

DANMARK-EKSPEDITIONEN

TIL GRØNLANDS NORDØSTKYST 1906—1908

UNDER LEDELSE AF

L. MYLIUS-ERICHSEN

BIND III

INDHOLD

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X.

DIATOMS FROM NORTH-EAST GREENLAND

(N. OF 76° N. LAT.)

COLLECTED BY THE "DANMARK-EXPEDITION"

DETERMINED

BY

ERNST ØSTRUP

1910

The material on which the present work is based was given to me for investigation by the Commission for the "Danmark-Expedition."

The saltwater material consisted of (1) 13 samples of Algæ, as follows: —

Off Cape Amélie, 5 samples, preserved in glass vessels. The locality given in the text as "Off Cape Amélie."

Danmarks Havn, 3 samples, of which two are herbarium-material, and one in a glass vessel. The locality given in the text as "Danmarks Havn."

Along the peninsula, Cape Bismarck, 1 sample in a glass vessel. The locality in the text given as "Off Cape Bismarck."

Koldewey Ø, 4 samples, of which three are herbarium-material, and one in a glass vessel. The locality given in the text as "Koldewey Isl."

and (2) A series of samples from ice, all preserved in glass vessels, 6 in all, as follows: —

76°20 N. lat., 18°20 W. long., land-ice off Germania Land, 1 sample. Given in the text as "Land-Ice."

75°14 N. lat., 4°34 W. long. The outer edge of the pack-ice, 4 samples. Given in the text as "Margin of the Pack-Ice."

75°14 N. Lat., 11°15 W. long., pack-ice, 1 sample. Given in the text as "Pack-Ice."

The freshwater samples are the same as those given to Dr. F. BÖRGESSEN for investigation of the freshwater algæ. There are in all 30 samples, partly preserved in glass vessels, and partly dried, in paper bags, but several of them contained such small quantities of material that it proved impossible to obtain serviceable preparations from the uncleansed material, let alone to submit it to a chemical cleansing! The freshwater samples are distributed among the different localities (the names of which are given unaltered in the text) as follows: —

Mallemukfjeld	1 sample: some pebbles.
Hvalrosodde	5 samples, of which 4 in glass vessels, 1 dried material.
Dove Bugt	1 sample, dried powder.
Lille Snenæs	3 samples, of which 2 in glass vessels, 1: stone.
Snenæs	1 sample in a glass vessel.
Stormbugt	1 sample: two bones.
Stormkap	1 sample, dried material.
Danmarks Havn	2 samples in glass vessels.
Yderbugten	1 sample, dried material.
Vester Elv	7 samples, all in glass vessels.
Basiskæret	1 sample in a glass vessel.
Thermometerfjeld . . .	3 samples, of which 2 dried material, 1: stone.
Cape Bismarck	1 sample in a glass vessel.
Nostoc	1 sample, dried material.
Without locality	1 sample in a glass vessel.

As regards the distribution of the Diatoms collected by the "Danmark Expedition," I have, in the present work, exclusively considered the distribution within the Arctic region, and then I have used the following method: —

In regard to the **marine forms**: —

W. Greenl.	denotes a form found along the coasts of West Greenland.
E. Greenl.	— a form found along the coasts of East Greenland.
Greenl.	— a form found along the coasts of both East and West Greenland.
E. of Greenl.	— a form found by Ryder's Expedition on the ice or in plankton, and included in my Mar. D. f. Østg.
East Arct. S.	— a form found in one of the other eastern Arctic Seas as far as the Strait of Behring.

In regard to the **freshwater forms**: —

W. Greenl.	denotes West Greenland.
E. Greenl.	— East Greenland.
Fz. Js. Ld.	— Franz-Josef Land.
Spb.	— Spitzbergen.
B. El.	— Beeren Eiland.
J. M.	— Jan Mayen.

MARINE DIATOMS.

PENNATÆ.

Diraphideæ.

Amphiprora Ehr., 1843.

Amphiprora gigantea Grun. var. *septentrionalis* Grun. Cl. Syn., I, 18; Cl. & Grun. A. D., Tab. V, fig. 87 (A. decussata sept.).

Loc. Danmarks Havn (Algæ), Marg. of the Pack-Ice.

Arct. Distr. Greenl., East Arct. S.

Kjellmanii Cl. var. *glacialis* Cl., Cl. Syn., I, 16; Cl. Vega Exp., Tab. XXXV, fig. 12 (A. glac.).

Loc. Marg. of the Pack-Ice.

Arct. Distr. E. Greenl., East Arct. S.

Auricula Castr., 1875.

Auricula minuta Cl., Cl. Syn., I, 21, Tab. I, figs. 7—8.

Loc. Off Cape Amélie (Algæ).

Hitherto recorded only from "Sweden, Gullmarsfjord on *Zostera* and among *Amphipleura* (*Berkeleya*) *Dillwynii*" (Cl. l. c.).

Tropidoneis Cl., 1891.

Tropidoneis longa Cl., Cl. Syn., I, 25, Tab. III, fig. 8.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. Greenl., East Arct. S.

Pleurosigma W. Sm., 1852.

Pleurosigma elongatum W. Sm., Cl. Syn., I, 38; W. Sm. Syn. Tab. XX, fig. 199.

Loc. Koldewey Isl. (Algæ).

Arct. Distr. Greenl., East Arct. S.

Caloneis Cl., 1894.

Caloneis amphibæna (Bory) Cl. var. *fuscata* Schum., Cl. Syn., I, 58; Cl. & Grun. A. D., Tab. I, fig. 27.

Loc. Dove Bugt.
Arct. Distr. East Arct. S.

Caloneis brevis (Greg.) Cl., Cl. Syn., I, 61; V. H. Trt., Tab. IV, fig. 180. (Nav. brev.).

Loc. Off Cape Amélie (Algæ, 3 sampl.)
Arct. Distr. W. Greenl., East Arct. S.

Caloneis kryophila Cl. var? *gelida* Cl., Cl. Syn., I, 64; Cl. Vega Exp., Tab. XXXVII, fig. 42. (Nav. kryoph.? gel.)

Loc. Marg. of the Pack-Ice (2 sampl.)
Arct. Distr. Greenl., East Arct. S.

Diploneis Ehr., 1840.

Diploneis borealis (Grun.) Cl., Cl. Syn., I, 96; Grun. Fz. Js. L., Tab. I, fig. 40 (Nav. Smithii bor.).

Loc. Off Cape Amélie (Algæ, 5 sampl.), Koldewey Isl. (Algæ).
Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Diploneis coffæiformis (A. Sch.) Cl., Cl. Syn., I, 81; A. Sch. N. S. D., Tab. I, fig. 22.

Loc. Koldewey Isl. (Algæ).
Not before recorded from Arct. S. Several other records.

Diploneis Entomon Ehr., Cl. Syn., I, 87; Cl. & Grun. A. D., Tab. III, fig. 54 (Nav. bomboides A. Sch. var. media Grun.).

Loc. Danmarks Havn (Algæ), Koldewey Isl., (Algæ, 2 sampl.), Marg. of the Pack-Ice.
Arct. Distr. E. Greenl., East Arct. S.

Diploneis interrupta (Kütz.) Cl., Cl. Syn., I, 84; V. H. Trt., Tab. III, fig. 145.

Loc. Off Cape Amélie (Algæ, 2 sampl.), Koldewey Isl. (Algæ, 2 sampl.).
Arct. Distr. E. of Greenl., East Arct. S.

Diploneis littoralis (Donk.), Cl. var. *arctica* Cl., Cl. Baff. B., 18, Tab. I, fig. 7.

Loc. Marg. of the Pack-Ice (3 sampl.).
Arct. Distr. Davis Strait, E. of Greenl., East Arct. S.

In one of these samples a specimen of the present species has the following dimensions: Long. 66 μ , Lat. 25 μ .

Diploneis littoralis (Donk.), Cl. var. *hyperborea* Cl., Cl. l. c., Tab. I, fig. 1.

Loc. Marg. of the Pack-Ice.
Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Diploneis muscæformis (Grun.) Cl. var. *genuina* Cl., Cl. Syn., I, 83; A. S. Atl., Tab. XIII, fig. 47 (Navic. muscæf.).

Loc. Off Cape Amélie (Algæ).
Hitherto recorded only from Baku, Java and Camp. Bay.

Diploneis Smithii (Bréb.) Cl., Cl. Syn., I, 96; W. Sm. Syn., Tab. XVII, fig. 152 a (Nav elliptic); Grun. Fz. Js. L., Tab. I, fig. 41.

Loc. Off Cape Amélie (Algæ, 3 sampl.), Danmarks Havn (Algæ, 2 sampl.).
Arct. Distr. Greenl., East Arct. S.

Diploneis splendida (Greg.) Cl., Cl. Syn., I, 87; A. Sch. N. S. D., Tab. I, fig. 3.

Loc. Danmarks Havn (Algæ), Koldewey Isl. (Algæ).
Arct. Distr. Greenl., East Arct. S.

Diploneis subcincta (A. Sch.) Cl., Cl. Syn., I, 86; Grun. Fz. Js. Ld., Tab. I, figs. 38—39.

Loc. Off Cape Amélie (Algæ, 4 sampl.), Danmarks Havn (Algæ), Koldewey Isl. (Algæ, 3 sampl.).

Arct. Distr. E. Greenl., East Arct. S.

Diploneis vacillans A. Sch. forma β , Cl. Syn., I, 95; A. S. Atl., Tab. VIII, fig. 34.

Loc. Off Cape Amélie (Algæ).

Not before recorded from Arct. S. Several other records.

Naviculæ fusiformes Cl., 1894.

Navicula fusiformis, Grun. var. *ostrearia* Gaillon, Cl. Syn., I, 106; V. H. Trt., Tab. XXVII, fig. 769.

Loc. Koldewey Isl. (Algæ).

Not before recorded from Arct. S. Several other records.

Naviculæ orthostichæ Cl., 1894.

Navicula kryokonites Cl. var. *subprotracta*, Cl. Syn., I, 109; Cl. Vega Exp., Tab. XXXVII, fig. 46.

Loc. Marg. of the Pack-Ice (3 sampl.).

Arct. Distr. E. of Greenl., East Arct. S.

Navicula rostelloides sp. nova. Tab. nost. XIII fig. 1. cf. Øst. Mar. D. Østg., 426, Tab. VI, fig. 73 (Nav. Rostellum W. Sm.).

Long. 22 μ . Lat. 10 μ . Str. minime 22 in 10 μ .

Valva lanceolata-elliptica, apicibus brevissime subrostratis. Raphe area hyalina angustissima, distincta autem, cincta. Striis parallelis, apices versus subradiantibus et, quoad perspicere potui, altera in parte media valvæ deficientibus ibique fasciam unilateralem male definitam relinquentibus.

Loc. Marg. of the Pack-Ice.

Arct. Distr. E. of Greenl.

I had previously given this species as Nav. Rostellum W. Sm., which Cleve (Syn., II, 4) refers to Nav. Placenta Ehr. If, however, Nav. Rostellum should prove to be identical with Nav. Placenta then the present species cannot be Nav. Rostell., because it has not got the characteristic decussate striation of Nav. Placenta. As I have not been able to see any punctation of the striæ I place it, but with hesitation, under *Naviculæ orthostichæ* and as perhaps most nearly allied to *Nav. kryokonites* Cl.

Navicula Spicula (Hickie) Cl., Cl. Syn., I, 110; V. H. Trt., Tab. I, fig. 53 (Stauron. Spic.).

Loc. Marg. of the Pack-Ice.

Arct. Distr. E. of Greenl., East Arct. S.

Navicula Wankaremæ Cl., Cl. Syn., I, 109; Cl. Vega Exp., Tab. XXXVII, fig. 47 (Nav. kryokonites? Wank.).

Loc. Pack-Ice, Marg. of the Pack-Ice.

Arct. Distr. East Arct. S.

Navicula vitrea Cl., Cl. Syn., I, 111; Cl. & Grun., A. D., Tab. IV, fig. 78 (Pleurosigma vitreum).

Loc. Marg. of the Pack-Ice.

Arct. Distr. Davis Strait, E. of Greenl., East Arct. S.

Gyrosigma Hass., 1845.

Gyrosigma arcticum Cl., Cl. Syn., I, 119; Perag. Pleuros., Tab. X, figs. 16—17 (Rhoicosigma arct.).

Loc. Off Cape Amélie (Algæ, 2 sampl.), Marg. of the Pack-Ice (2 sampl.).

Arct. Distr. W. Greenl., East Arct. S.

Amphipleura Kütz., 1844.

Amphipleura rutilans Trentepohl, Cl. Syn., I, 126; V. H. Trt., Tab. V, fig. 255 (Berkeleya Dillwynii).

Loc. Koldewey Isl. (Algæ, 2 sampl.).

Arct. Distr. Greenl.

Amphipleura rutilans Trentepohl var. *antarctica* (Harvey) Grun., V. H. Syn., Tab. XVI, fig. 20 (Berkeleya antarct.).

Loc. Koldewey Isl. (Algæ).

Not before recorded from Arct. S. Other records, North Sea, Falkland Isls., Friendly Isls. (Cl. l. c.).

Naviculæ decipientes Grun., 1880.

Navicula subinflata Grun., Cl. Syn., I, 141; (Cl. Vega Exp., Tab. XXXVII, fig. 50). V. H. Trt., Tab. XXVII, fig. 760.

Loc. Off Cape Amélie (Algæ, 2 sampl.), Marg. of the Pack-Ice.

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Naviculæ microstigmaticæ Cl., 1894.

Stauroneis perpusilla Grun., Cl. Syn., I, 146; Grun., Fz. Js. L., Tab. I, fig. 50.

Loc. Marg. of the Pack-Ice (3 sampl.).

Arct. Distr. E. of Greenl., East Arct. S.

Stauroneis pellucida, Cl. var. *contracta* Øst., Øst. Mar. D. Østg., 440, Tab. V, fig. 62.

Loc. Marg. of the Pack Ice.

Arct. Distr. E. of Greenl.

Navicula Grevillei Ag., Cl. Syn., I, 152; V. H. Trt., Tab. V, fig. 243 (Schizonema Grev.).

Loc. Off Cape Amélie (Algæ), 2 sampl.).

Arct. Distr. Greenl., East Arct. S.

Navicula rhombica Greg., Cl. Syn., I, 152; Greg. T. M. S., IV, Tab. V, fig. 1.

Loc. Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl.

Navicula scopulorum Bréb., var. *arctica* var. nova. Tab. nost XIII, fig. 10.

Long. 57 μ . Lat. 7 μ . Str. minime 22 in 10 μ , debilissimis et ægre perpiciendis.

Valva lineari, inter apices rotundatos et mediam partem leniter contracta. Raphe area distincta hyalina cincta. Striis parallelis, sub apices, quoad perspicere potui, convergentibus, media in parte valvæ deficientibus fasciamque latam relinquentibus. Nodulis terminalibus ab apicibus remotis.

Loc. Koldewey Isl. (Algæ).

This form is probably most nearly allied to Nav. Scop. Bréb var. *belgica* H. V. H. (cf. Perag. Mar. Diat. d. Fr., Tab. VIII, fig. 27).

Gomphonema Ag., 1824.

Gomphonema exiguum Kütz., var. *arcticum* Grun., Cl. Syn., I, 188; V. H. Syn., Tab. XXV, fig. 30 (Gomph. arctic.).

Loc. Off Cape Amélie (Algæ), Pack-Ice.

Arct. Distr. Greenl., East Arct. S.

Gomphonema groenlandicum Øst., Øst. Mar. D. Østg., 414; Tab. III, figs. 11—12.

Loc. Koldewey Isl. (Algæ), Off Germ. L. (Land-Ice), Marg. of the Pack-Ice (3 sampl.).

Arct. Distr. Davis Strait., E. of Greenl., East Arct. S.

Gomphonema kamtschaticum Grun., Cl. Syn., I, 188; V. H. Syn., Tab. XXV, fig. 29.

Loc. Danmarks Havn (Algæ), Koldewey Isl. (Algæ, 3 sampl.).

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Gomphonema septentrionale Øst., Øst. Mar. Diat. Østg., 414, Tab. III, fig. 9.

Loc. Pack-Ice, Marg. of the Pack-Ice.

Arct. Distr. E. of Greenl.

Gomphonema septentrionale Øst., var. *angustum* Øst., Øst. l. c., fig. 10.

Loc. Pack-Ice, Marg. of the Pack-Ice.

Arct. Distr. E. of Greenl.

Trachyneis Cl., 1894.

Trachyneis aspera (Ehr.) Cl., var. *genuina* Cl., Cl. Syn., I, 191; V. H. Trt., Tab. IV, fig. 165 (Nav. asp.).

Loc. Off Cape Amélie (Algæ).

Not before recorded from Arct. S. Several other records.

Trachyneis aspera (Ehr.) Cl., var. *vulgaris* Cl., A. S. Atl., Tab. XLVIII, figs. 2—6 (Nav. asp.).

Loc. Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl.

Trachyneis aspera (Ehr.) Cl., var. *intermedia* Grun., A. S. Atl., l. c. fig. 14.

Loc. Off Cape Amélie (Algæ, 5 sampl.), Danmarks Havn (Algæ), Off Cape Bismarck (Algæ), Koldewey Isl. (Algæ, 2 sampl.), Marg. of the Pack-Ice.

Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Trachyneis aspera (Ehr.) Cl., var. *intermedia* Grun. *forma robusta*. Tab. post XIII, fig. 3.

Long. 250 μ . Lat. 38 μ . Ser. alveol. 6 in 10 μ , alveol. 4 in 10 μ .

Loc. Off Cape Amélie (Algæ).

I think this form may be a robust, sculptured *Trach. asp. intem.* Only a fragment found.

Naviculæ minusculæ Cl., 1895.

Navicula bahusiensis Grun., var. *arctica* Grun. Fz. Js. Ld., 52, Tab. 1, fig. 43. Øst. Mar. D. Østg., Tab. IV, figs. 30—31 (Nav. bahus. Grun?).

Loc. Dove Bugt.

Arct. Distr. E. of Greenl., East Arct. S.

The present form is identical with the fig. 31, quoted above, in my Mar. D. Østg. As I have there pointed out, my specimens as well as the present form, differ from Grunow's figure of a specimen from Fz. Js. L., in that the striæ at the apices are not radiate, but almost parallel. As the striæ, however, are seen only with great difficulty I think my determination may be correct.

Naviculæ lineolatæ Cl., 1895.

Navicula ammophila Grun., var. *intermedia* Grun., Cl. Syn., II, 30; Grun. D. Øst.—Ung., Tab. XXX, figs. 71—73 (Nav. ammoph. f. minuta).

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. East Arct. S.

Navicula Bolleana Grun., Cl. Syn., II, 25; A. S. Atl., Tab. XLVII, fig. 18.

Loc. Marg. of the Pack-Ice.

Arct. Distr. W. Greenl., East Arct. S.

Navicula Bolleana Grun., var. *intermedia* Øst., Øst. Mar. D. Østg., 431, Tab. V, fig. 5.

Loc. Margin of the Pack-Ice.

Arct. Distr. E. of Greenl.

Navicula cancellata Donk., Cl. Syn., II, 30; V. H. Trt., Tab. III, fig. 128.

Loc. Marg. of the Pack-Ice,

Arct. Distr. Greenl., East Arct. S.

Navicula cancellata Donk., var. *Gregorii* Ralfs, A. S. Atl., Tab. XLVI, fig. 72.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. E. of Greenl., East Arct. S.

Navicula cancellata Donk., var. *retusa* Bréb, V. H. Trt., Tab. II, fig. 80 (Nav. *retusa* var. *subret.*).

Loc. Koldewey Isl. (Algæ, 2 sampl.), Off Germ. L. (Land-Ice).

Arct. Distr. East Arct. S.

Navicula cancellata Donk., var. *subapiculata* Grun., A. S. Atl., Tab. XLVI, fig. 68.

Loc. Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl., East Arct. S.

Navicula digito-radiata Greg., Cl. Syn., II, 20; V. H. Trt., Tab. III, fig. 130.

Loc. Off Cape Amélie (Algæ, 2 sampl.).

Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Navicula digito-radiata Greg., var. *Cyprinus* (Ehr.?) W. Sm., V. H. Trt. l. c. fig. 131.

Loc. Off Cape Amélie (Algæ, 2 sampl.).

Arct. Distr. Greenl.

Navicula directa W. Sm., var. *genuina* Cl., Cl. Syn., II, 27; A. S. Atl., Tab. XLVII, figs. 4–5.

Loc. Off Cape Amélie (Algæ, 5 sampl.), Koldewey Isl. (Algæ, 2 sampl.), Marg. of the Pack-Ice.

Arct. Distr. Greenl., East Arct. S.

Navicula directa W. Sm., var. *lata* Øst., Øst. Mar. D. Østg., 427, Tab. V, fig. 47.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. E. of Greenl.

In my paper Mar. D. Østg. (l. c.) the length of the valve is erroneously stated to be 0.37 mm instead of 0.137 mm. The figure, however, is correct.

Navicula directa W. Sm., var. *remota* Grun. A. Sch. N. S. D., Tab. III, fig. 2.

Loc. Danmarks Havn (Algæ).

Arct. Distr. Greenl., East Arct. S.

Navicula directa W. Sm., var. *cuneata* Øst., Øst. Mar. D. Østg., 428, Tab. IV, fig. 42.

Loc. Marg. of the Pack-Ice.

Arct. Distr. E. of Greenl.

Navicula distans W. Sm., Cl. Syn. II, 35; V. H. Trt., Tab. III, fig. 133.

Loc. Koldewey Isl. (Algæ), Marg. of the Pack-Ice.

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Navicula inflexa Greg., Cl. Syn., II, 31; V. H. Trt., Tab. XXV, fig. 713.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. East Arct. S.

Navicula jamalinensis Cl., var. *subcircularis* var. nova. Tab. nost XIII, fig. 2.

Long. 35μ . Lat. 24μ . Str. 7—8 in 10μ , sub apices 10 in 10μ , distincte transverse lineatis.

Valva elliptica fere subcirculari. Raphe area hyalina, satis augusta, cincta. Striis radiantibus. Nodulis terminalibus extremis in apicibus situatis.

Loc. Danmarks Havn (Algæ).

This form may be a variety of *Nav. Jamal.* (cf. Cl. Syn., II, 38; Cl. Grun. A. D., Tab. II, fig. 40). It differs from the main species by its almost circular outline and by its apical area being much narrower and more linear than in *Nav. Jamal.*

Navicula jejuna A. Sch., var. *arctica* var. nova. Tab. nost XIII, fig. 5.

Long 68μ . Lat. 8.5μ . Str. 8 in 10μ , obscure punctatis.

Valva lineari, apices versus leniter attenuata. Striis radiantibus, uno in latere valvæ raphen non attingentibus. Raphe sub apices sinuosa.

Loc. Marg. of the Pack-Ice.

This form has some resemblance to *Navicula jejunoides* H. O. H. (Belgica Exp., II, Tab. I, fig. 12) but its striæ are radiate throughout, and are equally distant upon both sides of the raphe.

The habitat of *Nav. jejunoides*, according to H. Van Heurch (l. c.), is "Glacé de banquise No. 141; assez frequent."

Navicula kariana Grun., var. *detersa* Grun., Cl. Syn. II, 28; Grun. Fz. Js. L., Tab. 1, figs. 23—24.

Loc. Marg. of the Pack-Ice (3 sampl.).

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Navicula kariana Grun., var. *frigida* Grun. Grun. l. c. fig. 25.

Loc. Marg. of the Pack-Ice (2 sampl.).

Arct. Distr. W. Greenl., East Arct. S.

Navicula (Schizonema) mollis W. Sm., Cl. Syn., II, 26; V. H. Syn., Tab. XV, figs. 22—23.

Loc. Danmarks Havn (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl.

Navicula obtusa Cl., Cl. Syn., II, 29; Cl. Vega Exp., Tab. XXXVI, fig. 25.

Loc. Marg. of the Pack-Ice (2 sampl.).

Arct. Distr. Davis Strait, E. of Greenl., East Arct.

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

Loc. Off Cape Amélie (Algæ, 2 sampl.).

Arct. Distr. W. Greenl., East Arct. S.

Navicula peregrina Ehr., var. *kefvingensis* Ehr., A. S. Atl., Tab. XLVII, fig. 62.

Loc. Yderbugten.

Hitherto recorded only from Firth of Tay and Franzensbad (fossil) (Cl. l. c.).

Navicula peregrina Ehr., var.? *oblonga* var. nova. Tab. nost XIII, fig. 4.

Long. 43 μ . Lat. 10 μ . Str. 11 in 10 μ transverse lineatis.

Valva lineare-elliptica, apicibus rotundatis. Raphe area augusta hyalina, media in parte valvæ in aream transapicalem curtam dilatata, cincta. Striis radiantibus, sub apices fere parallelis.

Loc. Marg. of the Pack-Ice.

I am uncertain as to the systematic position of this form. I think it may be related to the group belonging to *Navicula peregrina*, perhaps it is nearest to *Nav. peregr. Meniscus*.

Navicula (Schizonema) ramosissima Ag., *forma genuina*, Cl. Syn., II, 26; V. H. Trt., Tab. V, fig. 244.

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ, 2 sampl.), Koldewey Isl. (Algæ, 2 sampl.).

Arct. Distr. Greenl.

Navicula sibirica Grun., Cl. Syn., II, 29; Cl. Vega Exp., Tab. XXXVII, fig. 38 (*Rhoikoneis Bolleana* var.? *sib.*).

Loc. Marg. of the Pack-Ice (2 sampl.).

Arct. Distr. Davis Strait, E. of Greenl., East Arct. S.

Navicula subcuneata sp. nova. Tab. nost XIII, fig. 6.

Long. 32 μ . Lat. 10 μ . Str. 10 in 10 μ , distincte punctatis.

Valva sublineari, apicibus subcuneatis. Raphe area distincta hyalina cincta. Striis parallelis sub apices leniter radiantibus. Nodulis terminalibus extremis in apicibus situatis.

Loc. Danmarks Havn (Algæ).

This form may be akin to an undescribed *Navicula* in A. S. Atl., Tab. XLVI, fig. 9 (from Quarnero), but it has parallel striæ; the *Navicula*, delineated by A. Schmidt, has the striæ slightly radiate.

Navicula superba Cl., Cl. Syn., II, 29; Cl. Vega Exp., Tab. XXXVI, fig. 23.

Loc. Danmarks Havn (Algæ), Koldewey Isl. (Algæ), Marg. of the Pack-Ice (3 sampl.).

Arct. Distr. Davis Strait, E. Greenl., E. of Greenl., East Arct. S.

Navicula superba Cl., var. *subacuta* Gran. A. S. Atl., Tab. CCLIX, figs. 27—28.

Loc. Marg. of the Pack-Ice.

Arct. Distr. East Arct. S.

Navicula transitans Cl., Cl. Syn., II, 27; Cl. Vega Exp., Tab. XXXVI, fig. 31.

Loc. Pack-Ice, Marg. of the Pack-Ice (3 sampl.).

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Navicula trigonocephala Cl., Cl. Syn., II, 27; Cl. Vega Exp., Tab. XXXVI, fig. 29.

Loc. Pack-Ice, Marg. of the Pack-Ice (4 sampl.).

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Navicula valida Cl. & Grun., Cl. Syn., II, 25; Cl. & Grun. A. D., Tab. II, fig. 29.

Loc. Marg. of the Pack-Ice.

Arct. Distr. E. Greenl., E. of Greenl., East Arct. S.

Navicula valida Cl. & Grun., *forma minor*. Tab. nost XIII, fig. 8.

Long. 46 μ . Lat. 16 μ . Str. 8 in 10 μ , transverse lineatis.

Valva elongate-elliptica. Raphe area distincta hyalina cincta. Striis radiantibus, media in parte valvæ alternatim longis abbreviatisque.

Loc. Marg. of the Pack-Ice.

Undoubtedly a narrower and smaller form, intermediate between *Nav. valida* and *Nav. valida minuta* (Cl. l. c.).

Navicula Zostereti Grun., Cl. Syn., II, 31; A. S. Atl., Tab. XLVII, figs. 42—44.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ), Marg. of the Pack-Ice (3 sampl.).

Arct. Distr. E. of Greenl.

Navicula? gomphonemoides sp. nova. Tab. nost XIII, fig. 7.

Long. 32 μ . Lat. 5 μ . Str. 10 in 10 μ , delicatissime punctatis.

Valva anguste-lanceolata. Raphe leniter sinuosa. Striis radiantibus, Raphen attingentibus, media modo in parte valvæ paululum abbreviatis. Nodulis terminalibus inconspicuis.

Loc. Danmarks Havn (Algæ).

This small form may perhaps be a *Gomphonema*. Only a single specimen found.

Naviculæ punctatæ Cl., 1895.

Navicula Baculus Cl., Cl. Vega Exp., 474, Tab. XXXVII, fig. 51 (cf. Cl. Syn., I, 124: *Stenoneis inconspicua* (Greg) Cl. var. *Baculus* Cl.). A. S. Atl., Tab. CCLXII, fig. 13.

Loc. Marg. of the Pack-Ice.

Arct. Distr. E. of Greenl., East Arct. S.

I quite agree with Dr. H. Heiden when he says (in the explanation of the Table in A. S. Atl. quoted above): "Zu Stenoneis darf diese Species, wie Cleve es tut, nicht gestellt werden."

Navicula glacialis Cl., Cl. Syn., II, 40; Tab. I, fig. 28.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Navicula glacialis, var. *septentrionalis* Cl., A. S. Atl., Tab. VI, fig. 37.

Loc. Koldewey Isl. (Algæ).

Arct. Distr. Greenl., East Arct. S.

Navicula punctulata W. Sm., var. *finmarchica* Grun., Cl. Syn., II, 47; Cl. & Grun. A. D., Tab. II, fig. 49 & Øst. Mar. D. Østg., Tab. VI, fig. 69.

Loc. Off Cape Amélie (Algæ, 4 sampl.), Koldewey Isl. (Algæ, 2 sampl.).

Arct. Distr. Greenl., East Arct. S.

Naviculæ lyratæ Cl., 1895. •

Navicula Lyra Ehr., var. *arctica* var. nova. Tab. nost XIII, fig. 9.

Long. 46 μ . Lat. 21 μ . Str. 9—10 in 10 μ , delicatissime transverse lineatis.

Valva apices versus cuneata, media in parte marginibus fere parallelis. Media parte sulcorum, Lyram effingentium, stria sicut nebulosa instructa.

Loc. Koldewey Isl. (Algæ).

I think that this variety comes nearest to Nav. Lyra var. atlantica A. S.

Navicula pygmæa Kütz., Cl. Syn., II, 65; V. H. Trt., Tab. IV, 164.

Loc. Koldewey Isl. (Algæ, 2 sampl.), Marg. of the Pack-Ice.

Arct. Distr. East Arct. S.

Navicula spectabilis Greg., Cl. Syn., II, 60; A. S. Atl., Tab. III, figs. 20—21.

Loc. Koldewey Isl. (Algæ).

Arct. Distr. Greenl.

Navicula spectabilis Grey., var. *densestriata* Øst., Øst. Mar. D. Østg., 436; Tab. VI, fig. 67.

Loc. Off Cape Amélie (Algæ. 2 sampl.), Koldewey Isl. (Algæ).

Arct. Distr. E. Greenl.

Pinnularia Ehr., 1843.

Marine Cl., 1895.

Pinnularia bistriata Leud. Form., Cl. Syn., II, 95; Perag. D. mar. d. Fr., Tab. XI, fig. 14.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ).

Hitherto recorded only from the Mediterranean, Ceylon, Labuan, Siam.

Pinnularia quadratarea A. Sch., Cl. Syn., II, 95; A. Sch. N. S. D., Tab. III, fig. 26.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ), Marg. of the Pack-Ice.
Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Pinnularia quadratarea A. Sch., var. *constricta* Øst., Øst. Mar.
D. Østg. 419, Tab. IV, fig. 23.

Loc. Marg. of the Pack-Ice (2 sampl.).
Arct. Distr. E. of Greenl., East Arct. S.

Pinnularia quadratarea A. Sch., var. *dubia* Heiden, A. S. Atl.,
Tab. CCLX, fig. 13.

Loc. Marg. of the Pack-Ice.
Arct. Distr. East Arct. S.

Pinnularia quadratarea A. Sch., var. *gibbosa* Øst., Øst. Mar. D.
Østg., 420, Tab. IV, fig. 28.

Loc. Off Cape Amélie (Algæ).
Arct. Distr. E. of Greenl., East Arct. S.

Pinnularia Stuxbergii Cl., Cl. Syn., II, 96 (Pinn. quadrat. Stuxb.)
A. S. Atl., Tab. CCLX, figs. 37—38.

Loc. Off Germ. L. (Land-Ice), Marg. of the Pack-Ice (3 sampl.).
Arct. Distr. Davis Strait, E. of Greenl., East Arct. S.

Amphora Ehr., 1840.

Subg. *Amphora* Cl., 1895.

Amphora gigantea Grun., Cl. Syn., II, 105. Tab. nost. XIII, fig. 11.
Long. 70 μ . Lat. 15 μ . Str. 7 in 10 μ .

Loc. Koldewey Isl. (Algæ).

Not before recorded from Arctic Seas. Several other records.

The present form is smaller than the typical species. I have given a figure of it, as it seems to me not to agree exactly with *Amph. gig.* forma *minor*. (Cl. l. c. A. S. Atl., Tab. XL, figs. 28—29).

Amphora marina (W. Sm.), H. V. H. Cl. Syn., II, 103; V. H. Trt.,
Tab. I, fig. 14.

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ), Koldewey Isl.
(Algæ, 4 sampl.).

Arct. Distr. E. Greenl., E. of Greenl.

Amphora Proteus Greg., Cl. Syn., II, 103; A. S. Atl., Tab. XXVII,
fig. 3.

Loc. Off Cape Amélie (Algæ, 4 sampl.), Koldewey Isl. (Algæ, 4 sampl.).
Arct. Distr. Greenl., East Arct. S.

Amphora Proteus Greg., var. *contigua* Cl., A. S. Atl., Tab. XXVII,
figs. 7—9.

Loc. Off Cape Amélie (Algæ, 4 sampl.), Danmarks Havn (Algæ), Koldewey
Isl. (Algæ, 2 sampl.).

Arct. Distr. E. Greenl.

Amphora virgata sp. nova. Tab. nost. XIII, fig. 12.

Long. 58 μ . Lat. 12 μ . Str. 10 in 10 μ , ad marginem numeratis.

Valva lunata, apicibus obtusis. Striis in parte dorsali valvæ

linea mediana nuda interruptis. Raphe propior linea altera, minus autem distincta, adest.

Loc. Danmarks Havn (Algæ).

This species may be a form intermediate between *Amphora ovalis* Kütz. and *Amph. Proteus* Greg.

Subgen. *Diplamphora* Cl., 1895.

Amphora crassa Greg., Cl. Syn., II, 109; A. S. Atl., Tab. XXVIII, figs. 30—33 (*A. crass. punctata*).

Loc. Off Cape Amélie (Algæ, 3 sampl.), Danmarks Havn (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. Greenl., East Arct. S.

Amphora margaritifera Cl., Cl. Syn., II, 117; Tab. III, figs. 30—31, Øst. Kyst D. f. Grøn., 325; Tab. II, fig. 6 (*A. cruciata* Øst.).

Loc. Danmarks Havn (Algæ).

Arct. Distr. W. Greenl.

I am now quite sure that this form, which, in my paper quoted above, I recorded as a new species (referring however to its affinity to *A. margarit.*) is identical with *A. marg.* Cl., a form from Galapagos Islands.

Subg. *Halamphora* Cl., 1895.

Amphora acutiuscula Kütz., Cl. Syn., II, 121; V. H. Trt., Tab. I, fig. 5.

Loc. Danmarks Havn (Algæ, 2 sampl.), Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl., East Arct. S.

Amphora costata W. Sm., Cl. Syn., II, 122; W. Sm. Syn., Tab. XXX, fig. 253.

Loc. Danmarks Havn (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. E. Greenl.

Amphora Eunotia Cl., Cl. Syn., II, 122; A. S. Atl., Tab. XXV, fig. 35.

Loc. Off Cape Amélie (Algæ, 3 sampl.), Koldewey Isl. (Algæ).

Arct. Distr. Greenl., East Arct. S.

Amphora granulata Greg., Cl. Syn., II, 123; Greg. D. Clyde, Tab. XIV, fig. 96.

Loc. Off Cape Amélie (Algæ).

Not before recorded from Arctic Seas. Other records, Scotland, South-Asia.

Amphora macilenta Greg., Cl. Syn., II, 121; Perag. D. mar. de Fr., Tab. L, fig. 26.

Loc. Off Cape Amélie (Algæ).

Not before recorded from Arctic Seas. According to Peragallo (l. c. p. 231): "Repandu."

Amphora Terroris Ehr., Cl. Syn., II, 122; A. S. Atl., Tab. XXV, figs. 17—19.

Loc. Off Cape Amélie (Algæ, 5 sampl.), Danmarks Havn (Algæ, 2 sampl.), Koldewey Isl. (Algæ, 2 sampl.).

Arct. Distr. Greenl., East Arct. S.

Amphora Terroris Ehr., var. *inflata* Øst., Øst. mar. D. Østg., 410, Tab. III, fig. 6 (*Amphora inflata* Grun.?).

Loc. Off Cape Amélie (Algæ, 4 sampl.), Koldewey Isl. (Algæ, 2 sampl.).
Arct. Distr. E. Greenl.

Especially because of the slight inward curvature of the apices I think this form may more correctly be referred to *Amph. Terr.*

Subg. *Oxyamphora* Cl., 1895.

Amphora lævis Greg., var. *lavissima* Greg., Cl. Syn., II, 130; A. S. Atl., Tab. XXVI, figs. 3, 13, 14.

Loc. Off Cape Amélie (Algæ).
Arct. Distr. E. of Greenl., East Arct. S.

Amphora lineolata Ehr., Cl. Syn., II, 126; V. H. Syn., Tab. I, fig. 13.

Loc. Danmarks Havn (Algæ), Koldewey Isl. (Algæ).
Arct. Distr. East Arct. S.

Subg. *Amblyamphora* Cl., 1895.

Amphora venusta sp. nova. Tab. nost. XIII, fig. 16.

Long. 68 μ . Lat. 10.8 μ . Str. 16—17 in 10 μ , punctatis.

Valva lunata, apicibus rotundatis paululum marginem ventralem versus inclinatis. Margine ventrali leniter arcuata. Striis dorsalibus Raphen attingentibus, striis ventralibus marginalibus.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ).

I am somewhat in doubt as to the systematic position of this species. It may perhaps be considered a slender form of *Amphora obtusa* Greg., Trans. M. S. V, 72, Tab. I, fig. 34.

Subg. *Cymbamphora* Cl., 1895.

Amphora angusta Greg., Cl. var. *typica* Cl., Cl. Syn., II, 135; A. S. Atl., Tab. XXV, fig. 15.

Loc. Off Cape Amélie (Algæ, 2 sampl.), Danmarks Havn (Algæ).
Arct. Distr. W. Greenl., East Arct. S.

Monoraphideæ.

Rhoicosphenia Grun., 1860.

Rhoicosphenia curvata Kütz., Cl. Syn., II, 165; V. H. Trt., Tab. VII, fig. 319.

Loc. Off Cape Amélie (Algæ, 3 sampl.), Danmarks Havn (Algæ, 2 sampl.), Koldewey Isl. (Algæ).
Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Cocconeis (Ehr., 1835) Grun., 1868

subgen. *Cocconeis* Cl., 1895 pro gen.

Cocconeis Scutellum Ehr., var. *genuina* Cl., Cl. Syn., II, 170; V. H. Trt., Tab. VIII, fig. 338.

Loc. Danmarks Havn (Algæ, 2 sampl.), Koldewey Isl. (Algæ).

Arct. Distr. Greenl., East Arct. S.

Cocconeis Scutellum Ehr., var. *minutissima* Grun., Grun. Fz. Js. L., Tab. I, fig. 1.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. Franz-Josef Land.

Cocconeis Scutellum Ehr., var. *californica* Grun., A. S. Atl., Tab. CXCI, figs. 40—43.

Loc. Danmarks Havn (Algæ), Off Cape Bismarck (Algæ), Koldewey Isl. (Algæ).

Hitherto recorded only from California and Kamtschatka.

Subg. *Eucoconeis* Cl., 1895 pro. gen.

Cocconeis dirupta Greg. var. *decipiens* Cl., Cl. Syn., II, 175; Cl. Arct. S., Tab. I, fig. 6 (Cocc. decip.) & Tab. II, fig. 11 a (Cocc. arctica).

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl., East Arct. S.

Cocconeis pseudomarginata Greg., Cl. Syn., II, 178; V. H. Trt., Tab. XXIX, fig. 824.

Loc. Danmarks Havn (Algæ, 2 sampl.).

Arct. Distr. Greenl., East Arct. S.

Cocconeis septentrionalis Grun., Cl. Syn., II, 174; Grun. Fz. Js. L., Tab. I, fig. 2.

Loc. Off Cape Amélie (Algæ, 4 sampl.), Danmarks Havn (Algæ, 2 sampl.), Koldewey Isl. (Algæ, 2 sampl.), Marg. of the Pack-Ice.

Hitherto recorded only from Franz-Josef Land (Assistance Bay).

Subg. *Disconeis* Cl., 1895 pro. gen.

Cocconeis pinnata Greg., Cl. Syn., II, 181; V. H. Trt., Tab. XXIX, fig. 818.

Loc. Danmarks Havn (Algæ), Koldewey Isl. (Algæ, 2 sampl.).

Arct. Distr. East Arct. S.

Cocconeis pinnata var. *arctica* var. nova. Tab. nost. XIII, fig. 13.

Long. 24 μ . Lat. 11 μ . Costis 5,5 in 10 μ utrisque in valvis, duplicate serie punctorum alternantium interpositis. Valva elliptica apicibus paululum attenuatis. Epitheca: Area apicali satis angusta. Hypotheca: Raphe area angusta hyalina cincta. Costis utrisque in valvis subradiantibus.

Loc. Danmarks Havn (Algæ).

This variety differs from the main species in its somewhat attenuated apices and its narrow apical area.

Subg. *Pleuroneis*, Cl., 1895 pro. gen.

Cocconeis costata Greg., Cl. Syn., II, 182; V. H. Trt., Tab. XXIX, fig. 816.

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ, 2 sampl.), Koldewey Isl. (Algæ, 4 sampl.).

Arct. Distr. Greenl., East Arct. S.

Cocconeis costata var. *pacifica* Grun., V. H. Syn., Tab. XXX, figs. 13—14.

Loc. Danmarks Havn (Algæ).

Arct. Distr. Greenl.

Cocconeis ornata Greg? cf. Greg. D. Clyde, 19, Tab. I, fig. 24. Tab. nost. XIII, Fig. 14.

Long $32\ \mu$. Lat. $16\ \mu$, costis 8 in $10\ \mu$, utrisque in valvis.

Valva elliptica, area apicali distincta. Costis leniter radiantibus, in Hypotheca vitta submarginali nuda interruptis.

Loc. Koldewey Isl. (Algæ).

This species may be Gregory's *Cocc. ornata*, although Gregory (l. c.) describes the apical area as a "long lanceolate blank space" and figures the striae as strongly radiate towards the apices. Cleve (Syn. II, 171) mentions *Cocc. ornata* as a form which possibly may be a variety of *Cocc. Scutellum* Ehr., but in this matter I cannot agree with him. *Cocconeis ornata* occurs in "Lamlash Bay" and in "Loch Fine."

Cocconeis sp. Tab. nost. XIII, fig. 17.

Long. $31\ \mu$. Lat. $20\ \mu$. Str. 11 in $10\ \mu$, ad marginem numeratis, delicatissime punctatis.

Hypotheca: Valva elliptica. Raphe area angusta distincta, media in parte valvæ in aream parvulam centralem acuminatam dilatata, cincta. Striis ubique in marginem perpendicularibus. Nodulis terminalibus paululum ab apicibus remotis. Hypothecam modo observavi.

Loc. Koldewey Isl. (Algæ).

As I have only seen the hypotheca I have not given this form as a new species.

Achnanthes Borg., 1822,

Subg. *Heteroneis* Cl., 1895, pro. gen.

Achnanthes hyperborea Grun., Cl. Syn., II, 183; Grun., Fz. Js. Ld., Tab. I, figs. 4—5. Tab. nost. XIII, fig. 15.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. Franz-Josef Land.

Subg. *Microneis* Cl., 1895 pro. gen.

Achnanthes debilissima sp. nova? Tab. nost. XIII, fig. 24, cf. Grun., Fz. Js. Ld., 52, Tab. I, fig. 42 (*Navicula debiliss.* Grun.).

Long. $6,3-7\ \mu$. Lat. $2,7\ \mu$.

Valva elliptica. Striis perdifficiliter perspicendis.

Loc. Koldewey Isl. (2 sampl.).

This hyaline and exceedingly small species may be identical with *Navicula debilissima* Grun. Grunow's figure shows both the terminal nodules and a central nodule and the latter he describes in the text (l. c.) as "minu-

tissimo." As to the present specimens the matter stands as follows:— On all my specimens I have seen a median apical line (a "raphe" or an "apical area"), on some specimens I have observed the terminal nodules a little remote from the apices. On a few specimens I think I have seen a trace of a central nodule, but I am not quite sure of it and therefore I have not put a central nodule in my figures. On the other hand I have been able in some specimens to see a striation at right-angles to the apical axis. A specimen in zone-view, which I had the good fortune to observe showed the frustule bent along the transapical axis after the manner of an *Achnanthes*, but I have not been able to see the frustules united into a band, on the contrary I think I observed them attached separately to the narrow branches of other Algæ after the manner of a *Cocconeis*.

Achnanthes rhombica sp. nova. Tab. nost. XIII, fig. 18.

Long. $34\ \mu$. Lat. $12\ \mu$. Str. 11 in $10\ \mu$, utrisque in valvis, transverse lineatis.

Valva elongate-rhombica. Epitheca: Striis parallelis, area apicali distincta.

Hypotheca: Striis valde radiantibus, mediis aliquantum spatatis.

Raphe area hyalina, media in parte valvæ in aream conspicuam rotundatam dilatata, cincta.

Loc. Off Cape Amélie (Algæ).

The epitheca of this species resembles that of *Ach. Lorenziana* Grun., but is somewhat more closely striated. As I have seen both valves in situ I am quite certain that the present species cannot be *Achn. Lorenz.* in which the number of striæ on the hypotheca is stated to be 18—27 in $10\ \mu$ (cf. Cl. Syn., II, 187).

Achnanthes septentrionalis sp. nov. Tab. nost. XIII, fig. 21.

Long. $19\ \mu$. Lat. $9\ \mu$. Str. 11 in $10\ \mu$ utrisque in valvis, transverse lineatis.

Valva lanceolata, apicibus subrostratis. Epitheca: Striis parallelis, area apicali distincta. Hypotheca: Striis radiantibus, media in parte valvæ aliquantum spatatis. Raphe area hyalina, media in valva in aream rotundatam dilatata, cincta.

Loc. Off Cape Amélie (Algæ).

Achnanthes septentrionalis var. *subcapitata* var. nova. Tab. nost. XIII, fig. 22.

This variety agrees entirely with the main species in the dimensions and the number of striæ, but differs in the subcapitate apices and in the absence of a central area on the hypotheca.

Loc. Off Cape Amélie (Algæ).

Achn. sept. is probably most nearly allied to *Achn. Hauckiana* Grun. (V. H. Syn., Tab. XXVII, figs. 14—15).

Subg. *Achnanthidium* (Kütz., 1844) Heib., 1864, Cl., 1895 pro. gen.

Achnanthes brevipes Ag. var. *typica*, Cl. Syn., II, 193; V. H. Trt., Tab. VIII, fig. 324.

Loc. Off Cape Amélie (Algæ, 3 sampl.), Danmarks Havn (Algæ), Off Cape Bismarek (Algæ), Koldewey Isl. (Algæ, 2 sampl.).

Arct. Distr. Greenl., East Arct. S.

Achnanthes brevipes Ag. var. *intermedia* Kütz. V. H. Trt., l. c. fig. 325 (Achn. subsessilis Ehr.).

Loc. Off Cape Amélie (Algæ, 3 sampl.), Danmarks Havn (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. E. Greenl., East Arct. S.

Achnanthes brevipes Ag. var. *parvula* Kütz., V. H. Trt. l. c. fig. 326 (Achn. parvula).

Loc. Off Cape Amélie (Algæ, 2 sampl.).

Arct. Distr. Greenl.

Achnanthes brevipes Ag. var. *forma elliptica*, Øst. Kystd. f. Grönl., Tab. II, fig. 13.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ, 2 sampl.).

Arct. Distr. E. Greenl.

Achnanthes groenlandica Cl., Cl. Syn., II, 195; Cl. A. D., Tab. IV, fig. 23.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. Greenl., E. Arct. S.

KALYPTORAPHIDEÆ.

Eschatoraphideæ.

Surirella Turp., 1827.

Surirella insignis sp. nova. Tab. nost. XIII, fig. 19.

Long. 137 μ . Lat. 54 μ . Canaliculis 1,5 in 10 μ . Striis subtilissimis.

Valva ovata, area apicali angusta. Striis delicatissimis, vix perspicendis.

Loc. Danmarks Havn.

As I have not seen this species in zone-view I am uncertain of its systematic position. Possibly it may be considered a robust form of an unnamed *Surirella* from "Hayes Exp." figured in A. S. Atl., Tab. XXI, fig. 15, which I have recorded from E. Greenl (cf. Øst. Mar. D. Ostg., p. 334).

Surirella Oestrupii Gran., Gran., F. N. Exp., 46; Øst. Mar. D. Østg., Tab. VI, fig. 68 (Sur. splendida var? minima).

Loc. Off Cape Amélie (Algæ).

Arct. Distr. E. Greenl., E. of Greenl., East Arct. S.

Campylodiscus Ehr., 1841.

Campylodiscus angularis Greg., V. H. Trt., 378, Tab. XXXV, fig. 909.

Loc. Off Cape Amélie (Algæ, 3 sampl.).

Arct. Distr. Greenl., East Arct. S.

Tropidoraphideæ.**Hantzschia** Grun., 1877.

Hantzschia Weyprechtii Grun., Fz. Js. Ld., 55, Tab. I, fig. 60.

Loc. Koldewey Isl. (Algæ), Pack-Ice.

Arct. Distr. E. of Greenl., East Arct. S.

Nitzschia (Hass., 1845), Grun., 1880.*Tryblionella* Grun., 1880.

Nitzschia Tryblionella Hantsch var. *levidensis* W. Sm., V. H. Trt. 385, Tab. XV, fig. 494.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. E. Greenl. (in freshwater), East Arct. S.

Apiculatæ Grun., 1880.

Nitzschia marginulata Grun. var. *genuina* Grun. *forma minuta*? Cl. & Grun., A. D., 72. Tab. nost. XIII, fig. 20.

Long. 35μ . Lat. 7μ & 6μ . Punct. carinal. 16 in 10μ , striis delicatis, minime 23 in 10μ .

Loc. Off Cape Amélie (5 sampl.).

This form may be the *forma minuta* (from Esquimault harbour) of *Nitz. marg. gen.*, of which Grunow has not given a figure.

Bilobatæ Grun., 1880.

Nitzschia bilobata W. Sm., V. H. Trt. 389, Tab. XV, fig. 512.

Loc. Danmarks Havn (Algæ).

Arct. Distr. W. Greenl.

Nitzschia hybrida Grun., Cl. & Grun. A. D., 79, V. H. Syn., Tab. LX, figs. 4—5.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. E. of Greenl., East Arct. S.

Insignes Grun., 1880.

Nitzschia insignis W. Sm., var. *arctica* Grun., Cl. & Grun. A. D., 84; Øst. Mar. D. Østg., Tab. VII, fig. 81.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. E. Greenl., East Arct. S.

Bacillaria Grun., 1880.

Nitzschia paradoxa (Gnsel.) Grun. V. H. Trt. 392, Tab. XVI, fig. 518.

Loc. Koldewey Isl. (Algæ).

Arct. Distr. East Arct. S.

Nitzschia socialis Greg. var. *kariana* Grun., Cl. & Grun. A. D. 85, Tab. VI, fig. 108.

Loc. Off Cape Amélie (Algæ, 2 sampl.), Danmarks Havn (Algæ).

Arct. Distr. East Arct. S.

Spathulatæ Grun., 1880.

Nitzschia angularis W. Sm. V. H. Trt. 393, Tab. XVI, fig. 521.

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ).

Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Nitzschia angularis var. *borealis* Grun., Cl. & Grun. A. D. 89, Tab. V, fig. 99.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. Greenl., East Arct. S.

Nitzschia distans Greg. V. H. Trt. 394, Tab. XXXIII, fig. 878.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. W. Greenl., East Arct. S.

Sigmoideæ Grun., 1880.

Nitzschia Brébissonii W. Sm., var. *borealis* Grun., Cl. Baff. B. 21, Tab. I, figs. 28—32; Øst. Mar. D. Østg., Tab. VII, fig. 80 (*Nitzschia socialis septentrionalis*).

Loc. Danmarks Havn (Algæ).

Arct. Distr. Davis Strait, E. of Greenl., East Arct. S.

Nitzschia lævissima Grun., Grun. Fz. Js. Ld., 54, Tab. I, figs. 65—66.

Loc. Off Cape Amélie (Algæ), Marg. of the Pack-Ice (4 sampl.).

Arct. Distr. E. of Greenl., East Arct. S.

Sigmata Grun., 1880.

Nitzschia scabra Cl., Cl. Vega Exp. 480, Tab. XXXVIII, fig. 73.

Loc. Marg. of the Pack-Ice.

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Nitzschia Sigma W. Sm. V. H. Trt. 396, Tab. XVI, fig. 531.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. W. Greenl., East Arct. S.

Nitzschia Sigma W. Sm., var. *robusta* var. nova. Tab. nost XIII, fig. 26.

Long. 270 μ . Lat. 10 μ . Punct. carinal. 2—3 in 10 μ , Str. 16—17 in 10 μ , distinte punctatis, carena admodum excentrica. Striis carenam versus oblitterantibus.

Loc. Koldewey Isl. (Algæ).

I think this large *Nitzschia* may be related to the group belonging to *Nitz. Sigma*, perhaps it comes nearest to *Nitz. Sigma valida*.

Nitzschia Sigma W. Sm. var. *Sigmatella* Grun., V. H. Trt. 397, Tab. XVI, fig. 535.

Loc. Off Cape Amélie (Algæ).

Not before recorded from Arctic Seas. According to Perag. (Diat. mar. d. Fr. 290) "Repandu."

Nitzschia Sigma W. Sm., var. *valida* Cl. & Grun. *forma longissima*. V. H. Syn., Tab. LXV, fig. 4.

Loc. Koldewey Isl. (Algæ, 3 sampl.).

Arct. Distr. W. Greenl.

Lineares Grun., 1880.

Nitzschia polaris Grun. Grun. Fz. Js. Ld., 54, Tab. I, figs. 62—63.

Loc. Off Germ. L. (Land-Ice), Marg. of the Pack-Ice (4 sampl.).

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Lanceolatae Grun., 1880.

Nitzschia lanceolata W. Sm., V. H. Trt. 400, Tab. XVII, fig. 548.

Loc. Off Cape Amélie (Algæ, 2 sampl.), Koldewey Isl. (Algæ).

Arct. Distr. E. of Greenl.

Arraphideæ.

Synedra Ehr., 1831.

Synedra affinis Kütz., *genuina*. V. H. Trt. 314, Tab. X, fig. 430.

Loc. Off Cape Amélie (Algæ, 3 sampl.), Danmarks Havn (Algæ).

Synedra affinis Kütz., *acuminata* Grun., V. H. Syn., Tab. XLI, fig. 14.

Loc. Koldewey Isl. (Algæ).

Synedra affinis Kütz., *fasciculata* Kütz., V. H. Trt., Tab. X, fig. 433.

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ), Koldewey Isl. (Algæ).

Synedra affinis Kütz., *hybrida* Grun. *forma elongata*, V. H. Syn., Tab. XLI, fig. 9 B.

Loc. Koldewey Isl. (Algæ).

Synedra affinis Kütz., *lancettula* Grun., V. H. Syn., Tab. XLI, fig. 28.

Loc. Off Cape Amélie (Algæ).

Synedra affinis Kütz., *parva* Kütz., V. H. Trt., Tab. X, fig. 432.

Loc. Koldewey Isl. (Algæ).

Synedra affinis Kütz.? *rupicola* Grun., V. H. Syn., Tab. XLI, fig. 27.

Loc. Koldewey Isl. (Algæ, 2 sampl.).

Synedra affinis Kütz., var. *subtilis* Grun., V. H. Syn., Tab. XLI, fig. 18.

Loc. Danmarks Havn (Algæ).

Synedra affinis Kütz., var. *tabulata* Kütz., Perag. Mar. D. d. Fr., Tab. LXXX, figs. 13—14.

Loc. Off Cape Amélie (Algæ, 2 sampl.), Koldewey Isl. (Algæ).

Synedra affinis Kütz. var. *tabulata forma curta acuminata*. V. H. Trt., Tab. X, fig. 431 (Syn. atf. tabul.).

Loc. Off Cape Amélie (Algæ).

Among the numerous scarcely discernable varieties of *Synedra affinis* only the following are recorded from the Arctic Seas, viz.

Synedra aff. *laucettula*: W. Greenl.

— - *parva*: W. Greenl., East Arct. S.

— - *tabul. curta acumin.*: Greenl., East Arct. S.

Synedra investiens W. Sm. V. H. Trt., 313, Tab. X, fig. 425.

Loc. Off Cape Amélie (Algæ, 5 sampl.), Danmarks Havn (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl., East Arct. S.

Synedra kamtschatica Grun. Øst. Mar. D. Østg., 450, Tab. VII, fig. 85.

Loc. Off Cape Amélie (Algæ, 3 sampl.), Danmarks Havn (Algæ, 3 sampl.), Koldewey Isl. (Algæ, 3 sampl.), Marg. of the Pack-Ice (2 sampl.).

Arct. Distr. Greenl., East Arct. S.

I have found this species to vary in length from 160 μ to 260 μ .

Fragilaria Lyngb., 1819.

Fragilaria Cylindrus Grun. Grun. Fz. Js. Ld., 55, Tab. II, fig. 13.

Loc. Marg. of the Pack-Ice (2 sampl.).

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Fragilaria islandica Grun., var. *hyperborea* Cl., Cl. Vega Exp., 484. Tab. nost XIII, fig. 25.

Long. 66 μ . Lat. 7 μ . Str. 11 in 10 μ .

Valva lineare-lanceolata. Striis media in parte valvæ deficientibus, ceterum axin apicalem non attingentibus itaqve aream apicalem magnam relinquentibus.

Loc. Marg. of the Pack-Ice (2 sampl.).

Arct. Distr. According to Cleve: "Greenl., Bessel's Bay."

This species must undoubtedly be Cleve's *Frag. isl. hyp.* about which he says (l. c.): "Area longer, striæ 12 in 0.01 mm."

Fragilaria striatula Lyngb. V. H. Trt., 324, Tab. XXX, fig. 841.

Loc. Koldewey Isl. (3 sampl.).

Arct. Distr. W. Greenl., East Arct. S.

Plagiogramma Grev., 1859.

Plagiogramma Gregorianum. Grev., V. H. Trt., 338, Tab. X, fig. 390.

Loc. Koldewey Isl. (Algæ, 2 sampl.).
Arct. Distr. W. Greenl., East Arct. S.

Licmophora Ag., 1827.

Licmophora gracilis (Ehr.) Grun., V. H. Trt. 343, Tab. XXXI, fig. 851.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ, 3 sampl.).
Arct. Distr. W. Greenl.

Licmophora paradoxa (Lyngb.) Ag., V. H. Trt. 344, Tab. XXXI, fig. 855.

Loc. Off Cape Amélie (Algæ), Off Cape Bismarck (Algæ), Koldewey Isl. (Algæ, 3 sampl.).
Arct. Distr. Greenl.

Grammatophora Ehr., 1839.

Grammatophora arctica Cl., Cl. Diat. f. Spb. 664; V. H. Syn., Tab. LIII bis, fig. 3.

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ), Koldewey Isl. (Algæ, 2 sampl.).
Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Grammatophora islandica Grun., Østerr. Diat. I, 418., V. H. Syn., Tab. LIII, fig. 7.

Loc. Danmarks Havn (Algæ), off Cape Bismarck (Algæ), Koldewey Isl. (Algæ, 3 sampl.).
Arct. Distr. Greenl., East Arct. S.

Rhabdonema Kütz., 1844.

Rhabdonema arcuatum (Ag.) Kütz., V. H. Trt. 360, Tab. XII, fig. 487 a.

Loc. Off Cape Amélie (Algæ, 3 sampl.), Danmarks Havn (Algæ), Koldewey Isl. (Algæ, 2 sampl.).
Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Rhabdonema minutum Kütz., V. H. Trt. 361, Tab. XII, fig. 488 a.

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ), Off Cape Bismarck (Algæ) Koldewey Isl. (Algæ, 4 sampl.).
Arct. Distr. Greenl., East Arct. S.

Centricæ.

Rhizosolenia (Ehr. Brigtw.), Peragallo, 1892.

Rhizosolenia hebetata Bait. *forma semispina* (Hensen) Gran, Gran. Nord. Plankt., 55, fig. 67 b.

Loc. Marg. of the Pack-Ice.
Arct. Distr. East Arct. S.

Chætoceros Ehr., 1844.

Chætoceros Diadema (Ehr.) Gran, Gran. Nord. Plankt., 84, fig. 102 b.

Loc. Koldewey Isl. (Algæ, 3 sampl.), Marg. of the Pack-Ice.

Arct. Dist. W. Greenl., East Arct. S.

Only spores found.

Chætoceros septentrionale Øst., Øst. Mar. D. Østg., 457, Tab. VII, fig. 88.

Loc. Off Cape Amélie (Algæ), Marg. of the Pack-Ice.

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Chætoceros sociale Laud., Gran. Nord. Plankt., 96, fig. 123.

Loc. Koldewey Isl. (Algæ).

Arct. Distr. Sea W. of Greenl., East Arct. S.

Only spores found.

Stephanopyxis Ehr., 1844.

Stephanopyxis Turris (Grev., Ralfs) Grun. var. *Cylindrus* Grun. *forma inermis*. Grun., Fz. Js. Ld. 35, Tab. V, figs. 10—13.

Loc. Koldewey Isl. (Algæ).

Arct. Distr. Franz-Josef Land.

Thalassiosira Cl., 1872.

Thalassiosira decipiens (Grun.) Gran, Gran. nord. Plankt. 17, fig. 10.

Loc. Off Germ. L. (Land-Ice), Marg. of the Pack-Ice.

Not before recorded from Arctic Seas. Several other records.

Thalassiosira gravida Cl., Gran. Nord. Plankt., 18, fig. 12.

Loc: Off Germ. L. (Land-Ice), Marg. of the Pack-Ice.

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Thalassiosira Nordenskiöldii Cl., Gran. Nord. Plankt., 16, fig. 9.

Loc. Off Germ. L. (Land-Ice), Marg. of the Pack-Ice.

Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Melosira Ag., 1824.

Melosira Jürgensii Ag., V. H. Trt. 442, Tab. XVIII, fig. 612.

Loc. Off Cape Amélie (Algæ).

Hitherto recorded only from the northern coasts of Europe.

Melosira (mediterranea Grun. var?) **gelida** Cl., Cl. Vega Exp., 490, Tab. XXXVIII, fig. 83.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ, 4 sampl.).

Arct. Distr. According to Cleve (l. c.) "Mushroom Point."

Melosira hyperborea (Grun.) Gran, Gran. Fr. N. Exp., 52, V. H. Syn., Tab. LXXXV, figs. 3—4.

Loc. Koldewey Isl. (Algæ), Pack-Ice, Marg. of the Pack-Ice (3 sampl.).

Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Podosira Ehr.

Podosira hormoides Mont., Grun. Kasp. S. 130; V. H. Syn., Tab. LXXXIV, fig. 3.

Loc. Off Cape Amélie (Algæ, 3 sampl.), Danmarks Havn (Algæ), Off Cape Bismarck (Algæ), Koldewey Isl. (Algæ, 2 sampl.).

Arct. Distr. Greenl., E. of Greenl.

Podosira hormoides Mont., var.? *minima* Grun., V. H. l. c. figs. 7—8.

Loc. Off Cape Amélie (Algæ), Off Cape Bismarck (Algæ), Koldewey Isl. (Algæ).

According to Grunow (in the explanation of the Tab., quoted above, of V. H. Syn.) "accompagnement le *Podos. hormoides*."

Podosira Montagnei Kütz., Grun. Kasp., S. 129, V. H. Syn., Tab. LXXXIV, figs. 11—12.

Loc. Off Cape Amélie (Algæ, 3 sampl.), Danmarks Havn (Algæ), Off Cape Bismarck (Algæ), Koldewey Isl. (Algæ, 2 sampl.).

Arct. Distr. Not before recorded from Arctic Seas. Several other records.

Hyalodiscus Ehr., 1854.

Hyalodiscus scoticus (Kütz.) Grun., Cl. & Grun. A. D. 116, V. H. Syn., Tab. LXXXIV, figs. 15—17.

Loc. Danmarks Havn (Algæ), Koldewey Isl. (Algæ, 3 sampl.).

Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Hyalodiscus subtilis Baill. Cl. & Grun. A. D. 116; Perag. D. mar. d. Fr., Tab. CXIX, fig. 7.

Loc. Off Cape Amélie (Algæ, 2 sampl.), Danmarks Havn (Algæ, 2 sampl.), Off Cape Bismarck (Algæ), Koldewey Isl. (Algæ, 4 sampl.).

Arct. Distr. Greenl., East Arct. S.

Biddulphia Gray., 1831.

Biddulphia arctica (Brightw.) Boyer, Brightw. Micr. Journ. IV, 250, Tab. IV, fig. 11 (*Triceratium arcticum*).

Loc. Danmarks Havn (Algæ, 2 sampl.), Off Cape Bismarck (Algæ), Koldewey Isl. (Algæ, 4 sampl.).

Arct. Distr. Greenl., East Arct. S.

Biddulphia arctica forma Balana Ehr., A. S. Atl., Tab. CXXI, figs. 5—6.

Loc. Off Cape Bismarck (Algæ), Koldewey Isl. (Algæ, 4 sampl.).

Arct. Distr. Greenl., East Arct. S.

Biddulphia aurita (Lyngb.) Bréb., V. H. Trt. 471, Tab. XX, fig. 631.

Loc. Koldewey Isl. (Algæ, 2 sampl.).

Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Biddulphia suborbicularis Grun. var. *arctica* Øst., Øst. Kyst. D. f. Grønl., 343, Tab. II, fig. 14 (Bidd. suborb. var.).

Loc. Koldewey Isl. (Algæ, 4 sampl.).

Arct. Distr. Greenl.

Biddulphia sp., Tab. nostr. XIII, fig. 23.

Striis 11 in 10 μ , punctatis.

Valva biddulphoidea, cornubus satis brevibus, obtusis. Facie connectivali ad apicem leniter triundulata spinamque singulam longam ostendente.

As I have only seen the valve in zone-view I cannot give this form as a new species.

Actinocyclus Ehr., 1840.

Actinocyclus alienus Grun. var. *arcticus* Grun., Cl. Baff. B. 18, Tab. II, figs. 11—12.

Loc. Marg. of the Pack-Ice.

Arct. Distr. Davis Strait, East Arct. S.

Coscinodiscus Ehr., 1838.

Coscinodiscus concinnus W Sm., V. H. Trt. 531 (Cosc. radiatus var. conc.), Perag. D. mar. d. Fr., Tab. LXV, fig. 12.

Loc. Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Coscinodiscus radiatus Ehr., V. H. Trt. 530.; Perag. D. mar. d. Fr., Tab. CXVII, fig. 3.

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ), Marg. of the Pack-Ice.

Arct. Distr. Greenl., E. of Greenl., East Arct. S.

Coscinodiscus subtilis Ehr. var. ? *glacialis* Grun., Grun. Fz. Js. Ld. 56, Tab. III, fig. 27.

Loc. Marg. of the Pack-Ice.

Arct. Distr. Mouth of Yennissey (According to Grunow l.c.).

Coscinodiscus (lacustris Grun. var. ?) **septentrionalis** Grun., Grun. Fz. Js. Ld., 33, Tab. IV, fig. 33.

Loc. Marg. of the Ice.

Arct. Distr. W. Greenl., E. of Greenl., East Arct. S.

Distribution of the Marine Diatoms.

		W. Gr.	E. Gr.	E. of Gr.	E. A. S.			W. Gr.	E. Gr.	E. of Gr.	E. A. S.
Achnanthes											
1	— <i>brevipes</i>	x	x	..	x	33	(<i>Caloneis</i>) <i>brevis</i>	x	..	..	x
2	— — <i>intermedia</i> ..	..	x	..	x	34	— <i>kryophila</i>	x	x	..	x
3	— — <i>elliptica</i> ..	..	x	..	x	Campylodiscus					
4	— — <i>parvula</i> ..	x	x	..	..	35	— <i>angularis</i>	x	x	..	x
5	— <i>groenlandica</i>	x	x	..	x	Chaetoceros					
6	— <i>hyperborea</i> .....	..	..	..	x	36	— <i>Diadema</i>	x	..	..	x
Actinocyclus											
7	— <i>alienus arcticus</i> ..	x	..	..	x	37	— <i>septentrionale</i>	x	..	x	x
Amphipleura											
8	— <i>rutilans</i>	x	x	..	..	38	— <i>sociale</i>	x	..	..	x
9	— — <i>antarctica</i> ..	..	..	..	..	Cocconeis					
Amphiprora											
10	— <i>gigantea sept.</i>	x	x	..	x	39	— <i>costata</i>	x	x	..	x
11	— <i>Kjellm. glacial.</i>..	..	x	..	x	40	— — <i>pacifica</i> ..	x	x	..	..
Amphora											
12	— <i>acutiuscula</i>	x	..	..	x	41	— <i>dirupta decipiens</i> ..	x	..	..	x
13	— <i>angusta</i>	x	..	..	x	42	— <i>pinnata</i> .....	..	..	..	x
14	— <i>costata</i> .....	..	x	..	..	43	— <i>pseudomarginata</i> ..	x	x	..	x
15	— <i>crassa</i>	x	x	..	x	44	— <i>Scutellum</i>	x	x	..	x
16	— <i>Eunotia</i>	x	x	..	x	45	— — <i>minutissima</i> ..	..	..	..	x
17	— <i>granulata</i> .....	..	..	..	..	46	— — <i>californica</i> ..	..	..	..	x
18	— <i>laevis laevisissima</i>..	..	..	x	x	47	— <i>septentrionalis</i>...	..	..	..	x
19	— <i>lineolata</i> .....	..	..	..	x	Coscinodiscus					
20	— <i>macilenta</i> .....	..	..	..	..	48	— <i>concinus</i>	x	..	x	x
21	— <i>margaritifera</i>	x	..	..	..	49	— <i>radiatus</i>	x	x	x	x
22	— <i>marina</i> .....	..	x	x	..	50	— <i>septentrionalis</i> ...	x	..	x	x
23	— <i>Proteus</i>	x	x	..	x	51	— <i>subtilis</i> .....	..	..	..	x
24	— — <i>contigua</i> ..	..	x	..	..	Diploneis					
25	— <i>Terroris</i>	x	x	..	x	52	— <i>borealis</i>	x	..	x	x
26	— — <i>inflata</i> ..	..	x	..	..	53	— <i>coffæiformis</i> .....	..	..	..	..
Auricula											
27	— <i>minuta</i> .....	..	..	..	..	54	— <i>Entomon</i> .....	..	x	..	x
Biddulphia											
28	— <i>arctica</i>	x	x	..	x	55	— <i>interrupta</i> .....	..	..	x	x
29	— — <i>Balæna</i> ..	x	x	..	x	56	— <i>littoralis arctica</i> .	x	..	x	x
30	— <i>aurita</i>	x	x	x	x	57	— — <i>hyperborea</i> ..	x	..	x	x
31	— <i>suborbicularis var.</i>	x	x	..	..	58	— <i>muscæformis</i> .....	..	..	..	..
Caloneis											
32	— <i>amphisb. fuscata</i> ..	..	..	..	x	59	— <i>Smithii</i>	x	x	..	x
Caloneis											
33	(<i>Caloneis</i>) <i>brevis</i>	x	..	..	x	60	— <i>splendida</i>	x	x	..	x
34	— <i>kryophila</i>	x	x	..	x	61	— <i>subcineta</i> .....	..	x	..	x
Campylodiscus											
35	— <i>angularis</i>	x	x	..	x	62	— <i>vacillans</i> .....	..	..	..	..
Chaetoceros											
36	— <i>Diadema</i>	x	..	..	x	Fragilaria					
37	— <i>septentrionale</i>	x	..	x	x	63	— <i>Cylindrus</i>	x	..	x	x
38	— <i>sociale</i>	x	..	..	x	64	— <i>islandica hyperb.</i> ..	x	..	..	..
Cocconeis											
39	— <i>costata</i>	x	x	..	x	65	— <i>striatula</i>	x	..	..	x
40	— — <i>pacifica</i> ..	x	x	..	..	Gomphonema					
41	— <i>dirupta decipiens</i> ..	x	..	..	x	66	— <i>exiguum arctic.</i> ...	x	x	..	x
42	— <i>pinnata</i> .....	..	..	..	x						
43	— <i>pseudomarginata</i> ..	x	x	..	x						
44	— <i>Scutellum</i>	x	x	..	x						
45	— — <i>minutissima</i> ..	..	..	..	x						
46	— — <i>californica</i> ..	..	..	..	x						
47	— <i>septentrionalis</i>...	..	..	..	x						
Coscinodiscus											
48	— <i>concinus</i>	x	..	x	x						
49	— <i>radiatus</i>	x	x	x	x						
50	— <i>septentrionalis</i> ...	x	..	x	x						
51	— <i>subtilis</i> .....	..	..	..	x						
Diploneis											
52	— <i>borealis</i>	x	..	x	x						
53	— <i>coffæiformis</i> .....	..	..	..	..		
54	— <i>Entomon</i> .....	..	x	..	x						
55	— <i>interrupta</i> .....	..	..	x	x						
56	— <i>littoralis arctica</i> .	x	..	x	x						
57	— — <i>hyperborea</i> ..	x	..	x	x						
58	— <i>muscæformis</i> .....	..	..	..	..		
59	— <i>Smithii</i>	x	x	..	x						
60	— <i>splendida</i>	x	x	..	x						
61	— <i>subcineta</i> .....	..	x	..	x						
62	— <i>vacillans</i> .....	..	..	..	..		
Fragilaria											
63	— <i>Cylindrus</i>	x	..	x	x						
64	— <i>islandica hyperb.</i> ..	x	..	..	..			
65	— <i>striatula</i>	x	..	..	x						
Gomphonema											
66	— <i>exiguum arctic.</i> ...	x	x	..	x						

		W. Gr.	E. Gr.	E. of Gr.	E. A. S.			W. Gr.	E. Gr.	E. of Gr.	E. A. S.
67	(Gonophonema) groenland.	x	..	x	x	102	(Navicula) inflexa .....	..	..	..	x
68	— kamschaticum	x	..	x	x	103	— kariana <i>detersa</i> ..	x	..	x	x
69	— septentrionale .....	..	..	x	..	104	— — <i>frigida</i>	x	..	..	x
70	— — <i>angustum</i> .....	..	..	x	..	105	— kryok. <i>subprotol.</i> ..	..	..	x	x
	Grammatophora					106	— mollis	x	..	..	..
71	— arctica	x	x	x	x	107	— obtusa	x	..	x	x
72	— islandica	x	x	..	x	108	— peregrina	x	..	..	x
	Gyrosigma					109	— — <i>kefvingensis</i> ..	..	..	..	..
73	— arcticum	x	..	..	x	110	— punctulata	x	x	..	x
	Hantschia					111	— pygmaea .....	..	..	..	x
74	— Weyprechtii .....	..	..	x	x	112	— ramosissima	x	x	..	..
	Hyalodiscus					113	— rhombica	x	..	..	..
75	— scoticus	x	x	x	x	114	— rostelloides .....	..	..	x	..
76	— subtilis	x	x	..	x	115	— sibirica .....	..	..	x	x
	Liemophora					116	— spectabilis	x	x	..	..
77	— gracilis	x	..	..	..	117	— — <i>densestriata</i> ..	..	x	..	..
78	— paradoxa	x	x	..	..	118	— Spicula .....	..	..	x	x
	Melosira					119	— subinflata	x	..	x	x
79	— hyperborea	x	x	x	x	120	— superba	x	x	x	x
80	— Jürgensii .....	..	..	..	..	121	— — <i>subacuta</i> ..	..	..	..	x
81	— mediterr. <i>gelida</i> ..	x	..	..	..	122	— transitans	x	..	x	x
	Navicula					123	— trigonocephala ..	x	..	x	x
82	— ammophila .....	..	..	..	x	124	— valida .....	..	x	x	x
83	— Baculus .....	..	..	x	x	125	— Wankaremæ .....	..	..	..	x
84	— bahusiensis .....	..	..	x	x	126	— vitrea	x	..	x	x
85	— Bolleana	x	..	..	x	127	— Zostereti .....	..	..	x	..
86	— — <i>intermedia</i> .....	..	..	x	..		Nitschia				
87	— cancellata	x	x	..	x	128	— angularis	x	x	x	x
88	— — <i>Gregorii</i> .....	..	..	x	x	129	— — <i>borealis</i>	x	x	..	x
89	— — <i>retusa</i> .....	..	..	..	x	130	— bilobata	x	..	..	..
90	— — <i>subapicul.</i>	x	..	..	x	131	— Brébiss. <i>borealis</i> ..	x	..	x	x
91	— digitoradiata	x	x	x	x	132	— distans	x	..	..	x
92	— — <i>Cyprinus</i> ..	x	x	..	..	133	— hybrida .....	..	..	x	x
93	— directa <i>genuina</i> ..	x	x	..	x	134	— insignis <i>arctica</i> ..	..	x	..	x
94	— — <i>cuneata</i> .....	..	..	x	..	135	— lanceolata .....	..	..	x	..
95	— — <i>lata</i> .....	..	..	x	..	136	— levissima .....	..	..	x	x
96	— — <i>remota</i>	x	x	..	x	137	— paradoxa .....	..	..	..	x
97	— distans	x	..	x	x	138	— scabra	x	..	x	x
98	— fusif. <i>ostrearia</i> ..	..	..	..	..	139	— Sigma	x	..	..	x
99	— glacialis	x	..	x	x	140	— — <i>Sigmatella</i> ..	..	..	..	..
100	— — <i>septent.</i>	x	x	..	x	141	— — <i>valida</i>	x	..	..	..
101	— Grevillei	x	x	..	x	142	— polaris	x	..	x	x
						143	— socialis <i>kasiana</i> ..	..	..	..	x
						344	— Trybl. <i>levidensis</i> ..	..	x	..	x
						145	Pinnularia				
							— bistriata .....	..	..	..	..
		22	13	17	24			23	10	20	31

		W. Gr.	E. Gr.	E. of Gr.	E. A. S.			W. Gr.	E. Gr.	E. of Gr.	E. A. S.
146	(Pinnularia) quadratarea.	x	x	x	x	162	Stephanopyxis				
147	— — <i>constricta</i> .	..	..	x	x		— Turris var. ....	..	..	..	x
148	— — <i>dubia</i> .....	..	..	..	x	163	Surirella				
149	— — <i>gibbosa</i> .....	..	..	x	x		— Oestrupii .....	..	x	x	x
150	— Stuxbergii	x	..	x	x	164	Synedra				
	Plagiogramma					165	— <i>affinis genuina</i> ..	..	..	..	..
151	— Gregorianum	x	..	..	x	166	— — <i>acuminata</i> .	..	..	..	..
	Pleurosigma					167	— — <i>fasciculata</i> .	..	..	..	..
152	— <i>elongatum</i>	x	x	..	x	168	— — <i>hybrida</i> ..	..	..	..	..
	Podosira					169	— — <i>lancelettula</i>	x	..	..	..
153	— <i>hormoides</i>	x	x	x	..	170	— — <i>parva</i>	x	..	..	x
154	— — <i>minima</i> .....	..	..	..	..	171	— — <i>rupicola</i> ..	..	..	..	..
155	— Montagnei .....	..	..	..	..	172	— — <i>subtilis</i> .....	..	..	..	..
	Rhabdonæma					173	— — <i>tabulata</i> ..	..	..	..	..
156	— <i>arcuatum</i>	x	x	x	x	174	— — <i>curta acum</i>	x	x	..	x
157	— <i>minutum</i>	x	x	..	x	175	— <i>investiens</i>	x	..	..	x
	Rhizosolenia					176	— <i>kamtschatica</i>	x	x	..	x
158	— <i>hebet. semisp.</i> ..	..	..	..	x	177	Thalassiosira				
	Rhoicosphenia					178	— <i>decipiens</i> .....	..	..	..	..
159	— <i>curvata</i>	x	x	x	x	179	— <i>gravida</i>	x	..	x	x
	Stauroneis					180	— <i>Nordenskiöldii</i> ..	x	x	x	x
160	— <i>pellucida constr.</i> .	..	..	x	..	181	Trachyneis				
161	— <i>perpusilla</i> .....	..	..	x	x	182	— <i>asp. genuina</i> .....	..	..	..	..
							— — <i>vulgaris</i>	x	..	..	..
							— — <i>intermedia</i> ..	x	x	x	x
							Tropidoneis				
							— <i>longa</i>	x	x	..	x
		8	6	9	12			10	6	4	10
							Total ...	103	66	62	123

In the above list I have given an account of the distribution of the individual species within different districts of the Arctic Seas.

I have in all 182 marine forms, of which 24 have until now been unrecorded from the Arctic Seas. Hence 158 (86.8 %), therefore by far the greater part, have previously been recorded from these districts. If we now investigate the more detailed distribution, the result will be as follows: —

- (1) From W. Greenl. are known 103 (56.6 %)
- E. Greenl. + E. of Greenl. are known 120 (66.0 %)
- East Arct. S. are known 125 (68.7 %)

The above table shows that the following is the distribution in the samples of the 37 genera which occur — 19 (51.4 %) in Alga- and ice-samples, 12 (32.4 %) both in Alga- and ice-samples, and 6 (16.2 %) in ice-samples.

With regard to the species and varieties we find the proportions to be as follows: —

In the Alga-samples are found	129 (70.9 %)
In the ice-samples are found	45 (24.7 %)
Both in the Alga- and ice-samples are found	8 (4.4 %)

All the figures were drawn magnified 1000 times by the author, and then photographically reduced to a magnification of 660.

Fig. 1. <i>Navicula rostelloides</i> sp. nova	Page 201
— 2. — <i>jamalinensis</i> Cl., var. <i>subcircularis</i> var. nova	— 206
— 3. <i>Trachyneis aspera</i> (Ehr.), Cl., var. <i>intermedia</i> Grun. <i>forma robusta</i>	— 204
— 4. <i>Navicula peregrina</i> Ehr., var. ? <i>oblonga</i> var. nova	— 207
— 5. — <i>jejuna</i> A. Sch., var. <i>arctica</i> var. nova	— 206
— 6. — <i>subcuneata</i> , sp. nova	— 207
— 7. — ? <i>gomphonemoides</i> , sp. nova	— 208
— 8. — <i>valida</i> , Cl. & Grun. <i>forma minor</i>	— 208
— 9. — <i>Lyra</i> Ehr., var. <i>arctica</i> var. nova	— 209
— 10. — <i>scopulorum</i> Bréb., var. <i>arctica</i> var. nova	— 203
— 11. <i>Amphora gigantea</i> Grun.	— 210
— 12. — <i>virgata</i> , sp. nova	— 210
— 13. <i>Cocconeis pinnata</i> , Greg., var. <i>arctica</i> var. nova	— 213
— 14. — <i>ornata</i> , Greg. ?	— 214
— 15. <i>Achnanthes hyerborea</i> , Grun.	— 214
— 16. <i>Amphora venusta</i> , sp. nova	— 212
— 17. <i>Cocconeis</i> sp.	— 214
— 18. <i>Achnanthes rhombica</i> , sp. nova	— 215
— 19. <i>Surirella insignis</i> , sp. nova	— 216
— 20. <i>Nitzschia marginulata</i> Grun., var. <i>genuina</i> Grun. <i>forma minuta</i> ?	— 217
— 21. <i>Achnanthes septentrionalis</i> , sp. nova	— 215
— 22. — — var. <i>subcapitata</i> var. nova	— 215
— 23. <i>Biddulphia</i> sp.	— 224
— 24. <i>Achnanthes debilissima</i> , sp. nova?	— 214
— 25. <i>Fragilaria islandica</i> Grun., var. <i>hyperborea</i> Cl.	— 220
— 26. <i>Nitzschia Sigma</i> , W. Sm., var. <i>robusta</i> var. nova	— 218

FRESHWATER-DIATOMS.

PENNATÆ.

Diraphideæ.

Caloneis Cl., 1894.

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

Loc. Vester Elv.

Arct. Distr. E. Greenl., Spb., J. M.

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

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ).

Arct. Distr. Spb., J. M.

In a sample from Thermometerfjeld I found a form agreeing with *Navicula fonticola* Grun (V. H. Syn., Tab. XII, fig. 32) which Cleve (l. c.) refers to *Caloneis fasciata*.

Caloneis lepidula (Grun.) Cl., Cl. Syn., I, 50; V. H. Trt., Tab. V, fig. 236 (Nav. lepid.).

Loc. Vester Elv.

Not before recorded from Arctic regions.

Caloneis septentrionalis sp. nova. Tab. nost. XIV, fig. 1.

Long. 70 μ . Lat. 8 μ . Str. 14 in 10 μ , delicatissime punctatis.

Valva lineari, apicibus rotundatis. Raphe area satis lata hyalina cincta. Striis parallelis, sub apices convergentibus media in valva deficientibus ibiqve fasciam transapicalem angustam relinqventibus. Linea inframarginali difficulter perspicienda. Nodulis terminalibus figuram sicut flammulæ præbentibus.

Loc. Hvalrosodde, Vester Elv.

Possibly this species, in spite of its coarse striation, may be most nearly allied to the group belonging to *Caloneis fasciata*.

Caloneis Silicula (Ehr.) Cl. var. *alpina* Cl., Cl. Syn., I, 51; Lgst., Spb., Tab. I, fig. 6 (Nav. limosa).

Loc. Hvalrosodde, Vester Elv (2 sampl.).

Arct. Distr. E. Greenl., Spb., J. M.

Caloneis Silicula var. *ventricosa* (Ehr.) Donk., Cl. Syn., I, 52; V. H. Trt., Tab. V, fig. 209 (Nav. ventric.).

Loc. Vester Elv.

Arct. Distr. Fz. Js. Ld.

Neidium Pfitz., 1871.

Neidium affine Ehr. var. *genuina* Cl. *forma minor*, Cl. Syn., I, 68; Lgst., Spb., Tab. I, fig. 9 (Nav. bisulcata turgidula).

Loc. Vester Elv.

Arct. Distr. Spb.

Neidium affine Ehr. var. *longiceps* Greg., Greg. M. J., IV, Tab. I, fig. 27 (Nav. longic.).

Loc. Vester Elv.

Arct. Distr. W. Greenl.

Neidium bisulcatum Lgst., Cl. Syn., I, 68; Lgst., Spb., Tab. I, fig. 18 (Nav. bisulc.).

Loc. Vester Elv.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., Spb., J. M.

Neidium decoratum Brun, Brun, Jan M. & Est-Groenl., 18, Tab. II, figs. 6—7.

Loc. Hvalrosodde, Vester Elv (2 sampl.).

Arct. Distr. E. Greenl.

Neidium Iridis (Ehr.) Cl., Cl. Syn., I, 69; V. H. Trt., Tab. V, fig. 212 (Nav. Ir.).

Loc. Hvalrosodde.

Arct. Distr. E. Greenl., Fz. Js. Ld.

Diploneis Ehr., 1840.

Diploneis oculata (Bréb.) Cl., Cl. Syn., I, 92; V. H. Syn., Tab. IX, fig. 10 (Nav. ocul.).

Loc. Off Cape Amélie (Algæ).

Not before recorded from Arctic regions. Other record, France.

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

Loc. Off Cape Amélie (Algæ).

Arct. Distr. W. Greenl., Spb.

Frustulia Ag., 1824.

Frustulia rhomboides Ehr. var. *leptocephala* Øst., Øst. Ferskv. D. f. Østg., 257, Tab. I, fig. 1.

Loc. Vester Elv (2 sampl.).

Arct. Distr. E. Greenl.

Naviculæ merolejæ Cl., 1894.

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

Loc. Nostoc.

Not before recorded from Arctic regions. Several other records.

Navicula Heufleriana Grun., Cl. Syn., I, 130; V. H. Syn., Tab. IV, fig. 1 a.

Loc. Hvalrosodde.

Arct. Distr. Fz. Js. Ld.

Navicula mutica Kütz. *forma Cohnii* Hilse, Cl. Syn., I, 129; V. H. Trt., Tab. 4, fig. 167 (Nav. mut.).

Loc. Lille Snenæs, Danmarks Havn, Vester Elv.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., Spb., J. M.

Navicula mutica *forma Gøppertiana* Bleisch, V. H. Syn., Tab. X, figs. 18—19.

Loc. Off Cape Amélie (Algæ, 2 sampl.).

Not before recorded from Arctic regions. Several other records.

Navicula mutica *forma ventricosa* Kütz., V. H. Trt., Tab. IV, fig. 171 (Nav. ventric.).

Loc. Lille Snenæs (2 sampl.), Vester-Elv, Thermometerfjeld.

Arct. Distr. E. Greenl., Fz. Js. Ld., J. M.

Navicula nivalis Ehr., Cl. Syn., Tab. I, 130; V. H. Syn., Tab. X, fig. 21 (Nav. qvinqvenodis Grun.).

Loc. Thermometerfjeld.

Arct. Distr. Fz. Js. Ld.

Navicula Rotæana Rabh., Cl. Syn., I, 128; Lgst., Spb., Tab. I, fig. 13 (*Stauroneis minutissima*).

Loc. Lille Snenæs.

Arct. Distr. E. Greenl., Spb., B. El., J. M.

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

Loc. Thermometerfjeld.

Arct. Distr. W. Greenl., Spb.

Naviculæ entolejæ Cl., 1884.

Navicula contenta Grun., Cl. Syn., I, 132; V. H. Trt., Tab. V, fig. 239.

Loc. Dove Bugt, Vester Elv.

Arct. Distr. E. Greenl.

Naviculæ decipientes Grun., 1880.

Navicula gibbula Cl., Cl. Syn., I, 140; Lgst., Spb., Tab. I, fig. 7 a (Nav. gibberula).

Loc. Hvalrosodde, Lille Snenæs (2 sampl.), Vester Elv (2 sampl.), Thermometerfjeld.

Arct. Distr. E. Greenl. Fz. Js. Ld., Spb., J. M.

Navicula gibbula var. *capitata* Lgst., Lgst. l. c., fig. 7 a¹, Tab. nost. XIV, fig. 2.

Loc. Hvalrosodde, Nostoc.

Arct. Distr. E. Greenl., Spb.

This form, of which I have given a figure, differs in the striation, which in the main species is radiate, but here is radiate only in the middle and parallel towards the apices. Lagerstedt has not shown the striation in his fig. 7 a¹, but with regard to the outline and general appearance his figure agrees very well with the present form. Therefore I have no doubt that the present form is identical with *Nav. gibb. capitata* Lgst.

Navicula Lagerstedtii Cl., Cl. Syn., I, 141; Lgst., Spb., Tab. II, fig. 12 (*Navicula* sp.).

Loc. Hvalrosodde.

Arct. Distr. E. Greenl., Spb.

Naviculæ microstigmaticæ Cl., 1894.

Stauroneis anceps Ehr., Cl. Syn., I, 147; V. H. Trt., Tab. I, figs. 55—57 (including also *St. anc. linearis* and *St. anc. amphicephala*).

Loc. Hvalrosodde, Dove Bugt, Lille Snenæs, Vester Elv (3 samples).

Arct. Distr. W. Greenl., E. Greenl., Spb., J. M.

Stauroneis dilatata Ehr. *forma minor* Tab. nost. XIV, fig. 3.

Long. 37 μ . Lat. 8 μ . Striis subtilissimis.

Valva elliptice-lanceolata, apicibus capitatis. Raphe area hyalina, mediam valvam versus patescente, cincta. Stauro lato margins non attingente. Striis radiantibus. Nodulis terminalibus inconspicuis.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. The main species: Europe, Siberia.

Stauroneis javanica Grun., var. *oblonga* Øst., Øst., Ferskv. D. f. Østgr., 260, Tab. I, fig. 4.

Loc. Hvalrosodde (2 sampl.), Lille Snenæs.

Arct. Distr. E. Greenl.

Stauroneis javanica Grun., var. *truncata* Øst., Øst. l. c. fig. 5.

Loc. Stormkap, Vester Elv.

Arct. Distr. E. Greenl.

Stauroneis obtusa Lgst., Cl. Syn., I, 149; Lgst., Spb., Tab. I, fig. 11.

Loc. Hvalrosodde.

Arct. Distr. Fz. Js. Ld., Spb.

Stauroneis parvula Grun., Cl. Syn., I, 149; O. Müll., Riesengeb., Tab. III, fig. 33.

Loc. Hvalrosodde, Lille Snenæs.

Not before recorded from Arctic regions. Other record, Europe.

Stauroneis Phoenicenteron Ehr., var. *amphilepta* Ehr., Cl. Syn., I, 149; Herib., Diat. d'Auv., Tab. III, fig. 18.

Loc. Hvalrosodde, Vester Elv (2 sampl.).

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld.

In a sample from Lille Snenæs I found a *Stauroneis* which corresponds very well with the form in my "Danske Diatoméer," Tab. II, fig. 36, which I consider intermediate between *Staur. anceps* and *Staur. Phyllodes* Ehr.

Cymbella Ag., 1830.

Cymbella æqualis W. Sm., Cl. Syn., I, 170; V. H. Syn., Tab. III, fig. 1a.

Loc. Hvalrosodde (2 sampl.).

Arct. Distr. W. Greenl., E. Greenl.

Cymbella affinis Kütz., var. *tumida* Lgst., Cl. Syn., I, 171 (ad Cymb. aff.?). Lgst., Spb., 43, Tab. II, fig. 19.

Loc. Hvalrosodde (2 sampl.), Nostoc.

Arct. Distr. E. Greenl., Spb.

Cymbella angustata W. Sm., Cl. Syn., I, 161; W. Sm., Syn., Tab. XVII, fig. 156; Lgst., Spb., Tab. II, fig. 10 (Nav. inæqvilatera).

Loc. Hvalrosodde (2 sampl.), Vester Elv.

Art. Distr. W. Greenl., E. Greenl., Spb.

Cymbella Botellus Lgst., Cl. Syn., I, 172; Lgst., Spb., Tab. II, fig. 22 (Cymb. variabilis var. Bot.).

Loc. Hvalrosodde.

Arct. Distr. E. Greenl., Spb.

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

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. Greenl.

Cymbella gracilis Rabh., Cl. Syn., I, 169; V. H. Trt., Tab. XXVIII, fig. 791 bis, c (*Encyonema lunatum*).

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. Greenl., Spb.

Cymbella hebridica Grun., Cl. Syn., I, 169; Cl., Diat. Finl., Tab. II, figs. 16—17 (*Encyonema hebr.*).

Loc. Hvalrosodde.

Not before recorded from Arctic regions. Several other records.

Cymbella heteropleura Ehr. var. *minor* Cl., Cl. Syn., I, 167; Lgst., Spb., Tab. II, fig. 17 (Cymb. Ehrenb. var.).

Loc. Hvalrosodde (4 sampl.), Vester Elv.

Arct. Distr. E. Greenl., Fz. Js. Ld., Spb.

Cymbella leptoceros Ehr., Cl. Syn., I, 162; V. H. Syn., Tab. II, fig. 18.

Loc. Hvalrosodde, Vester Elv.

Not before recorded from Arctic regions. Several other records.

Cymbella naviculiformis Auersw., Cl. Syn., I, 166; Lgst., Spb., Tab. II, fig. 18 (*Cymb. anglica*).

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. Greenl., Spb., B. El.

Cymbella septentrionalis sp. nova. Tab. nost. XIV, fig. 4.

Long. 32—56 μ . Lat. 7—8 μ . Str. 14 in 10 μ , delicatissime transverse lineatis.

Valva fere cymbiformi, apicibus marginem dorsalem versus paululum recurvatis. Margine ventrali subundulata. Raphe leniter arcuata, area hyalina distincta, media in valva in aream centralem longinam dilatata, cincta. Nodulis terminalibus marginem dorsalem versus recurvatis.

Loc. Hvalrosodde (2 sampl.).

Very nearly linear specimens of this species sometimes occur.

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

Loc. Hvalrosodde.

Not before recorded from Arctic regions. Several other records.

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

Loc. Hvalrosodde (2 sampl.), Vester Elv.

Arct. Distr. E. Greenl., Fz. Js. Ld., Spb.

Cymbella ventricosa Kütz., Cl. Syn., I, 168; V. H. Syn., Tab. III, fig. 15 (second fig. *Encyon. ventr.*).

Loc. Vester Elv.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., Spb.

Cymbella ventricosa var. *ovata* Grun., V. H. Trt., Tab. I, fig. 48 (*Encyon. caespit. lata*).

Loc. Vester Elv.

Not before recorded from Arctic regions. Several other records.

Cymbella ventricosa var. *semicircularis* Lgst., Lgst., Spb., Tab. II, fig. 20 (*Cymb. affinis* *semicirc.*).

Loc. Dove Bugt.

Arct. Distr. E. Greenl., Spb.

This variety, which Cleve (Syn. I, 168) places under *Cymb. ventricosa* seems to be so peculiar in appearance that it certainly may be considered a distinct variety.

In a sample labelled "Nostoc" I found a *Cymbella*, which is figured in V. H., Syn., Tab. III, fig. 18 as a "Forme moyenne entre l'*Encyonema caespitosum* et l'*Encyonema Lunula*."

Gomphonema Ag., 1824.

Gomphonema boreale sp. nova. Tab. nost. II, fig. 5.

Long. 60 μ . Lat. 5,5 μ . Str. 8 in 10 μ , punctatis; punct. 10—11 in 10 μ .

Valva clavata, apicibus rotundatis. Raphe area hyalina satis lata cincta. Striis subradiantibus, media in valva deficientibus ibique fasciam transapicalem latam relinquentibus. Nodulis terminalibus inconspicuis. Punctum unilaterale non perspicere potui.

Loc. Off Cape Amélie (Algæ). Only a single specimen met with.

Judging from its appearance as a whole this form may be a freshwater-species, although it occurred in a sample of marine Algæ.

Naviculæ minusculæ Cl., 1895.

Navicula Atomus Nægeli var. *circularis* Øst., Øst., Kossog., 84, Tab. I, fig. 10.

Loc. Vester Elv.

Not before recorded from Arctic regions. Other record, Kossogol.

Navicula lucidula Grun., Cl. Syn., II, 4; V. H. Syn., Tab. XIV, fig. 40.

Loc. Hvalrosodde.

Not before recorded from Arctic regions. Other records, Denmark, Kossogol.

Anomoeoneis Pfitz., 1871.

Anomoeoneis exilis (Kütz.), Grun., Cl. Syn., II, 8; V. H. Trt., Tab. IV, fig. 198 (Nav. exil.).

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. Greenl.

Anomoeoneis Zellensis Grun., Cl. Syn., II, 7; V. H. Syn., Tab. XII, fig. 14 (Nav. Zell.).

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. Greenl.

Anomoeoneis Zellensis var. *linearis* Øst., var. nova. Tab. XIV, fig. 6.

Long. 22 μ . Lat. 4 μ . Striis inconspicuis.

Valva lineari, apicibus leniter attenuatis. Raphe area hyalina angusta media in valva in aream transapicalem parvam rotundatam dilatata, cincta. Structura valvæ sicut scabrosa, an elevationes apicales laterales ostendente? Nodulis terminalibus inconspicuis.

Loc. Hvalrosodde (2 sampl.).

This small form recalls in its structure that of *Anomoeou. Zell.*, but in outline it recalls *Navicula difficilis* Grun. (V. H. Syn., Tab. XII, fig. 17) a species which perhaps may belong to the genus *Anomoeoneis*.

Naviculæ heterostichæ Cl., 1895.

Navicula cocconeiformis Greg., Cl. Syn., II, 9; V. H. Trt., Tab. XXVII, fig. 779.

Loc. Vester Elv (5 sampl.).

Arct. Distr. W. Greenl., E. Greenl., Spb., B. El., J. M.

Naviculæ lineolatæ Cl., 1895.

Navicula anglica Ralfs., Cl. Syn., II, 22; V. H. Trt., Tab. III, fig. 136.

Loc. Danmarks Havn (Algæ).

Not before recorded from Arctic regions. Several other records.

Navicula anglica Ralfs *forma elongata*. Tab. nost. XIV, fig. 7. Long. 28 μ . Lat. 8 μ . Str. 11 in 10 μ , transverse lineatis.

Valva elliptica, apicibus rostratis. Raphe area hyalina, mediam valvam versus gradatim patescente, cincta. Striis radiantibus, media in valva alternatim longis abbreviatisque. Nodulis terminalibus inconspicuis.

Loc. Koldewey Isl. (Algæ).

This form may be considered a somewhat narrow *Nav. anglica*.

Navicula capitata Cl., Cl. Diat. f. Fz. Js. Ld., 5, fig. 2.

Loc. Vester Elv,

Arct. Distr. Fz. Js. Ld.

Navicula cincta Ehr., Cl. Syn., II, 16; V. H. Trt., Tab. III, fig. 105.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. Fz. Js. Ld.

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

Loc. Hvalrosodde (2 sampl.), Vester Elv.

Arct. Distr. J. M.

Navicula falaisensis Grun., Cl. Syn., II, 21; V. H. Trt., Tab. V, fig. 232.

Loc. Off Cape Amélie (Algæ), Vester Elv.

Arct. Distr. W. Greenl.

Navicula Gastrum Ehr., Cl. Syn., II, 22; V. H. Trt., Tab. III, fig. 134.

Loc. Off Germ. L. (Land-Ice), Marg. of the Pack-Ice.

Arct. Distr. W. Greenl., E. of Greenl.

Navicula gracilis Ehr. var. *obesa* var. nova. Tab. nost XIV, fig. 8.

Long. 33 μ . Lat. 9 μ . Str. 11 in 10 μ transverse lineatis.

Valva elongate-elliptica apicibus rotundatis. Raphe area angusta hyalina, media in valva in aream transapicalem dilatata, cincta.

Striis radiantibus, sub apices leniter convergentibus, media in valva spatiatas.

Loc. Dove Bugt.

I think this form may be a variety of *Nav. gracilis*, perhaps most nearly allied to *Nav. grac.* var. *schizonemoides* figured in V. H. Syn., Tab. XV, fig. 37 (the second figure).

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

Loc. Off Cape Amélie (Algæ), Hvalrosodde, Vester Elv.

Not before recorded from Arctic regions. Several other records.

Navicula lanceolata var. *tenella* A. S., A. S. Atl., Tab. XLVII, figs. 45—46.

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ).

Not before recorded from Arctic regions. Other records, Sweden, Loka (Cl. I. c.).

Navicula Placentula Ehr., Cl. Syn., II, 23; V. H. Trt., Tab. III, fig. 135 (Nav. Gastrum Placentul.).

Loc. Off Cape Amélie (Algæ), Marg. of the Pack-Ice (2 sampl.).

Arct. Distr. Yenissey.

Navicula radiosa Kütz., Cl. Syn., II, 17; V. H. Trt., Tab. III, fig. 112.

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. Greenl., Spb., B. El.

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

Loc. Off Cape Amélie (Algæ, 2 sampl.).

Arct. Distr. B. El.

Navicula viridula Kütz. var. *slesvicensis* Grun., Cl. Syn., II, 15; V. H. Trt., Tab. III, fig. 118.

Loc. Dove Bugt.

Arct. Distr. W. Greenl., E. Greenl.

Navicula sp. Tab. nost XIV, fig. 9.

Long. 21 μ . Lal. 5,4 μ . Striis inconspicuis.

Valva lanceolata apicibus capitatis. Raphe distincta.

Loc. Dove Bugt.

This small form shows only very few, if any, distinct characters. I think I have seen indications of a striation which, at least in the middle of the valve, seemed to me to be radiate, but I am not quite certain; therefore I do not feel justified in recording it as a new species.

Naviculæ punctatæ Cl., 1895.

Navicula pusilla W. Sm. var. *capitata* var. nova. Tab. nost XIV, fig. 10.

Long. 45 μ . Lat. 22 μ . Str. 10—11 in 10 μ , sub apices densioribus, distincte punctatis.

Valva sub-orbiculari, apices plane-capitados versus valde attenuata. Raphe area hyalina distincta, media in parte valvæ in aream centralem rotundatam dilatata, cincta. Striis radiantibus, media in valva alternatim longis abbreviatisqve. Nodulis terminalibus summis in apicibus situatis.

Loc. Hvalrosodde.

Pinnularia (Ehr.), 1843.

Gracillimæ Cl., 1895.

Pinnularia leptosoma Grun., Cl. Syn., II, 74; V. H. Syn., Tab. XII, fig. 29.

Loc. Off Cape Amélie (Algæ), Vester Elv.

Arct. Distr. E. Greenl., Fz. Js. Ld., J. M.

Capitata Cl., 1895.

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

Loc. Hvalrosodde, Lille Snenæs.

Arct. Distr. W. Greenl.

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

Loc. Off Cape Amélie (Algæ).

Arct. Distr. E. Greenl.

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

Loc. Hvalrosodde, Nostoc.

Not before recorded from Arctic regions. Several other records.

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

Loc. Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., J. M.

Pinnularia subcapitata Greg., Cl. Syn., II, 75; A. S. Atl., Tab. XLV, fig. 65 (Nav. Hilseana).

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. of Greenl., Spb.

Divergentes Cl., 1895.

Pinnularia Brébissonii Kütz. var. *diminuta* H. V. H., Cl. Syn., II, 78; V. H. Trt., Tab. II, fig. 84 (Nav. Breb. dimin.)

Loc. Lille Snenæs, Vester Elv.

Arct. Distr. J. M.

Pinnularia Brébissonii var. *linearis* O. Müll. *forma curta*, O. Müll., Riesengeb., 25, Tab. III, fig. 3.

Loc. Vester Elv.

Not before recorded from Arctic regions. Other record, Riesengebirge.

Pinnularia divergens W. Sm. var. *linearis* var. *nova*. Tab. nost. XIV, fig. 11.

Long. 52 μ . Lat. 11 μ . Str. 8 in 10 μ .

Valva lineari apicibus rotundatis. Raphe area hyalina satis lata, media in valva in fasciam transapicalem dilatata, cincta. Incrassationibus marginalibus fasciæ evidentibus. Striis radiantibus sub apices convergentibus. Fissuris terminalibus figuram "commatis" præbentibus.

Loc. Vester Elv, Thermometerfjeld.

I have placed this form under *Pinn. divergens* because of the marginal incrassations of the fascia.

Pinnularia divergentissima Grun., Cl. Syn., II, 77; V. H. Syn., Tab. VI, fig. 32.

Loc. Hvalrosodde (2 sampl.), Vester Elv, Thermometerfjeld.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., Spb., B. El., J. M.

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

Loc. Vester Elv.

Not before recorded from Arctic regions. Several other records.

The present form is a *forma parva*; long. 54 μ .

Distantes Cl., 1895.

Pinnularia borealis Ehr., Cl. Syn., II, 80; V. H. Trt., Tab. II, fig. 77 (Nav. bor.).

Loc. Hvalrosodde (2 sampl.), Dove Bugt, Stormbugt, Stormkap, Vester Elv (2 sampl.), Thermometerfjeld.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., Spb., B. El., J. M.

Pinnularia lata Bréb., Cl. Syn., II, 81; V. H. Trt., Tab. II, fig. 76 (Nav. lata).

Loc. Stormkap, Thermometerfjeld.

Arct. Distr. E. Greenl., Fz. Js. Ld., J. M.

Tabellariæ Cl., 1895.

Pinnularia mesogongyla Ehr., Cl. Syn., II, 84; Cl., Diat. Finl., Tab. I, fig. 11.

Loc. Hvalrosodde, Vester Elv (3 sampl.).

Arct. Distr. E. Greenl.

Pinnularia stauroptera Grun. var. *interrupta* Cl. *forma parva*, Cl. Syn., II, 83; V. H. Trt., Tab. II, fig. 86 (Nav. staur. parva).

Loc. Hvalrosodde (2 sampl.), Lille Snænæs.

Arct. Distr. E. Greenl., Fz. Js. Ld.

Brevistriata Cl., 1895.

Pinnularia parva (Ehr.) Greg. var. *Lagerstedtii* Cl., Cl. Syn., II, 87, Lgst.; Spb., Tab. II, fig. 4 (Nav. parvula)

Loc. Dove Bugt, Lille Snenæs.

Arct. Distr. Spb., B. El.

Amphora Ehr., 1840.

Subgen. *Amphora* Cl., 1895.

Amphora ovalis Kütz var. *libyca* Ehr., Cl. Syn., II, 104; V. H. Trt., Tab. I, fig. 17 (Amph. oval. affinis).

Loc. Off Cape Amélie (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl., E. of Greenl., Spb.

Monoraphideæ.

Cocconeis (Ehr., 1835) Grun., 1868.

Subg. *Cocconeis* Cl., 1895 pro gen.

Cocconeis Pediculus Ehr., Cl. Syn., II, 169; A. S. Atl., Tab. CXCII, fig. 61.

Loc. Koldewey Isl. (Algæ).

Not before recorded from Arctic regions. Several other records.

Cocconeis Placentula Ehr. var. *euglypta*, Cl. Syn., II, 170; V. H. Syn., Tab. XXX, figs. 33—34.

Loc. Danmarks Havn (Algæ).

Arct. Distr. Fz. Js. Ld.

Subg. *Eucocconeis* Cl., 1895 pro gen.

Cocconeis flexella Kütz. Cl. Syn., II, 179; V. H. Trt., Tab. VIII, fig. 322 (*Achnantidium flexell.*)

Loc. Hvalrosodde, Lille Snenæs.

Arct. Distr. E. Greenl., Spb., B. El.

Cocconeis flexella Kütz. var. *intermedia* var. nova. Tab. nost XIV, fig. 12.

Long. 38 μ . Lat. 14 μ . Str. media in valva 22 in 10 μ , apices versus densioribus.

Epitheca: Area centrali subquadrata, satis magna.

Hypotheca: Raphe sigmoidea, area angusta hyalina, media in parte valvæ in aream centralem acuminatam dilatata, cincta.

Loc. Hvalrosodde.

Especially on account of the subquadrate area of the epitheca I think this form may be intermediate between *Coccon. flex.* and *Coccon. maxima forma minor*. As I have not seen the epitheca and the hypotheca separated, but only in situ I have indicated in my figure of the hypotheca the extent of the central area of the epitheca.

Cocconeis maxima (A. Cl.) Øst. *forma minor*, cf. A. Cl., LuI. Lappm., 24, Tab. I, figs. 22—23 (Achnantheid. maxim. A. Cl.).

Loc. Hvalrosodde.

A. Cleve states that the length of *Achnanthidium maximum* is 0.065 mm (an epitheca) and 0.075 mm (a hypotheca) and she says (l. c.) "Though not seen together, the two valves described above, found in the same sample, certainly belong to the same species."

On an average my specimens are somewhat smaller (Length 48—56 μ , only one specimen measures 60 μ), but otherwise they agree well with A. Cleve's figures.

As I have seen both valves in situ I can affirm that they are corresponding valves.

Cocconeis maxima var. *lanceolata* var. nova. Tab. nost XIV, fig. 14.

Long. 74 μ . Lat. 22 μ . Str., media in valva, 16—17 in 10 μ , apices versus densioribus.

Valva rhombice-lanceolata, apicibus rotundatis. Epitheca: Area centrali quadrata magna. Hypotheca: Raphe sigmoidea, area hyalina angustissima, media in parte valvæ in aream parvam subcircularem dilatata, cincta. Striis radiantibus. Nodulis terminalibus, paululum a margine remotis, in spatio laterali nudo situatis.

Loc. Hvalrosodde.

As in the figure of *Cocc. flex. interm.*, so also here, I have indicated the extent of the central area of the epitheca as I have only seen both valves in situ.

Cocconeis minuta Cl., Cl. Syn., II, 179; Lgst., Spb., Tab. XIV., fig. 16 (*Cocc. Thwaitesii* var. β arctica).

Loc. Hvalrosodde, Nostoc.

Arct. Distr. E. Greenl.; Spb.

Achnanthes Bory, 1822.

Subg. *Microneis* Cl. 1995 pro gen.

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

Loc. Hvalrosodde.

Not before recorded from Arctic regions. Several other records.

Achnanthes microcephala Kütz., Cl. Syn., II, 188; V. H. Trt., Tab. VIII, fig. 332.

Loc. Hvalrosodde (2 sampl.).

Arct. Distr. E. Greenl.

Subg. *Achnanthidium* Cl., 1895 pro gen.

Achnanthes coarctata Bréb., Cl. Syn., II, 192; Lgst., Spb., Tab. I, fig. 16 (*Achnantheid. coarct. elineata*).

Loc. Hvalrosodde (2 sampl.), Dove Bugt.

Arct. Distr. E. Greenl., Spb., J. M.

Brachyraphideæ.

Eunotia Ehr., 1837.

Eunotia Arcus Ehr.; V. H. Trt., 299, Tab. IX, fig. 362.

Loc. Hvalrosodde, Vester Elv.

Arct. Distr. W. Greenl., E. Greenl., Spb.

Eunotia Arcus var. *bidens* Grun.; V. H. Trt., l. c., fig. 365.

Loc. Hvalrosodde.

Arct. Distr. E. Greenl.

Eunotia Arcus var. *hybrida*; V. H. Syn., Tab. XXXIV, fig. 4.

Loc. Hvalrosodde.

Arct. Distr. E. Greenl.

Eunotia Arcus var. *minor* Grun.; V. H. Trt., l. c., fig. 363.

Loc. Hvalrosodde.

Not before recorded from Arctic regions. "Cum specie hinc inde" (De Toni Syll., p. 791).

Eunotia Arcus var. *uncinata* Grun.; V. H. Trt., 299, Tab. IX, fig. 364.

Loc. Vester Elv, Basiskæret, Nostoc.

Arct. Distr. W. Greenl.

Eunotia Diodon Ehr.; V. H. Trt., 303, Tab. XXX, figs. 829—830.

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. Greenl., Spb.

Eunotia divisa Hérrib. var. *arctica* var. *nova*. Tab. nost. XIV, fig. 13, cf. Hérrib., Diat. foss. d'Auv., III, 1908, 35, Tab. XIV, fig. 4.

Long. 44μ . Lat. 7μ . Str. 15—17 in 10μ sub apices, ceterum irregulariter distributis.

Valva margine dorsali curvata margine ventrali recta, apicibus rotundatis, marginem ventralem versus leniter incurvatis.

Loc. Off Cape Amélie (Algæ). Only a single specimen found.

The present variety differs from the main species especially by its irregularly arranged striæ. Otherwise it agrees well with the figure by Hérribaud referred to above, but is somewhat smaller. It may perhaps be considered as only an abnormal specimen of the main species, which is a fossil recorded from "Dépot de Fraisse-Bas" (France).

Eunotia Faba (Ehr.) Grun.? var. *densestriata* Øst., Øst., Danske Diat., Tab. V, fig. 107.

Loc. Vester Elv.

Not before recorded from Arctic regions. Other record, Denmark.

The present form is somewhat larger (18μ) than the Danish specimens (14μ) and — as far as I can see — is also somewhat more coarsely striated (16 striæ in 10μ , as compared with 20 in 10μ); but as the striæ can be seen only with great difficulty, they may after all be identical.

Eunotia gracilis (Ehr.) Rabh.; V. H. Trt., 300, Tab. IX, fig. 368.

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., Spb., B. El., J. M.

Eunotia lunaris (Ehr.) Grun.; V. H. Trt., 303, Tab. IX, fig. 384.

Loc. Lille Snenæs.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., J. M.

Eunotia lunaris (Ehr.) var. *subarcuata* (Næg.) Grun.; V. H. Trt., 304, Tab. IX, fig. 385.

Loc. Vester Elv.

Arct. Distr. J. M.

Eunotia major (W. Sm.) Rabh.; V. H. Trt., 300, Tab. IX, fig. 366.

Loc. Hvalrosodde (2 sampl.), Vester Elv (3 sampl.).

Not before recorded from Arctic regions. Several other records.

Eunotia paludosa Grun., Grun., Østerr. Diat. (1862), 336; V. H. Syn., Tab. XXXIV, fig. 9.

Loc. Vester Elv.

Arct. Distr. W. Greenl., Spb.

Eunotia parallela Ehr., A. Cl., Lul. Lappm., 28; V. H. Syn., Tab. XXXIV, fig. 16 (*Eun. par. forma angustior*).

Loc. Vester Elv.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., Spb.

Eunotia parallela Ehr. var. *arcuata* var. nova. Tab. nost. XIV, fig. 15.

Long. (sc: chordæ arcus) $40\ \mu$. Lat. $4\ \mu$. Long. sagittæ arcus $10\ \mu$. Str. 14 in $10\ \mu$, transverse lineatis.

Valva arcuata, margine dorsali sub apices paululum declinante.

Loc. Lille Snenæs.

Eunotia pectinalis (Kütz) Rabh. *forma elongata*; V. H. Trt., 301, Tab. IX, fig. 371.

Loc. Lille Snenæs.

Not before recorded from Arctic regions. Other record, Lule Lappmark.

Eunotia pectinalis (Kütz.) var. *minor* (Kütz.) Rabh., A. Cl., Lul. Lappm., 31; V. H. Syn., Tab. XXXIII, figs. 20—21.

Loc. Vester Elv.

Arct. Distr. Fz. Js. Ld.

Eunotia prærupta Ehr. V. H. Trt., 302, Tab. IX, fig. 376.

Loc. Hvalrosodde.

Arct. Distr. E. Greenl.

Eunotia prærupta var. *bidens* Grun.; V. H. Trt. l. c. fig. 379.

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., J. M.

Eunotia prærupta var. *bigibba* Kütz. V. H. Trt. l. c., fig. 380.

Loc. Hvalrosodde, Lille Snenæs, Vester Elv.

Arct. Distr. E. Greenl., Fz. Js. Ld.

Eunotia prærupta var. *curta* Grun. V. H. Trt. l. c., fig. 377.

Loc. Hvalrosodde, Danmarks Havn, Vester Elv.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld.

Eunotia prærupta var. *inflata* Grun. V. H. Trt. l. c., fig. 378.

Loc. Hvalrosodde.

Not before recorded from Arctic regions. Other records unknown to me.

Eunotia prærupta var. *laticeps* Grun., A. Cl., Lul. Lappm., 34;
V. H. Syn., Tab. XXXIV, fig. 25 (forma curta).

Loc. Hvalrosodde (2 sampl.).

Arct. Distr. E. Greenl., Fz. Js. Ld., J. M.

Eunotia prærupta var. *Monodon* Øst., Øst., Ferskv. D. f. Østg.,
273, Tab. I, fig. 11.

Loc. Hvalrosodde (2 sampl.).

Arct. Distr. E. Greenl.

Eunotia robusta Ralfs var. *Papilio* Grun. V. H. Syn., Tab.
XXXIII, fig. 8.

Loc. Hvalrosodde (3 sampl.), Stormkap, Vester Elv (3 sampl.), Thermo-
meterfjeld.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., Spb.

Eunotia septentrionalis Øst., Øst., Ferskv. D. f. Østg., 274,
Tab. I, fig. 10.

Loc. Hvalrosodde, Dove Bugt, Lille Snenæs, Vester Elv.

Arct. Distr. E. Greenl., Fz. Js. Ld.

Eunotia Triodon Ehr. V. H. Trt., 303, Tab. IX, fig. 387.

Loc. Stormkap.

Arct. Distr. W. Greenl., E. Greenl., Spb.

Eschatoraphideæ.

Surirella Turp., 1827.

Surirella ovalis Bréb. var. *minuta* Bréb. V. H. Trt., 373,
Tab. XIII, fig. 588.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. E. Greenl., B. El.

Surirella ovalis var. *ovata* Kütz. V. H. Trt. l. c., fig. 587.

Loc. Off Cape Amélie (Algæ).

Arct. Distr. E. Greenl.

Tropidoraphideæ.

Hantzschia Grun., 1877.

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

Loc. Lille Snenæs (2 sampl.), Thermometerfjeld.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., Spb., B. El., J. M.

Hantzschia amphioxys (Ehr.) var. *leptocephala* Øst., Øst., Ferskv. d. f. Østg., 276, Tab. I, fig. 8.

Loc. Hvalrosodde (3 sampl.), Lille Snenæs, Vester Elv, Thermometerfjeld.

Arct. Distr. E. Greenl.

Hantzschia amphioxys (Ehr.) var. *robusta* var. nova. Tab. nost. XIV, fig. 17.

Long. 176 μ . Lat. 15 μ . Punct. carinal. 4—5 in 10 μ . Str. 15 in 10 μ , punctatis.

Valva hantzschoides, apicibus rostratis. Punctis carinalibus paululum in valvam prolongatis. Nodulo centrali eximie conspicuo.

Loc. Hvalrosodde.

Nitzschia (Hass., 1845, W. Sm.), Grun., 1880.

Dubiæ.

Nitzschia Nathorstii Brun, Brun, J. M. & E. Greenl., 9, Tab. II, fig. 5.

Loc. Hvalrosodde, Lille Snenæs.

Arct. Distr. Fz. Js. Ld., J. M.

Nitzschia thermalis (Kütz.) Grun. var. *intermedia* Grun. V. H. Trt., 389, Tab. XV, fig. 510.

Loc. Off Cape Amélie (Algæ).

Not before recorded from Arctic regions. Other record, Ard. Liég. (V. H. Trt. 1. c.).

Grunowia.

Nitzschia Denticula Grun., V. H. Trt., 390, Tab. 15, fig. 514.

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., E. Greenl., Spb.

Obtusæ.

Nitzschia subcapitata sp. nova. Tab. nost. XIV, fig. 18.

Long. 94 μ . Lat. 4 μ . Punct. carinal. 8 in 10 μ . Str. delicatissimis.

Valva fere lineari, apices subcapitados versus unilateraliter attenuata. Nodulo centrali obscuro, an præsentè?

Loc. Vester Elv.

Lanceolata Grun.

Nitzschia fonticola Grun. var.? Tab. nost. XIV, fig. 16.

Long. 13 μ . Lat. 4 μ . Punctis carinalibus 11—12 in 10 μ . Striis inconspicuis. Valva lanceolata, carena valde excentrica.

Loc. Hvalrosodde.

This small form may be allied to *Nitz. fontic.*, V. H. Syn., Tab. LXIX, figs. 16—17.

Nitzschia Hantzschiana Rabh. Cl. & Grun. A. D., 99; V. H. Syn., Tab. LXIX, figs. 1—2.

Loc. Vester Elv.

Arct. Distr. Fz. Js. Ld., Spb.

Nitzschia Palea (Kütz.) W. Sm. var. *minuta* Bleisch., Cl. & Grun. A. D., 96; V. H. Syn., Tab. LXIX, fig. 23.

Loc. Danmarks Havn (Algæ).

Arct. Distr. E. Greenl., Fz. Js. Ld., J. M.

Nitzschia Palea var. *tenuirostris* Grun.; V. H. Trt., 402, Tab. XVII, fig. 556 (the second figure).

Loc. Hvalrosodde.

Arct. Distr. B. El., J. M.

Arraphideæ.

Ceratoneis Ehr., 1840.

Ceratoneis Arcus Kütz.; V. H. Trt., 306, Tab. X, fig. 401.

Loc. Lille Snenæs.

Arct. Distr. W. Greenl., E. Greenl., Fz. Js. Ld., Spb., B. El.

Synedra Ehr., 1831.

Synedra radians (Kütz.) Grun.; V. H. Trt., 312, Tab. X, fig. 423.

Loc. Hvalrosodde.

Not before recorded from Arctic regions. Several other records.

Synedra Ulna (Nitsch.) Ehr.?

Loc. Hvalrosodde, Koldewey Isl. (Algæ).

I have only seen a few fragments, so that an exact determination is impossible.

Synedra Vaucherix Kütz. var. *septentrionalis* var. nova. Tab. nost. XIV, fig. 19.

Long. 23—30 μ . Lat. 3,6 μ . Str. 16 in 10 μ , an punctatis?

Valva lineari apicibus capitatis subcapitatisve. Striis parallelis, altera in parte media valva deficientibus ibique areolam unilateralem relinquentibus.

Loc. Vester Elv (4 sampl.), Lille Snenæs.

As this small species occurs in the samples both free and also attached to the narrow branches of algæ, but never in the form of long bands, I

think it may be a *Synedra*, not a *Fragilaria*. A. Cleve (Beitr. z. Fl. d. Bär. Ins., 17, fig. 10) describes and figures a *Synedra Vaucheria* Kütz. var. *perminuta* Grun., which may be a smaller and non-capitate form of the present species.

Fragilaria Lyngb.

Fragilaria construens (Ehr.) Grun.; V. H. Trt., 325, Tab. XI, fig. 450.

Loc. Hvalrosodde.

Arct. Distr. W. Greenl., B. El.

Fragilaria (*mutabilis* (W. Sm.) Grun. var.?) *elliptica* Schumann de Toni Syll., 687 (Frag. ellipt.); V. H. Syn., Tab. XLV, fig. 15.

Loc. Hvalrosodde.

Not before recorded from Arctic regions.

Diatoma De Cand., 1805.

Diatoma hiemale (Lyngb.) Kütz. var. *mesodon* Kütz. V. H. Trt., 350, Tab. XI, fig. 471.

Loc. Off Cape Amélie (Algæ), Danmarks Havn (Algæ), Koldewey Isl. (Algæ).

Arct. Distr. W. Greenl.

Tabellaria Ehr., 1839.

Tabellaria flocculosa (Roth.) Kütz. V. H. Trt., 357, Tab. XI, fig. 478.

Loc. Hvalrosodde, Dove Bugt, Vester Elv (7 sampl.).

Arct. Distr. W. Greenl., E. Greenl., Spb., B. El., J. M.

Centricæ.

Melosira Ag.

Melosira varians Ag. V. H. Trt., Tab. XVIII, fig. 611.

Loc. Danmarks Havn.

Not before recorded from Arctic regions. Several other records.

Cyclotella Kütz., 1833:

Cyclotella antiqva W. Sm. V. H. Trt., 446, Tab. XXII, fig. 652.

Loc. Hvalrosodde (2 sampl.).

Arct. Distr. W. Greenl., E. Greenl., Spb.

Stephanodiscus (Ehr., 1845) Grun., 1880.

Stephanodiscus Astræa (Ehr.) Grun. var. *spinulosus* Grun., Grun., Fz. Js. Ld., 49, Tab. V., fig. 2.

Loc. Danmarks Havn (Algæ).

Arct. Distr. E. Greenl., Fz. Js. Ld.

Distribution of the Freshwater Diatoms.

		W. Gr.	E. Gr.	Fz. Js. Ld.	Spb.	B. El.	J. M.			W. Gr.	E. Gr.	Fz. Js. Ld.	Spb.	B. El.	J. M.
Achnanthes								Diatoma							
1	— coarctata	x	x	x	x	x	33	— hiemale <i>mesodon</i>	x						
2	— linearis							Diploneis							
3	— microcephala	x	x					34	— oculata						
Amphora								35	— Puella	x			x		
4	— ovalis <i>libyca</i>	x	x	x				Eunotia							
Anomoeoneis								36	— Arcus	x	x		x		
5	— exilis	x	x				37	— — <i>bidens</i>		x					
6	— zellensis	x	x				38	— — <i>hybrida</i>		x					
Caloneis								39	— — <i>minor</i>						
7	— Clevei	x	x	x	x	x	40	— — <i>uncinata</i>	x						
8	— fasciata				x	x	41	— Diodon	x	x		x			
9	— lepidula						42	— gracilis	x	x	x	x	x	x	
10	— Silicula <i>alpina</i>	x	x	x	x	x	43	— lunaris	x	x	x			x	
11	— — <i>ventricosa</i>			x			44	— — <i>subarcuata</i>						x	
Ceratoneis								45	— major						
12	— Arcus	x	x	x	x	x	46	— paludosa	x			x			
Cocconeis								47	— parallela	x	x	x	x		
13	— flexella	x	x	x	x		48	— pectinalis <i>elong.</i>							
14	— minuta	x	x	x			49	— — <i>minor</i>				x			
15	— Pediculus						50	— prærupta		x					
16	— Placentul. <i>englypt.</i>			x			51	— — <i>bidens</i>	x	x	x			x	
Cyclotella								52	— — <i>bigibba</i>	x	x	x			
17	— antiqva	x	x	x			53	— — <i>curta</i>	x	x	x				
Cymbella								54	— — <i>inflata</i>						
18	— æqualis	x	x				55	— — <i>latic. curta</i>	x	x				x	
19	— angustata	x	x	x			56	— — <i>monodon</i>		x					
20	— affinis <i>tumida</i>	x	x	x			57	— septentrionalis		x	x				
21	— Botellus	x	x	x			58	— Triodon	x	x		x			
22	— Cesatii	x	x				59	— robusta <i>Papilio</i>	x	x	x	x			
23	— gracilis <i>lunata</i>	x	x	x				Fragilaria							
24	— hebridica							60	— construens	x				x	
25	— heteropleur. <i>minor</i>	x	x	x				61	— mutabilis <i>elliptica</i>						
26	— leptoceros							Frustulia							
27	— naviculiformis	x	x	x	x			62	— rhomboid. <i>leptoc.</i>		x				
28	— siunata							Hantzschia							
29	— stauroneiformis	x	x	x			63	— amphioxys	x	x	x	x	x	x	
30	— ventricosa	x	x	x			64	— — <i>leptocephala</i>	x						
31	— — <i>ovata</i>							Melosira							
32	— — <i>semicircular.</i>	x	x	x			65	— varians							
		11	22	6	18	3	4			15	19	11	9	3	6

		W. Gr.	E. Gr.	Fz. Js. Ld.	Spb.	B. El.	J. M.			W. Gr.	E. Gr.	Fz. Js. Ld.	Spb.	B. El.	J. M.
Navieula								101	(Nitzschia) <i>Palea minuta</i>	x	x	x			x
66	— <i>anglica</i>							102	— — <i>tenuir</i>						x
67	— <i>Atomus circul.</i>							103	— <i>thermal. intens.</i>						x
68	— <i>bacilliformis</i>								Pinnularia						
69	— <i>capitata</i>			x				104	— <i>appendiculata</i>	x					
70	— <i>cincta</i>			x				105	— <i>borealis</i>	x	x	x	x	x	x
71	— <i>cocconeiformis</i>	x	x		x	x	x	106	— <i>Brébissonii dimin.</i>						x
72	— <i>contenta</i>		x					107	— <i>linearis curta</i>						
73	— <i>dicephala</i>					x		108	— <i>divergentissima</i>	x	x	x	x	x	x
74	— <i>gibbula</i>		x	x	x		x	109	— <i>interrupta staur.</i>		x				
75	— — <i>capitata</i>		x		x			110	— <i>lata</i>		x	x			x
76	— <i>Lagerstedtii</i>		x		x			111	— <i>Legumen</i>						
77	— <i>falaisensis</i>	x						112	— <i>leptosoma</i>		x	x			x
78	— <i>Gastrum</i>	x	x					113	— <i>mesogongyla</i>		x				
79	— <i>lanceolata</i>							114	— <i>mesolepta angusta</i>						
80	— — <i>tenella</i>							115	— <i>microstauron</i>	x	x	x			x
81	— <i>lucidula</i>							116	— <i>parva Lagerstedtii</i>					x	x
82	— <i>mutica f. Cohnii</i>	x	x	x	x		x	117	— <i>staur. interr. parva</i>		x	x			
83	— — <i>Goepfertiana</i>							118	— <i>subcapitata</i>	x	x		x		
84	— — <i>ventricosa</i>		x	x			x		Stauroneis						
85	— <i>nivalis</i>			x				119	— <i>anceps</i>	x	x		x		x
86	— <i>Heufleriana</i>			x				120	— <i>javanica oblonga</i>		x				
87	— <i>Placentula</i>							121	— — <i>truncata</i>		x				
88	— <i>radiosa</i>	x	x		x	x		122	— <i>obtusa</i>			x	x		
89	— <i>rhyncocephala</i>					x		123	— <i>parvula</i>						
90	— <i>Rotæana</i>		x		x	x	x	124	— <i>Phoenic. amphyl.</i>	x	x	x			
91	— <i>Seminulum</i>	x			x				Stephanodiscus						
92	— <i>viridula stesvicens.</i>	x	x					125	— <i>Astræa spinul.</i>		x	x			
	Neidium								Surirella						
93	— <i>affin. gen. minor.</i>				x			126	— <i>ovalis minuta</i>		x				x
94	— — <i>longiceps</i>	x						127	— — <i>ovata</i>		x				
95	— <i>bisulcatum</i>	x	x	x	x		x		Synedra						
96	— <i>decoratum</i>		x					128	— <i>radians</i>						
97	— <i>Iridis</i>		x	x					Tabellaria						
	Nitzschia							129	— <i>flocculosa</i>	x	x		x	x	x
98	— <i>Denticula</i>	x	x		x					8	18	10	7	6	10
99	— <i>Hantzschiana</i>			x	x				Total	44	74	38	46	16	28
100	— <i>Nathorstii</i>			x			x								
		10	15	11	12	4	8								

The above list shows, that the total number of freshwater forms is 128, and of these there were previously known

from W. Greenland	44 (34.1 %)
— E. Greenland	74 (57.4 %)
— Franz-Josef Land	38 (29.5 %)

from Spitzbergen	46 (35.7 %)
— Beeren Eiland	16 (12.4 %)
— Jan Mayen	28 (21.7 %)
not recorded	28 (21.7 %),
hence previously known from the Arctic regions	101 (78.3 %).
From W. Greenl. only, and from no other Arctic locality	11 (8.5 %).
From the localities east of E. Greenl., taken as a whole	76 (58.9 %).

This proves that the freshwater-Diatom-flora from East Greenland which we are here considering obviously originates from the east, and as regards the eastern localities, more particularly from Spitzbergen.

To this may be added that five of the forms which have been found, viz.

- Cymbella affinis tumida*
- *Botellus*
- *ventricosa semicircularis*
- Navicula gibbula capitata* and
- *Lagerstedtii*,

have hitherto — outside Greenland — been found only in Spitzbergen; and a similar origin is indicated for some of the Desmidiaceæ found by Dr. F. BÖRGESEN (cf. F. Børgesen: Freshw. Algæ, p. 73).

Fig. 1. <i>Caloneis septentrionalis</i> sp. nova	Page 233
— 2. <i>Navicula gibbula</i> Cl., var. <i>capitata</i> Lgst.	— 236
— 3. <i>Stauroneis dilatata</i> Ehr. <i>forma minor</i>	— 236
— 4. <i>Cymbella septentrionalis</i> sp. nova	— 238
— 5. <i>Gomphonema boreale</i> sp. nova	— 239
— 6. <i>Anomoeoneis zellensis</i> Grun. var. <i>linearis</i> var. nova	— 239
— 7. <i>Navicula anglica</i> Ralfs <i>forma elongata</i>	— 240
— 8. — <i>gracilis</i> Ehr. var. <i>obesa</i> var. nova	— 240
— 9. — sp.	— 241
— 10. — <i>pusilla</i> W. Sm. var. <i>capitata</i> var. nova	— 241
— 11. <i>Pinnularia divergens</i> var. <i>linearis</i> var. nova	— 243
— 12. <i>Cocconeis flexella</i> Kütz var. <i>intermedia</i> var. nova	— 244
— 13. <i>Eunotia divisa</i> Hérib. var. <i>arctica</i> var. nova	— 246
— 14. <i>Cocconeis maxima</i> A. Cl. var. <i>lanceolata</i> var. nova	— 245
— 15. <i>Eunotia parallela</i> Ehr. var. <i>arcuata</i> var. nova	— 247
— 16. <i>Nitzschia fonticola</i> Grun. var.?	— 250
— 17. <i>Hantzschia amphioxys</i> (Ehr.) Grun. var. <i>robusta</i> var. nova	— 249
— 18. <i>Nitzschia subcapitata</i> sp. nova	— 249
— 19. <i>Synedra Vaucheriae</i> Kütz. var. <i>septentrionalis</i> var. nova	— 250

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