodon	×	×	×	×		×			×			×	×	×	×	
126	— diminuta	×											×			×	
127	elegans	×											×				
128	exigua	×			×								×				
129	Faba densestr.	×					×						×		×	×	
130	flexuosa	×														×	
131	gracilis	×	×		×		×	×	×	×	×		×		×	×	
132	impressa ang.	×											×	×	×	×	
133	lunaris	×	×	×	×		×	×			×	×	×	×	×	×	×
134	— alpina	×		×	×								×				
135	— bilunaris	×														×	
136	— subarcuata	×					×					×	×				
137	major	×					×						×			×	
138	— bidens	×														×	
139	Monodon	×					×									×	
140	Nymanniana	×			×		×						×			×	
141	paludosa	×													×	×	
142	parallela	×		×	×		×			×	×		×	×	×		
143	pectinalis	×	×	×	×		×						×	×	×	×	

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Spb.	Fz.J.	S.	S.W.	N.W.	N.	E.	s.l.
144	pectinalis minor	×	×	×	×		×				×		×			×	
145	— stricta	×										×	×			×	
146	polyglyphis	×										×	×	×		×	
147	prærupta	×					×					×	×	×	×	×	
148	— bidens	×					×	×			×	×	×		×	×	
149	— bigibba	×					×				×	×	×		×	×	
150	— curta	×			×		×				×	×	×	×	×	×	
151	— — laticeps	×					×	×			×				×	×	
152	robusta Diad.	×			×		×			×			×		×	×	
153	tridentula permin.	×					×						×			×	
154	Triodon	×			×		×			×		×	×		×	×	
155	Veneris	×										×					
156	— obtusiusc.	×											×				
	Fragilaria																
157	capucina	×	×	×	×		×			×	×	×					
158	— acuminata	×		×	×							×					
159	— acuta	×			×							×	×				
160	— lanceolata	×			×							×					
161	— mesolepta	×										×					
162	construens	×	×	×	×		×		×			×	×		×	×	
163	— binodis	×	×		×							×	×	×		×	
164	— pumila.	×		×								×					
165	— semibin.	×										×					
166	— venter	×	×	×	×		×					×	×		×	×	
167	crotonensis	×											×		×	×	
168	intermedia	×		×			×					×	×		×	×	×
169	lapponica	×					×					×					
170	mutabilis	×	×	×	×		×					×	×		×	×	×
171	— elliptica	×		×	×							×	×			×	
172	— intercedens	×			×							×	×	×		×	
173	— minutiss.	×			×							×			×	×	
174	parasitica	×	×	×								×	×		×	×	
175	producta								×	×		×	×	×	×	×	
176	Smithiana	×										×					
177	undata	×					×					×			×	×	
178	virescens	×	×	×	×							×	×	×	×	×	×
179	— exigua	×										×			×	×	×
	Frustulia																
180	rhomboides saxon.	×	×	×	×	×	×		×	×		×	×		×	×	
181	— leptoceph.						×					×	×		×		
182	vulgaris	×	×	×	×	×	×					×	×	×	×	×	×

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Spb.	Fz.J.	S.	S.W.	N.W.	N.	E.	s.l.
	Gomphonema																
183	acuminatum	×	×	×	×		×					×	×		×	×	
184	— coronatum	×	×	×	×		×					×	×	×		×	×
185	— elongatum	×	×	×	×		×					×					
186	— pusilla	×	×	×	×		×					×	×			×	
187	— trigonocephala	×	×	×	×		×					×			×		
188	angustatum prod.	×	×	×	×		×		×	×	×	×	×	×	×	×	
189	gracile aurit	×	×		×				×			×	×	×	×	×	
190	— dichot	×	×	×	×	×						×	×		×	×	
191	— navicul	×	×	×		×							×		×	×	×
192	intricatum	×	×	×	×				×			×					
193	— dichotom	×			×	×							×				
194	— Vibrio	×		×										×			
195	Lagerheimi	×											×				
196	lanceolatum insigne	×	×	×	×	×						×	×				
197	olivaceum	×	×	×	×		×					×	×		×	×	
198	— calcareum	×			×							×					
199	— stauroneif	×		×								×					
200	parvulum	×	×	×	×	×	×				×	×	×	×	×	×	×
201	Salinarum	×										×					
202	subclavatum	×	×	×	×	×						×	×	×	×	×	×
203	— montanum	×	×		×										×	×	
204	— Mustela	×	×	×					×	×		×	×		×	×	
205	— subtile	×			×											×	
	Gyrosigma																
206	acuminatum	×	×	×									×	×	×		
207	attenuatum	×	×	×	×								×		×		
	Hantzschia																
208	amphioxys	×	×	×	×		×	×	×	×	×	×	×	×	×	×	×
209	— constricta	×														×	
210	— elongata	×	×		×	×						×	×		×	×	
211	dubravicensis	×														×	
212	virgata leptoc	×										×					
	Mastogloia																
213	elliptica Dansei	×	×		×	×							×	×	×	×	
214	Grevillei	×	×		×											×	
215	Smithi lacust	×											×				
	Melosira																
216	ambigua	×	×	×								×				×	
217	arenaria	×		×									×				
218	crenulata	×	×	×	×							×	×		×	×	
219	distans alpig	×					×					×	×	×	×	×	
220	— nivalis	×											×	×	×	×	

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.-	J.M.	B.E	Spb.	Fz.J.	S.	S.W.	N.W.	N.	E.	s.l.
221	granulata	×	×	×	×		×				×	×	×		×	×	
222	islandica												×			×	
223	italica tenuis	×	×		×		×					×	×	×	×	×	
224	— tenuissima	×	×									×	×		×	×	
225	lævis	×							×			×	×			×	
226	Roeseana	×					×	×		×		×	×		×	×	
227	Varennarum	×											×			×	
228	varians	×	×	×	×		×					×	×	×	×	×	×
	Meridion																
229	circulare	×	×	×	×		×					×	×	×	×	×	
	Navicula																
230	amphibola	×		×	×		×		×	×	×	×	×		×	×	
231	anglica	×	×	×	×		×					×	×		×	×	
232	— minuta	×		×	×							×					
233	— subsal	×					×					×	×	×		×	
234	Atomus circ			×								×	×				
235	bacilliform	×		×	×	×						×	×		×	×	
236	Bacillum	×		×	×	×						×	×		×	×	
237	— lepida	×			×							×					
238	— minor	×				×								×			
239	cincta	×	×	×	×		×	×	×		×	×	×	×	×	×	×
240	— angusta	×		×	×	×								×			
241	— Heufleri	×	×		×							×					
242	cocconeiformis	×		×	×		×	×	×	×		×	×		×	×	
243	contenta biceps	×		×			×					×	×		×	×	
244	crucicula	×	×	×		×	×						×	×		×	
245	— capitata	×										×					
246	cryptocephala	×	×	×	×		×					×	×		×	×	×
247	— exilis	×		×	×							×	×		×	×	×
248	cuspidata	×	×	×	×	×			×			×	×		×	×	
249	— Heribaudi	×											×				
250	— ambigua	×	×	×	×	×	×					×	×		×	×	
251	dicephala	×	×	×	×		×					×	×		×	×	×
252	Gastrum	×	×	×	×	×	×					×					
253	— exigua	×				×						×	×		×	×	
254	gibbula								×	×			×		×		
255	gracilis	×	×	×	×		×								×	×	
256	— schizonem	×										×				×	
257	Heufleriana	×					×				×	×			×	×	
258	hungarica	×		×	×				×			×	×		×	×	
259	— capitata	×		×					×				×		×	×	
260	integra	×										×					

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Spb.	Fz.J.	S.	S.W	N.W.	N.	E.	s.l.
261	lacustris	×			×							×				×	
262	lanceolata	×	×		×	×	×					×	×				
263	— Cymbula	×		×									×			×	
264	— latior	×										×					
265	— phyllepta	×										×					
266	lucidula	×		×			×					×			×		
267	Ludloviana				×							×	×			×	
268	minuscula	×		×								×					
269	mutica Cohni	×	×	×	×	×	×	×		×	×	×	×	×	×	×	
270	— Göppert	×		×	×		×									×	
271	nivalis	×	×			×	×				×				×		
272	oblonga	×	×	×	×	×							×				
273	pelliculosa	×											×				
274	peregrina	×	×	×	×								×		×	×	
275	— Menisculus	×	×	×	×							×	×			×	
276	— Meniscus	×	×	×	×							×	×		×	×	
277	— polaris	×					×		×	×			×		×		
278	protracta	×	×									×	×			×	
279	Pseudobacillum	×	×	×		×	×					×	×			×	
280	— lanceolata	×													×		
281	Pupula	×	×	×	×	×	×					×	×		×	×	
282	pusilla	×	×	×	×	×	×	×				×	×	×	×	×	
283	radiosa	×	×	×	×		×		×	×		×	×	×	×	×	×
284	Reinhardti	×		×	×		×		×			×			×	×	
285	— Yenissey			×												×	
286	rhyncoceph	×	×	×	×	×	×		×			×	×		×	×	×
287	— amphie	×				×							×		×		
288	Rotæana	×				×	×	×	×	×	×		×		×	×	
289	— oblongel	×											×		×	×	×
290	Salinarum	×	×		×					×		×					
291	Semen	×			×						×	×	×	×	×	×	
292	Seminulum	×		×	×		×		×	×	×	×					
293	— fragilar	×														×	
294	subtilissima	×								×			×				
295	Tuscula	×	×	×	×		×		×	×			×		×	×	
296	viridula	×	×	×	×	×	×						×		×	×	
297	— slesvic	×										×	×	×	×	×	
298	vulpina	×		×	×	×	×					×	×			×	
	Neidium																
299	affine amphir	×				×	×		×	×		×	×		×	×	×
300	— longiceps	×					×									×	
301	— undulata	×														×	
302	bisulcatum	×	×	×	×		×	×	×	×	×	×	×		×	×	×

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Sph.	Fz.J.	S.	S.W.	N.W.	N.	E.	s.l.
303	dilatatum	×										×	×			×	
304	dubium	×		×	×	×						×			×	×	
305	fasciatum	×														×	
306	Hitchcockii	×		×	×	×										×	
307	incurva	×														×	
308	Iridis	×	×	×	×	×	×				×		×			×	
309	productum	×		×	×								×		×		
	Nitzschia																
310	amphibia	×	×		×							×	×		×	×	×
311	— acutiusc	×			×	×						×					
312	— Frauenf	×			×	×						×	×		×	×	
313	angustata	×		×	×							×	×			×	
314	apiculata	×		×	×		×		×			×	×			×	×
315	commutata	×	×	×								×	×		×		
316	debilis	×					×	×		×	×	×					
317	Denticula	×	×	×	×		×			×		×	×	×	×	×	×
318	dissipata	×	×	×	×		×			×		×	×				
319	Frustulum	×	×		×		×	×		×	×	×			×	×	
320	Hantzschiana glacial	×					×			×	×	×				×	
321	Heufleriana	×							×		×					×	
322	intermedia	×			×							×	×			×	
323	Kittli	×										×	×		×	×	
324	Kützingiana	×			×				×							×	
325	linearis	×	×	×	×		×					×	×	×	×	×	
326	Nathorsti						×	×			×	×			×		
327	Palea	×	×	×	×						×	×	×	×	×	×	
328	— fonticola	×		×								×	×		×		
329	— minuta	×					×	×			×	×				×	
330	— tenuirost	×					×	×	×			×	×		×	×	×
331	serians	×		×									×				
332	Sigma	×	×	×	×	×	×						×				
333	— Clausi	×					×				×	×	×			×	
334	sigmoidea	×	×	×	×							×	×		×	×	
335	sinuata	×		×	×						×	×	×	×	×	×	×
336	stagnorum	×	×	×												×	
337	thermalis	×	×	×								×	×			×	
338	— minor	×					×				×	×	×	×	×	×	
339	subtilis	×	×		×								×				
340	Tryblion. Vict	×		×	×	×							×		×		
341	vitrea recta	×		×	×		×					×					
342	— salin	×	×		×							×					
343	Oestrupi	×										×					

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Spb.	Fz.J.	S.	S.W.	N.W.	N.	E.	s.l.
	Pinnularia																
344	acrosphæria	×	×	×	×								×		×	×	
345	æstuarii	×			×										×		
346	alpina	×														×	
347	appendiculata	×	×	×	×	×	×					×	×		×	×	
348	— budensis	×				×						×			×	×	
349	Balfouriana	×				×					×	×	×		×	×	
350	borealis	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
351	— brevicost	×													×		
352	— linearis	×										×	×		×	×	
353	Brauni	×	×	×	×	×										×	
354	Brebissoni	×	×	×	×							×	×		×	×	×
355	— diminuta	×			×		×					×	×		×	×	×
356	— linearis	×										×					
357	brevicostata	×		×								×	×	×	×	×	×
358	— leptostauron	×											×			×	
359	Dactylus	×	×		×									×			
360	distinguenda	×	×	×	×	×						×	×				
361	divergens ellipt	×	×		×	×	×				×	×	×	×	×	×	
362	— elongata	×											×				
363	divergentissima	×		×	×	×	×	×		×		×	×			×	
364	flexuosa	×		×	×	×										×	
365	gracillima	×		×			×	×			×	×	×			×	
366	hemiptera	×	×	×	×											×	
367	— interrupta	×		×								×	×				
368	intermedia	×				×	×		×	×	×		×		×	×	
369	interrupta stauroneif	×		×	×	×	×					×	×	×	×	×	
370	— biceps	×		×	×	×	×			×	×	×	×		×	×	
371	icostauron	×			×		×					×		×		×	×
372	karelica	×														×	
373	lata	×		×	×	×	×	×			×	×	×	×	×	×	×
374	— minor			×				×		×	×				×	×	
375	Legumen	×	×	×	×	×	×								×		
376	leptosoma	×					×						×		×		
377	major	×	×	×	×	×						×	×	×	×	×	×
378	— linearis	×	×		×								×				
379	mesogongyla	×			×		×					×	×	×	×	×	
380	— interrupta	×					×				×	×				×	
381	mesolepta angusta	×			×							×	×	×	×	×	
382	— polyonca	×										×	×			×	
383	— stauroneif	×	×		×		×	×			×	×	×	×		×	
384	microstauron	×	×	×	×	×	×	×		×	×	×	×	×		×	
385	molaris	×		×	×	×									×	×	
386	nobilis	×		×	×							×	×			×	×

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Sph.	Fz.J.	S.	S.W.	N.W.	N.	E.	s.l.
387	nodosa	×			×											×	
388	Oculus	×					×					×	×		×	×	
389	parallela crassa	×											×				
390	parva	×		×	×	×	×					×	×		×	×	
391	— Lagerst.								×	×		×	×		×	×	
392	Paulensis				×		×									×	
393	platyceph.	×					×	×					×				
394	secernenda				×											×	
395	stauroptera	×		×	×	×					×	×	×		×	×	×
396	— interr.	×	×	×	×	×	×				×	×	×	×	×	×	
397	stomatoph.	×	×		×	×	×					×	×	×	×	×	
398	streptoraphe	×			×		×					×	×	×	×	×	
399	— minor	×					×						×			×	
400	subcapitata	×	×	×	×	×	×	×		×	×	×	×	×	×	×	
401	— paucistr.	×										×					
402	sublinearis	×					×	×				×	×		×	×	
403	subsolaris	×	×		×	×	×						×				
404	viridis	×	×	×	×	×						×	×	×	×	×	×
405	— commut.	×			×	×	×					×	×	×	×	×	×
406	— fallax	×			×	×	×				×	×	×			×	
407	— intermedia	×	×	×		×	×	×					×		×		
408	— leptogong.	×											×			×	
409	— rupestris	×			×		×				×	×	×	×	×	×	
	Rhizosolenia																
410	eriensis	×			×								×				
411	paludosa	×											×				
	Rhoicosphenia																
412	curvata	×	×	×	×	×	×			×	×	×	×	×	×	×	×
	Rhopalodia																
413	gibba	×	×	×	×		×					×	×	×	×	×	×
414	gibberula	×	×	×	×							×	×	×	×	×	
415	— rupestris	×	×		×							×	×	×	×	×	
416	gracilis		×									×			×	×	
417	parallela	×	×	×	×							×	×	×	×	×	
418	uncinata		×										×				
419	ventricosa	×	×	×	×		×					×	×	×	×	×	×
	Stauroneis																
420	acuta	×		×	×	×	×				×		×		×		
421	anceps	×	×	×	×	×	×	×	×	×	×	×	×		×	×	
422	— birostris	×			×											×	

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Spb.	Fz.J.	S.	S.W.	S.W.	N.	E.	s.I.
423	anceps gracilis	×			×							×	×		×	×	
424	— hyalina	×				×										×	
425	— linearis	×				×								×		×	
426	— siberica			×	×							×	×			×	
427	javanica	×		×	×	×	×						×			×	
428	Legumen	×	×	×	×		×					×	×	×	×	×	
429	obtusa							×		×	×		×				
430	parvula prod.	×					×					×	×	×	×	×	
431	Phoenicenteron	×	×	×	×	×	×					×	×	×	×	×	×
432	— amphil.	×	×			×						×	×	×	×	×	
433	Smithi	×		×	×							×				×	
	Stenopterobia																
434	intermedia	×	×		×		×						×				
	Stephanodiscus																
435	Astræa	×	×	×			×				×	×					
	Surirella																
436	biseriata	×	×	×	×							×	×	×	×	×	
437	Engleri ang.		×									×	×				
438	linearis	×	×	×	×					×		×	×		×	×	
439	— constricta	×			×							×	×		×	×	
440	Mölleriana	×		×	×							×	×		×	×	
441	ovalis angusta	×	×	×	×		×			×	×	×	×		×	×	
442	— minuta	×	×	×	×		×		×			×	×		×	×	
443	— ovata	×	×	×	×		×		×	×	×	×	×	×	×	×	
444	— pandurif.	×										×	×			×	
445	— pinnata	×								×		×	×	×	×	×	
446	robusta	×										×					
447	— splendida	×	×		×							×					
448	turgida	×											×				
	Synedra																
449	Acus	×	×	×	×							×	×				
450	— delicatiss.	×		×	×							×	×		×	×	
451	mesoleja	×										×	×		×		
452	amphiceph.	×			×								×				
453	— austriaca	×										×	×	×			
454	capitata	×		×								×	×		×	×	
455	famelica minusc.	×										×	×			×	
456	familiaris major	×											×		×		
457	pulchella	×	×	×	×		×					×	×		×	×	
458	— navicul.	×													×		

		Universal distribution										Distribution in the different parts of Iceland					
		Eur.	Af.	As.	Am.	Aust.	Grl.	J.M.	B.E.	Spb.	Fz.J.	S.	S.W.	N.W.	N.	E.	s. l.
459	radians	×		×			×					×	×			×	
460	rostrata	×										×	×			×	
461	rumpens frag.	×			×							×	×	×	×	×	×
462	Ulna	×	×	×	×		×					×	×	×	×	×	
463	— amphir.	×										×					
464	— danica	×	×									×	×		×	×	
465	— longiss.	×	×									×				×	
	Tabellaria																
466	fenestrata	×	×	×	×		×					×	×	×	×	×	
467	flocculosa	×	×	×	×		×	×	×	×	×	×	×	×	×	×	×
	Tetracyclus																
468	emarginatus	×										×	×		×	×	
	Total	445	184	223	251	104	192	49	54	69	76	299	332	104	240	328	71
	%	95	39	48	54	22	41	10	12	15	16	64	71	22	51	70	15

From this it appears that the distribution is very similar to that of the rest of Europe, as 95 % of the Icelandic forms also occur there; next come Asia and America with about 50 %. As for the Arctic regions, Greenland stands highest with 41 %. In Iceland the number of species is greatest and almost the same in S W. and E., about 70 %; from these parts the greatest number of samples originate, viz. 148 and 191 respectively.

Forms found in 100 samples or more.

		Number of samples	%			Number of samples	%
1	Meridion circulare.....	347	61	16	Gomphon. parvul.	160	28
2	Navicula radiosa	286	50	17	Amphora ovalis	159	28
3	Epithemia Zebra	264	46	18	Caloneis Silic.....	151	27
4	Diatoma hiemale	258	45	19	Pinnul. vir. com.....	148	26
5	Cymbella ventricosa	247	43	20	Syn. Ulna danica	148	26
6	Gomphonema subclav...	222	39	21	Diploneis ellipt.....	140	25
7	Rhopalodia gibba.....	216	38	22	Achnanth. lanceol.....	139	25
8	Pinnularia viridis	214	38	23	Epithemia turg.....	139	25
9	Synedra Ulna typ.....	207	36	24	Cocconeis Placent.....	126	22
10	Cymbella parva	200	35	25	Ceratoneis Arcus	126	22
11	Rhopal. ventric.	196	34	26	Melos. ital. tenuis.....	123	22
12	Pinnul. borealis	195	34	27	Frustulia vulg.	116	21
13	Tabellaria floccul.	192	34	28	Pinnul. major	111	20
14	Hantzschia amph.....	176	31	29	Tabell. fenestr.	108	19
15	Diatomella Balf.....	168	29	30	Cymb. Cistula.....	100	18

Characterising forms in 10 samples or more.

1	Meridion circulare.....	50	6	Epithemiæ sp. diversæ ..	22
2	Diatoma hiemale	43	7	Cymbellæ sp. diversæ ...	17
3	Synedra Ulna danica....	41	8	Fragilariæ sp. diversæ...	16
4	Melosiræ sp. diversæ....	37	9	Ceratoneis Arcus	10
5	Synedra Ulna typica....	36			

This table shows that the forms most characteristic to the Icelandic flora of fresh-water diatoms are: Meridion, Diatoma, Synedra and Melosira. Comparing the two lists it further appears, that the fact of a form being met with in a great number of samples not necessarily means that it is generally characterising; for inst., Navicula radiosa marked no. 2 in the first list only characterised two samples; Cymbella ventricosa, Pinnularia viridis, Gomphonema subclavatum each only one sample, while Pinnularia borealis and Hantzschia amphioxys did not characterise any.

HOT SPRINGS

As "hot springs" I have only included those which on the labels have distinctly been marked as such. I have of these 30 samples from 13 localities, viz.

from S.: Grafarbakki (1 sampl.), Minni Laxá (4 sampl.), Torfastaðir (4 sampl.).

» S.W.: Hrossholt (1 sampl.), Reykjavík (4 sampl.).

» N.W.: Hrútafjörður (1 sampl.), Reykjanes (3 sampl.), Steingrimsfjörður (1 sampl.).

» N.: Akureyri (2 sampl.), Hrafnagil (4 sampl.), Hrisey (1 sampl.), Laugafells Laug (3 sampl.), Reykjarfjörður (1 sampl.).

In these I have found the following forms:

	Number of hot springs
Achnanthes (17)	
1 coarctata	1
2 exigua	1
3 *exilis	1
4 lanceolata	9
5 — færöensis	2
6 minutissima	3
Total	17
Amphora (8)	
1 coffæiformis	1
2 *ovalis	6
3 — Pediculus	3
4 protracta gall.	2
5 veneta	1
Total	13
Anomoeoneis (5)	
1 exilis	1
2 zellensis	1
Total	2
Caloneis (14)	
1 *amphisbæna	1
2 fasciata	2
3 *Silicula gen.	10
4 — alpestris.	5
5 — inflata	2
Total	20
Ceratoneis (1)	
1 Arcus	8
Total	8
Cocconeis (5)	
1 flexella	2
2 Placentula	7
Total	9
Cymatopleura (2)	
1 Solea	2
Total	2
Cymbella (31)	
1 æqualis	1
2 aspera	1
3 Cistula	1
4 cymbiform.	2
5 gracilis	2
6 helvetica	2
7 heteropl. min.	2
8 incert. navic.	1
9 *lanceolata	2
10 lapponica	1
11 microcephala	1
12 naviculif.	3
13 parva	9
14 ventricosa	5
Total	33
Denticula (3)	
1 *elegans	1
Total	1

		Number of hot springs
	Diatoma (5)	
1	*hiemale	10
2	*tenue	1
	Total	11
	Diatomella (1)	
1	Balfouriana	7
	Total	7
	Diploneis (8)	
1	*elliptica	18
2	ovalis	1
3	— oblongella	5
4	— pumila	1
	Total	25
	Epithemia (11)	
1	*Argus	4
2	Sorex amphic.	1
3	*turgida	3
4	*Zebra	15
5	— longiss.	1
6	— proboscidea	4
	Total	28
	Eunotia (38)	
1	Faba densestr.	1
2	gracilis	1
3	impressa ang.	2
4	lunaris	2
5	major	1
6	pedinal. minor.	1
7	polyglyphis	1
8	prærupta	3
9	— curta.	5
10	robusta Diad.	1
11	Triodon	1
	Total	19
	Fragilaria (23)	
1	construens	1
2	intermedia	2
3	mutabilis	1
4	— intercedens	1
5	virescens exig.	1
	Total	6
	Frustulia (3)	
1	rhomb. saxon.	2
2	— leptoceph.	1
3	*vulgaris	10
	Total	13
	Gomphonema (23)	
1	*acuminatum	2
2	— f. coronata	1
3	— f. trigonoc.	2
4	angust. prod.	3
5	constrictum	1
6	gracile aurit	4
7	— dichotom.	2
8	— naviculi	1
9	parvulum	5
10	subclavatum	4
	Total	25
	Hantzschia (5)	
1	amphioxys	9
2	— elongata.	1
3	truncata	1
	Total	11
	Mastogloia (3)	
1	ellipt. Dans.	5
2	*Smithi lacust.	1
	Total	6
	Melosira	
1	distans niv.	1
2	ital. tenuis	2
3	varians	4
	Total	7
	Meridion (1)	
1	circulare	12
	Total	12
	Navicula (69)	
1	anglica	2
2	cincta	2
3	— angusta	1
4	contenta biceps	1
5	cryptocephala	2
6	— exilis	1
7	cusp. ambig.	1
8	dicephala	7
9	— undulata	1
10	gracilis	1
11	— schizonem.	1
12	hungar. capit.	1
13	mutica Cohni	3
14	nivalis	4
15	pereg. Meniscus	1
16	Pupula	3
17	pusilla	5
18	*radiosa	8
19	rhyncoceph.	1
20	Rotæana obl.	1
21	Semen	2
22	virid slesvic.	2
	Total	51
	Neidium (11)	
1	affine amph.	5
2	bisulc.	1
3	dubium	2
	Total	8
	Nitzschia (34)	
1	amphibia	17
2	— Frauenf.	1
3	angustata	1
4	commut.	1
5	Denticula	4
6	Frustulum	1
7	linearis	2
8	Nathorsti	1
9	Palea	2
10	— fonticola	1
11	— tenuirostris	1
12	Sigma Clausi	2
13	sigmoidea	1
14	*sinuata	4
15	*thermalis	3
16	— minor	1
	Total	43

		Number of hot springs
	Pinnularia (66)	
1	*appendicul.	2
2	— budensis	2
3	Balfouriana	2
4	Brandeli lin.	1
5	*Brebissoni	1
6	— diminuta	1
7	*borealis	17
8	— brevicostata	1
9	brevicostata	3
10	diverg. ellipt.	1
11	intermedia	1
12	interr. staurf.	5
13	lata	4
14	Legumen	1
15	— longa	1
16	leptosoma	3
17	major	4
18	mesogong.	3
19	*mesolept. staurf.	5
20	— angusta.	1
21	Microstauron	1
22	molaris	1
23	subcapit.	2
24	stauropt. gen.	2
25	stauropt. interr.	2
26	stomatophora	2
27	streptoraphe	3
28	*viridis gen.	10
29	— commut.	6
30	— rupestris	3
	Total	91
	Rhoicosphenia (1)	
1	curvata	9
	Total	9
	Rhopalodia (7)	
1	*gibba	11
2	gibberula	13
3	— rupestris	6
4	parallela	5
5	ventricosa	9
	Total	44
	Stauroneis (4)	
1	anceps	1
2	*Phoenicenteron	1
	Total	2
	Surirella (13)	
1	ovalis minuta	2
2	— ovata	5
	Total	7
	Synedra (17)	
1	delicat. mesol.	1
2	capitata	1
3	pulchella	1
4	rostrata	1
5	rump. fragil.	3
6	Ulna typica	11
7	— danica	7
	Total	25
	Tabellaria (2)	
1	fenestrata	2
2	flocculosa	10
	Total	12

Of the forms included in above list are those found previously in hot springs in Iceland (see "La flore algologique d'eau douce de L'Islande par M. Emile Belloc. Paris 1894" p. 9—12) marked * (in all 23). The figures in brackets opposite the names of the genera, give the number of species and variants of the respective genus found in the material dealt with.

In most of the samples from hot springs, I have found Diatoms with endochrome.

I have found the following marine forms in 5 of the hot springs situated in N.W. and N., near the coast.

		Reykjanes N.W.	Hrisey N.	Hrefnagil N.	Steingrims-fjörður	Reykjar-fjörður
		Number of samples	Number of samples	Number of samples	Number of samples	Number of samples
1	Achn. brevipes	2			1	
2	— — intermed.		1			
3	Amph. marina.....		1		1	
4	Biddulph aur.....	2	1		1	1
5	Cal. Liber lin..... ..	3				
6	Coccon. cost.....	2				
7	— Scut.....		1			
8	— — staurf. ..	2				
9	Coscin. excent.....				1	
10	Dipl. interrupta	3				
11	Gramm. isl.....				1	
12	Melos. numm..... ..		1		1	
13	Navic. bottnica				1	
14	Rhabd. arc.			1		
15	— min.....	3	1	1		
16	Rhopal. Musc.....	2			1	
17	Schiz. ram..	2				
18	Syn. aff	2				
19	Trach. asp. interm....				1	

The editors regret the presence of a few discrepancies between the list and the tables which they have not been able to remove. Possibly there may be other incorrectnesses which the author might have rectified, when going through the proof-sheets.

LITERATURE

Brun, J. Diatomées d'eau douce de l'île Jan Mayen et de la côte est du Groenland. Bih. t. K. Sv. Vet.-Ak. Handl. B. 26, Afd. III, No. 18. Stockholm 1901. (Br. J. M. & E. G.)

Cleve, Astrid. On the recent fresh-water diatoms from Lule Lappmark in Sweden. Bih. t. K. Sv. Vet.-Ak. Handl. B. 21, Afd. III, No. 2. Stockholm 1895. (A. Cl. Lul. Lappm.)

Cleve-Euler, Astrid. New contributions to the diatomaceous Flora of Finland. Ark. f. Botanik. B. 14, No. 9. Stockholm 1915. (A. Cl. Finl.)

Cleve, P. T. Färskvattens-Diatomacéer från Grönland och Argentinska republiken. Öfvers. af Kgl. Vet.-Akad. Förh. No. 10. Stockholm 1882. (Cl. Grl. & Arg.)

Cleve, P. T. The diatoms of Finland. Act. soc. p. Flora et Fauna Fenn. VIII. No. 2. Helsingfors 1891. (Cl. Finl.)

Cleve, P. T. Synopsis of the Naviculoid Diatoms I-II. K. Sv. Vet.-Ak. Handl. B. 26, No. 2 and B. 27, No. 3 Stockholm 1894—95. (Cl. Syn.)

Cleve, P. T. and A. Grunow. Beiträge zur Kenntniss der Arktischen Diatoméen. K. Sv. Vet.-Ak. Handl. B. 17, No. 2. Stockholm 1880. (Cl. & Grun. A. D.)

De-Toni, J. B. Sylloge Bacillariearum hucusque cognitarum. Patavii. MDCCCXCI—MDCCCXCIV. (De T. Syll.)

Donkin, A. S. The natural history of the British Diatomaceæ. London 1871—73. (Donk. Br. D.)

Gregory, W. Note of some new Species of British Fresh-water Diatoms. Quart. Journ. of Micr. Sc. London 1856. (Greg. Micr. Journ.)

Grunow, A. Algen und Diatomeen aus dem Kaspischen Meere. Schneider, O.: Naturw. Beit. z. Kennt. d. Kaukasusländer. Dresden 1878. (Grun. Kasp.)

Grunow, A. Reise seiner Majestät Fregatte Novara um die Erde. Bot. Theil. B. 1. Algen. Wien 1867. (Grun. Nov.)

Grunow, A. Beiträge zur Kenntniss der fossilen Diatomeen Österreich-Ungarns. Beitr. z. Palæont. Oest.-Ung. u. des Orients. B. II. Wien 1882.

Grunow, A. Die Diatomeen von Franz-Josefs Land. Denk. Akad. Wiss. Wien. B. XLVIII. Wien 1884. (Gr. Fz. J.)

Heiberg, P. A. C. Conspectus criticus Diatomacearum Danicarum. Kjobenhavn 1863. (Heib. Consp.)

Héribaud, J. Les Diatomées d'Auvergne. Paris 1893. (Hér. Auv.)

Héribaud, J. Les Diatomées fossiles d'Auvergne. Paris 1902, 1903, 1908. (Hér. foss. Auv.)

Hustedt, Friederich. Bacillariales aus den Sudeten und einigen benachbarten Gebieten des Odertales. Arch. f. Hydrobiol. u. Planktonk. B. X, 1914. Stuttgart 1914. (Hust. Sud.)

Juhlin-Dannfelt. On the Diatoms of the Baltic Sea. Bih. t. K. Sv. Vet.-Ak. Handl. B. 6, No. 21. Stockholm 1882. (Danf. Balt.)

Lagerstedt, N. G. W. Sötvattens-Diatomaceer från Spetsbergen och Beeren-Eiland. Bih. t. K. Sv. Vet.-Ak. B. 1, No. 11. Stockholm 1873. (Lgst. Spb.)

Meister, Fr. Die Kieselalgen der Schweiz. Bern 1912. (Meist. Schw.)

Müller, Otto. Bacillarien aus dem Nyassalande und einigen benachbarten Gebieten. Hedwigia XXXIV & XXXVI, 1895 and 1897. (O. M. Nyas.)

Müller, Otto. Rhopalodia. Ein neues Genus der Bacillarien. Bot. Jahrb. XXII, 1899. (O. M. Rhop.)

Müller, Otto. Springweise Mutation bei Melosireen. Ber. d. Deut. Bot. Gesellsch. 1903. B. XXI. H. 6. Berlin 1903. (O. M. Mut.)

Müller, Otto. Pleomorphismus, Auxosporen und Dauersporen bei Melosira-Arten. Jahrb. f. wiss. Bot. B. XLIII, H. 1. Leipzig 1906. (O. M. Pl.)

Müller, Otto. Bacillariaceen aus Süd-Patagonien. Engl. Bot. Jahrb. B. XLIII, H. 4. Beibl. 100. Leipz. 1909. (O. M. Pat.)

Ostenfeld, C. H. and C. Wesenberg-Lund. A regular Fortnightly Exploration of the Plankton of the two Icelandic Lakes, Thingvallavatn and Myvatn. Proc. of the Roy. Soc. of Edinb. Vol. XXV, Part XII. Edinburg 1906. (Ost. Thingv.)

Pantocsek, J. Die Bacillarien des Balatonsees. Result. d. wissensch. Erforsch. d. Bal.-sees. B. II, Teil II, Section I, Anhang. Wien 1902. (Pant. Bal.)

Pantocsek, J. Bacillariæ Lacus Peisonis. Pozsony 1912. (Pant. Peis.)

Pantocsek, J. Beiträge zur Kenntniss der fossilen Bacillarien Ungarns I-III. Nagy-Tapolcsany 1886 and 1889. Pozsony 1905. (Pant. foss. Ung.)

Schmidt, Adolf. Atlas der Diatomaceenkunde. Aschersleben 1874, not yet completed. (A. S. Atl.)

Smith, w. Synopsis of the British Diatomaceæ I-II. London 1853 and 1856. (W. Sm. Syn.)

Ströse, K. Das Bacillarienlager bei Klicken in Anhalt. Festsch. d. XXXVII Versaml. deut. Philol. und Schulm. zu Dessau. Dessau 1884. (Str. Klik.)

van Heurck, H. Synopsis des Diatomées de Belgique I-IV. Anvers 1880–85. (V. H. Syn.)

van Heurck, H. Traité des Diatomées. Anvers 1899. (V. H. Trt.)

Ostrup, Ernst. Ferskvands Diatomeer fra Ostgronland. Medd. om Grønl. XVIII. Kjøbenhavn 1897. (Ost. Ostg. F.)

Østrup, Ernst. Fresh-water Diatoms of the Færöes. Bot. of the Fær. I. Copenhagen and London 1901. (Ost. Fær.)

Ostrup, Ernst. Beiträge zur Kenntniss der Diatomeenflora des Kossogolbeckens. Hedwigia. B. XLVIII. (Ost. Koss.)

Ostrup, Ernst. Danske Diatomeer. Kjøbenhavn 1910. (Ost. D. D.)

EXPLANATION OF PLATES

All the figures were drawn with a magnification of 100 diameters and reduced in reproduction to 670 diameters

PLATE I.

Fig. 1. Caloneis Fedderseni sp. nov.
— 2. Caloneis islandica sp. nov.
— 3. Caloneis Jonssoni sp. nov.
— 4. Caloneis procera sp. nov.
— 5. Neidium incurvum (Greg.) Øst.
— 6. Neidium islandicum sp. nov.
— 7. Neidium lineare sp. nov.
— 8. Neidium panduriforme sp. nov.
— 9. Diploneis ovalis (Hilse) Cl. f. subinflata.
— 10. Diploneis subovalis Cl.
— 11. Frustulia islandica sp. nov.
— 12. Navicula Bacillum Ehr. var. densestriata var. nov.
— 13. Stauroneis anceps Ehr. var. elliptica var. nov.
— 14. Stauroneis bifissa sp. nov.
— 15. Stauroneis elegantula sp. nov.
— 16. Stauroneis parvula Grun. var. capitata var. nov.
— 17. Stauroneis perexilis sp. nov.

PLATE I.

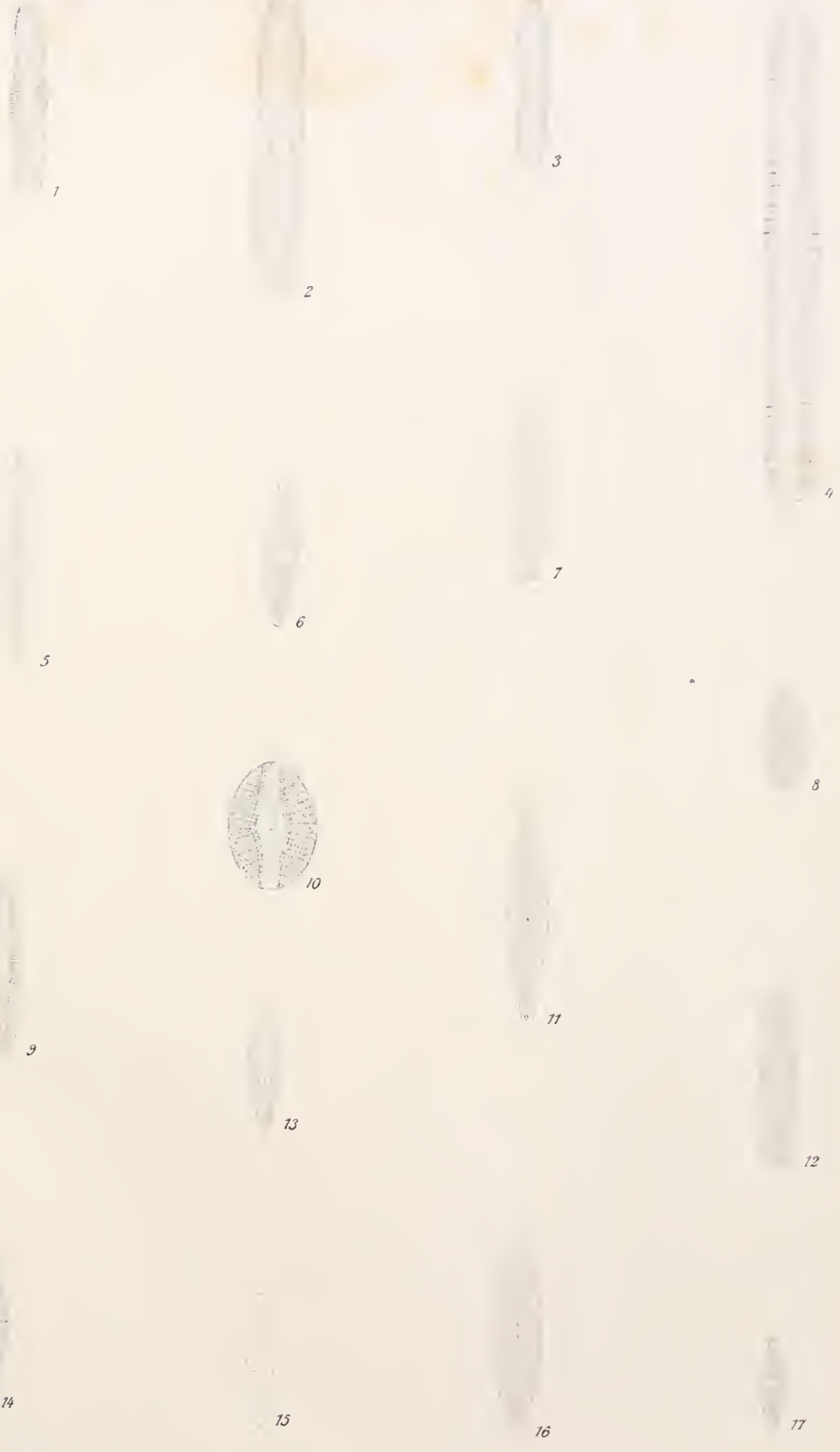

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PLATE II.

Fig. 18. Stauroneis Stefanssoni sp. nov.
— 19. Cymbella Cistula Hempr. var. Caldogastensis Prud.
— 20. Cymbella dubia sp. nov.
— 21. Cymbella islandica sp. nov.
— 22. Cymbella Jonssoni sp. nov.
— 23. Cymbella linearis sp. nov.
— 24. Cymbella marginata sp. nov.
— 25. Cymbella recta sp. nov.
— 26. Cymbella subconstricta sp. nov.
— 27. Gomphonema irregulare sp. nov.
— 28. Gomphonema islandicum sp. nov.
— 29. Gomphonema medio-constrictum sp. nov.

PLATE II.

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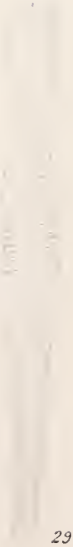

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PLATE III.

Fig. 30. Navicula anguste-fasciata sp. nov.
— 31. Navicula Boyei sp. nov.
— 32. Navicula curte-striata sp. nov.
— 33 Navicula dicephala (Ehr.) W. Sm. var. undulata var. nov.
— 34. Navicula exilior sp. nov.
— 35. Navicula Fustis sp. nov.
— 36. Navicula islandica sp. nov.
— 37. Navicula Jonssoni sp. nov.
— 38. Navicula lyrigera sp. nov.
— 39. Navicula Ostenfeldi sp. nov.
— 40. Navicula pinnularioides sp. nov.
— 41. Navicula semifasciata sp. nov.
— 42. Navicula spatiata sp. nov.
— 43. Navicula Thingvallæ sp. nov.
— 44. Pinnularia leptosoma Grun. var. undulata var. nov.
— 45. Pinnularia perexilis sp. nov.
— 46. Pinnularia bryophila sp. nov.
— 47. Pinnularia islandica sp. nov.
— 48. Pinnularia karelica Cl. var. rostrata var. nov.
— 49. Pinnularia alpina W. Sm. var. linearis var. nov.
— 50. Pinnularia borealis Ehr. var. brevicostata Hust.
— 51 Pinnularia lata (Bréb.) Cl. forma minima.
— 52. Pinnularia Brandeli Cl.
— 53. Pinnularia densestriata sp. nov.
— 54. Pinnularia brevicostata Cl. var. islandica var. nov.

PLATE III.

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PLATE IV.

Fig. 55. Pinnularia parva (Greg.) Cl. var. minuta var. nov.
— 56. Pinnularia subundulata sp. nov.
— 57. Pinnularia Thoroddseni sp. nov.
— 58. Pinnularia gigantea sp. nov.
— 59. Amphora dubiosa sp. nov.
— 60. Achnanthes Boyei sp. nov.
— 61. Achnanthes coarctata (Bres.) Cl. forma.
— 62. Achnanthes lanceolata (Bres.) var. subinflata var. nov.
— 63. Surirella asymmetrica sp. nov.
— 64. Surirella granulata Ost. var. elliptica var. nov.
— 65. Surirella islandica sp. nov.
— 66. Surirella Jonssoni sp. nov.
— 67. Campylodiscus sp.

PLATE IV.

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PLATE V.

Fig. 68. Hantzschia dubravicensis Grun.
— 69. Hantzschia truncata sp. nov.
— 70. Hantzschia forma abnormis.
— 71. Nitzschia angustata (W. Sm.) Grun. forma.
— 72. Nitzschia Jonssoni sp. nov.
— 73. Nitzschia glaberrima sp. nov.
— 74. Nitzschia mucronata sp. nov.
— 75. Eunotia islandica sp. nov.
— 76. Synedra rumpens Ktz. var. islandica var. nov.
— 77. Synedra Ulna (Nitzsch) Ehr. f. arcuata.
— 78. Fragilaria Baculus sp. nov.
— 79. Fragilaria mutabilis (W. Sm.) Grun. var. inflata var. nov.
— 80. Fragilaria rhombica sp. nov.
— 81. Fragilaria triundulata sp. nov.
— 82. Fragilaria undata W. Sm. forma.
— 83. Denticula islandica sp. nov.
— 84. Melosira Stefanssoni sp. nov.

PLATE V.

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