KONGLIGA SVENSKA

VETENSKAPS-AKADEMIEN

HANDLINGAR.

NY FÖLJD.

TRETIONDEFJERDE BANDET.

STOCKHOLM
KUNGL. BOKTRYCKERIET. P. A. NORSTEDT & SÖNER
1901

INNEHÅLL

AF TRETIONDEFJERDE BANDET.

KONGL. SVENSKA VETENSKAPS-AKADEMIENS HANDLINGAR. Bandet 34 N:o 2

THE PLANKTON

OF

THE NORTH SEA, THE ENGLISH CHANNEL AND THE SKAGERAK

IN 1899

BY

P. T. CLEVE.

COMMUNICATED 1900, APRIL 11.

STOCKHOLM
KUNGL. BOKTRYCKERIET. P. A. NORSTEDT & SÖNER
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For the hydrographical researches of Pettersson and Ekman the North Sea was explored four times during the year 1899, viz: in February, April—May, July—August and November. At the same time samples of water were taken for chemical analysis and of plankton for microscopical examination. Some other samples have been taken in March at 59°—60° N. 4°—5° W. by a steamer Thyra, in May by the Swedish expedition to Greenland under Prof. A. G. Nathorst, in June by the steamer Rurik on the way to Spitzbergen, in July by the Swedish corvette Freya and in September by the returning Greenland expedition. At the biological stations at Plymouth, S:t Vaast la Hogue and Helder samples were collected almost every week, during the whole year at Plymouth, from January to March at S:t Vaast and from January to September at Helder. For this valuable assistance I beg to tender the directors of the said stations, Mr. E. J. Allen, Dr. P. P. C. Hoek and Mr. Eugène Malard my best thanks. Again, at the expenses of the Fishery Association of Gothenburg, samples of plankton were collected almost every week at Måseskär and Väderöboda, off the west coast of Sweden, and, though with less regularity, in the open Skagerak.

I. The North Sea in February 1899.

The hydrographical map of the North Sea, February 1899, has already been published by Pettersson and Ekman (Bih. till K. Sv. Vetensk. Akad. Handl. Vol. XXV. Part. II. N:o 1.) It is seen from that map, that water with the salinity 35 p. m. extends north of a line from Newcastle towards the Skagerak, S. W. of Norway, where it encounters water of lower salinity. South of the said line water of 34 p. m. salinity prevails to the continental coast region.

The microscopical examination proved that the water of 34 p. m. salinity was practically *sterile*. The water of 35 p. m. salinity was poor in plankton, which contained as most characteristic forms *Halosphæra* and *Coscinodiscus concinnus*. On the space, where the two kinds of water meet, the plankton was not so scarce and increased steadily in quantity towards the Skagerak. This plankton contained, besides the above species, chiefly *tripos-plankton*, that was the prevailing kind N. W. of the Danish Peninsula. There entered also in the composition of the plankton a certain amount of *Ceratium longipes*. The intermixture of tripos- and concinnus-plankton ruled in the bank water, west of the

Danish Peninsula, but towards Norway the tripos-plankton was intermingled with *Halosphæra*.

The *Coscinodiscus concinnus* occurred round Scotland and from Firth of Tay across the North Sea towards the Danish Peninsula, where the route became forked. One branch went to Skagen, another followed the Danish coast towards Heligoland.

Of *Chæto-plankton* mere traces were found midway between Scotland and Norway.

The changes, that arrived since December 1898, consisted thus therein, that the *concinnus-plankton*, which then prevailed in the southern North Sea, had been forced towards the Danish Peninsula and to the boundary between the 34 and 35 p. m. water, and that the *tripos-plankton*, that in December prevailed between Scotland and Scandinavia, had decreased and been partly replaced by *Halosphæra-plankton*. The latter kind appeared already in December.

II. The North Sea in April—May 1899.

The state had since February been changed completely. If a line be traced on a map between Newcastle and Skagen, there were found north thereof, to about 58°—59° N. a number of arctic or boreal, partly neritic forms. The *cheto-plankton*, that usually prevails at this season between Scotland and Scandinavia, appeared first at 58° N. midway between Scotland and Norway. South of the said line there occurred *southern neritic plankton*, frequently intermingled with *styli-plankton*. This area was interrupted from about 56° N. 4°—5° E. towards the mouth of Elbe by a band, that contained northern neritic species which seem to have spread from the depression of the bottom between the Fisher and Dogger Banks.

III. The North Sea in July—August 1899.

The plankton, that prevailed in the greatest part of the North Sea, at least between 54° and 61° N., was the *tripos-plankton*. East and west of Scotland there occurred *northern neritic plankton*, probably a remnant from the spring, but intermingled with some styli-plankton. The plankton in the water, that occurred from the mouth of the Schelde to the middle of the Danish Peninsula, belonged to the *southern neritic* type, but contained some traces of northern neritic plankton. From Skagen to the entrance of the Limfjord *Rhizosolenia gracillima* was met with.

IV. The North Sea in November 1899.

Above the 100-metre plateau of the bottom there prevailed *tripos-plankton*, which was more richly represented in the eastern parts than along the English coasts. In the southern North Sea, above the 50 metre plateau, there occurred from Schelde to Skagen *southern neritic plankton*.

V. The Skagerak in 1899.

The seasonal changes in the plankton will be examined for certain periods with reference to the prevailing plankton types.

Period I. *January.* The prevailing types are the *tripos-* and *concinnus-plankton. Halosphæra* occurred in the north at Väderö, where also *Clione limacina* and *Thalassiothrix longissima* were seen once, the last named abundantly. Some southern forms, which are to be considered as remnants from the last period of 1898, for instance *Proto pedata*, *Paracalanus parvus*, *Sagitta*, *Ceratium bucephalum*, *Ditylum Brightwellii* a. o. disappeared, and arctic or boreal forms increased in frequency towards the next period.

Period II. *February—March.* This period is characterized by the abundance of arctic and northern species. The *Coscinodiscus concinnus* continued to be common during February. Animals were on the whole rare, but diatoms exceedingly abundant, during March in the whole Skagerak and Cattegat to Öresund. The most important forms were the following:

Biddulphia aurita.
Chætoceros constrictus.
C. contortus.
C. debilis.
C. diadema.
C. socialis.
C. scolopendra.
C. teres.
Coscinodiscus oculus iridis.
C. polychordus.
Nitzschia seriata.
Rhizosolenia semispina.
Skeletonema costatum.
Thalassiosira gravida.
T. Nordenskiöldii.

Most of these forms disappeared before the end of March, *Chæt. debilis* and *C. diadema* before the middle of April; *C. constrictus* remained to the end of May and *C. contortus* was more or less common to the end of the year. *C. decipiens* occurred among these boreal forms more or less sparingly, but it increased in abundance during the next period.

The area of distribution of these species is from Iceland to the Färöes and the Shetlands, and, as they were not seen in the North Sea between Scotland and Scandinavia, it may be assumed, that they arrived into the Skagerak from the deep »Norske Rende».

Period III. *April.* This period is remarkable for the abundance of *chæto-plankton.* Connected with this kind seemed to be *Dinobryum pellucidum* and *Rhizosolenia semispina. Chætoceros constrictus* continued to be common, but other northern forms became scarce. At the end of the month *Rhizosolenia styliformis* appeared suddenly at Måseskär in great abundance and in its company a number of southern forms.

Period IV. *May—June.* This period commenced, as stated above, with the appearance of *Rhizosolenia styliformis.* In its company a number of southern forms arrived as:

Oithona similis.
Chætoceros curvisetus.
Chætoceros danicus.
C. Schüttii.

Eucampia zodiacus.
Guinardia flaccida.
Ditylum Brightwellii.
Lauderia annulata.
Rhizolenia Shrubsolei.
Stephanopyxis turgida.

At this season the euryhaline *Centropages hamatus*, *Acartia longiremis* and *A. bifilosa* reach their maximum.

On the other hand, also *tripos-plankton* sets in having in its company *Calanus finmarchicus*, *Pseudocalanus elongatus*, *Evadne Nordmannii*, *Podon Leuckarti* and *Chætoceros hiemalis.*

Period V. *July—August.* The *tripos-plankton* became now the prevailing kind, but was intermingled with a certain amount of southern neritic plankton, for some time also with *Coscinodiscus concinnus. Rhizosolenia gracillima* also appeared, but this species was remarkably scarce in the year 1899.

Characteristic species are *Oikopleura dioica*, *Acartia Clausii*, *Paracalanus parvus*, *Evadne spinifera* and *Sagitta.*

Period VI. *From the end of August to the end of October.* The *tripos-plankton* continues to predominate. *Oikopleura*, *Sagitta*, *Oithona similis* and *Paracalanus parvus* from the last period are still abundant. New are *Centropages typicus*, *Podon intermedius* and *Rhizosolenia Stolterfothii.* Also *Anomalocera Patersonii* and *Labidocera Wollastonii* were seen, but rarely. *Limacina balea* was for a short time visible, and then abundantly. *Amphorella Steenstrupii* occurred sparingly. The period VI is chiefly characterized by the development of *didymus-plankton*, containing *Chætoceros didymus*, *C. curvisetus* and *C. Schüttii.* The last named species appeared already at the end of June and in the beginning of July, but for a short time only. It reappeared now abundantly.

Period VII. *November—December.* The *tripos-plankton* (now containing *Ceratium bucephalum*) and the *didymus-plankton* continue as before, but the last named kind became scarce or disappeared in December. *Halosphæra* appeared, but rarely, also *Plectophora arachnoides.* The southern *Ditylum Brightwellii*, *Eucampia zodiacus* and *Guinardia flaccida*, which were seen in the spring, reappear.

The period VII. is characterized chiefly by a number of arctic or boreal forms most of which occurred sparingly. Such forms were the following:

Biddulphia aurita.
Chætoceros borealis.
C. constrictus.
C. debilis.
C. diadema.
C. laciniosus.
C. scolopendra.
C. teres.
Coscinodiscus oculus iridis,
C. polychordus.
C. stellaris.
Rhizosolenia setigera.
Skeletonema costatum.
Thalassiosira gelatinosa.
T. Nordenskiöldii.
Thalassiothrix Frauenfeldii.

VI. Plymouth in 1899.

The seasonal changes in the plankton will be examined for certain periods with reference to the prevailing plankton types.

Period I. *January 17th to March 14th (30th).* Characteristic species are *Biddulphia mobilensis*, *Halosphæra viridis*, *Coscinodiscus concinnus* and *C. excentricus*. Besides these forms, which probably derive from the northern coasts of the British islands and from Scotland, there occurred a number of both boreal and southern forms.

Among the northern forms we note:

Fritillaria borealis.
Oncæa minuta.
Chætoceros decipiens.
Chætoceros teres.
Thalassiosira gelatinosa.

These forms do not continue during the next period or occurred then sparingly only. The following northern species continue for the next period: *Pseudocalanus elongatus*, *Peridinium ovatum* and *Thalassiosira gravida.*

Among southern forms, besides such as remained for the whole year, we note:

Centropages typicus.
Corycæus anglicus.
Euterpe acutifrons
Oncæa subtilis.
Paracalanus parvus.
Parapontella brevicornis.
Chætoceros Schüttii.
Corethron hystrix.
Ditylum Brightwellii.
Rhizosolenia robusta (rr).

Most of these species appeared towards the end of February, or later, and continued during the following period.

Period II. *April 4th to May 12th.* This period is remarkable for the abundance of the arctic *Phæocystis Pouchetii.* In its company a number of other *arctic or boreal species* appeared, most of which did not survive during the next period. Among these boreal forms we note:

Pseudocalanus elongatus.
Temora longicornis.
Peridinium ovatum.
P. pellucidum.
Asterionella japonica.
Chætoceros debilis.
Chætoceros furcellatus.
Leptocylindrus danicus.
Skeletonema costatum.
Thalassiosira gravida.
T. Nordenskiöldii.

Calanus finmarchicus is the only boreal specied that survived this period.

The flows of boreal water, that commenced during the period I., continued to the middle of March, and took during this period a more decided arctic character.

During the period II. also a certain number of southern forms occurred, but among them several seemed to die out or to be driven away by the water containing *Phæocystis.* Such forms were:

Corycæus anglicus.
Euterpe acutifrons.
Chætoceros curvisetus.
C. didymus.

Evadne Nordmannii.
Paracalanus parvus.
Parapontella brevicornis.
C. Schüttii.
Ditylum Brightwellii.

These southern forms cannot thus be assumed to have come in the company of such forms as characterize the period III., and it seems probable that they were swept down from the British coast by the northern flows.

Period III. *May 24th to July 19th.* The arctic species had disappeared, almost completely, but became replaced by southern forms, e. g. *Guinardia flaccida*, which appeared already before this period, but decreased during the period II. Among such forms we note:

Acartia Clausii.
Centropages typicus.
Oithona similis.
Paracalanus parvus.
Chætoceros densus.
Guinardia flaccida.
Rhizosolenia Shrubsolei.

And, besides, the following new ones: *Isias clavipes, Ceratium fusus* and *Rhizosolenia Stolterfothii.*

It seems most probable that these forms came with water from the coast banks of the temperate Atlantic.

Period IV. *July 24th to August 18th.* Characteristic species is *Rhizosolenia gracillima.* In its company arrived a number of southern neritic species, among which some continued during the next period. Such forms were:

Corycæus anglicus.
Euterpe acutifrons.
Cyttarocylis serratus.
Tintinnopsis campanula.
Chætoceros curvisetus.
C. didymus.
C. Schüttii.
Ditylum Brightwellii.
Rhizosolenia corpulenta.

Several of these species are the same as appeared in the spring together with boreal forms. I presume therefore that the specimens in the period IV represent a fresh set, that arrived from the south, probably from the Bay of Biscay or the French coasts. The rare occurrence of *Peridinium exiguum* and of *Dinophysis homunculus* corroborates such an opinion.

Period V. *August 24th—31st.* This short period is remarkable for the sudden reappearance of *boreal* forms as *Asterionella japonica, Chætoceros debilis* and *Skeletonema costatum.* Together with them also *Streptotheca thamesis* appeared, but sparingly. They seem to be the first signs of the presence of the boreal flows, that characterize the next period.

Period VI. *September 10th to December 28th.* The most characteristic species is *Coscinodiscus concinnus.* In its company a number of boreal forms appeared viz.:

Fritillaria borealis.
Oncæa minuta.
Peridinium depressum.
P. ovatum.
Chætoceros decipiens.
Coscinodiscus oculus iridis.
Thalassiosira gravida.

During this period also the following, non-arctic, species appeared:

Halosphæra viridis. *Guinardia flaccida.*
Biddulphia mobilensis. *Lauderia annulata.*
Eucampia zodiacus. *Stephanopyxis turgida.*

All these species had probably been swept down from the northern British coasts.

The following southern forms increased in abundance or reached their maximum during the period VI.:

Corycæus anglicus. *Rhizosolenia corpulenta.*
Euterpe acutifrons. *R. robusta.*
Noctiluca miliaris.

On the other hand the following decreased:

Acartia Clausii. *Chætoceros curvisetus.*
Centropages typicus. *C. densus.*
Paracalanus parvus. *Ditylum Brightwellii.*
Ceratium tripos.

VII. St Vaast la Hogue in 1898—1899.

The collecting of samples at this station commenced in June 1898, but became interrupted in March 1899, so there is no complete series; still, the collection is of no little interest. Also at this place the influence of arctic water is apparent at certain times of the year, and if the plankton from St Vaast be compared with that from Plymouth we note striking differences. As in the preceding cases we may consider the changes in the nature of the plankton by periods.

Period I. *June 4th 1898.* The prevailing plankton was the *chæto-plankton*, represented by a great abundance of *Chætoceros decipiens*. *Phæocystis Pouchetii* was also common. As other boreal forms we note *Centropages hamatus*, *Pseudocalanus elongatus*, *Temora longicornis* and *Chætoceros teres*. All these boreal forms had disappeared already by the 12th in the same month. Other species are of comparatively little importance and of southern origin, as *Chætoceros didymus*, *C. densus* and *Acartia Clausii*.

Period II. *June 12th to August 12th 1898.* The plankton consists chiefly of the southern neritic species *Rhizosolenia Shrubsolei* and *Guinardia flaccida*. Other southern forms also occurred, but more or less sparingly, as:

Cerataulina Bergonii. *Chætoceros Schüttii.*
Chætoceros danicus. *Eucampia zodiacus.*
C. didymus. *Rhizosolenia Stolterfothii.*

The only boreal form is *Leptocylindrus danicus*. Whether *Chætoceros contortus* be of northern or southern origin is at present doubtful.

Period III. *Between September 6th and October 6th 1898.* This period is remarkable for the *sterility* of the water, *Tintinnopsis ventricosa* being the only species of any importance.

Period IV. *From October 20th to December 24th 1898.* Some species from the period I I. reappeared, as *Chætoceros densus*, *C. didymus*, *Eucampia zodiacus*, but as a new and important constituent of the plankton *Rhizosolenia Stolterfothii* occurred, and, in its company, a number of southern forms, such as *Euterpe acutifrons*, *Bacteriastrum varians*, *Bellerochea mallens* and, in very great abundance, *Chætoceros curvisetus*.

Some *boreal* forms occurred rarely, as *Biddulphia aurita*, *Chætoceros decipiens*, *Coscinodiscus oculus iridis* and *Thalassiosira gravida*, showing a slight influence of water from arctic regions.

Period V. *From January 1st to March 15th 1899.* *Chætoceros curvisetus* and *C. didymus* continued to be common, and some other southern forms also remained, although more or less scarce, as *Chætoceros densus*, *Eucampia zodiacus*, *Rhizosolenia Shrubsolei* and *R. Stolterfothii*. On the contrary *Bacteriastrum varians* and *Bellerochea* had disappeared. The following new, non-arctic, species appeared:

Biddulphia mobilensis.
Chætoceros danicus.
Ditylum Brightwellii.
Streptotheca thamesis.

Besides, there occurred also *Coscinodiscus centralis* (probably a variety of *C. concinnus*).

This period is particularly characterized by a number of *arctic* or *boreal* forms, some of which appeared already in the preceding period, but very rarely. Such northern forms are:

Centropages hamatus.
Temora longicornis.
Pseudocalanus elongatus.
Phæocystis Pouchetii.
Asterionella japonica.
Biddulphia aurita.
Chætoceros borealis.
C. decipiens.
Chætoceros teres.
Coscinodiscus oculus iridis.
C. radiatus.
Rhizosolenia setigera.
Skeletonema costatum.
Thalassiosira gelatinosa.
T. gravida.
Thalassiothrix Frauenfeldii.

VIII. Helder 1899.

According to the variation in the composition of the plankton I distinguish the following periods.

Period I. *From January 5th to March 3rd.* The most important species is the boreal *Biddulphia aurita*. In its company there occurred, although sparingly, some other northern forms, as *Chætoceros debilis*, *C. diadema* and *C. teres*. The following derive probably from Scotland: *Biddulphia mobilensis*, *Coscinodiscus concinnus* and *Streptotheca thamesis*.

This period at Helder corresponds to the period I. at Plymouth, but the arctic character of the plankton was more decided at Plymouth than at Helder. It also corresponds to period V. of St Vaast, where the boreal species were more numerous.

Period II. *From March 17th to April 13th.* This period is a transitional one, as both nothern and southern forms appeared intermingled. I consider the following species to have been conveyed by *nothern* currents:

Asterionella japonica.
Chætoceros debilis.
C. diadema.
Chætoceros teres.
Skeletonema costatum.
Thalassiosira gelatinosa.

The following species are of southern origin:

Cerataulina Bergonii.
Ditylum Brightwellii.
Eucampia zodiacus.
Guinardia flaccida.
Rhizosolenia Stolterfothii.

These southern species appeared at Plymouth much later, i. e. between the 24th of May and 19th of July.

Period III. *From April 20th to June 2nd.* During this period *Phæocystis Pouchetii* appeared in enormous abundance. Beside this species all others diminish, just as at Plymouth, where the same flagellate was predominant from the 4th of April to the 12th of May, thus somewhat earlier than at Helder, so that there is reason for believing it arrived through the Engl. Channel.

Period IV. *From June 9th to August 25th.* The most characteristic feature in the plankton are the considerable development of *Noctiluca miliaris* and the return of *Guinardia flaccida* and *Rhizosolenia Stolterfothii*, driven away last period by the water containing *Phæocystis*. Other southern forms, that appeared during this period are: *Oithona similis*, *Tintinnopsis campanula*, *Cyttarocylis serrata*, *Chætoceros densus*, *C. didymus*, *C. Schüttii* and *Rhizosolenia Shrubsolei*.

This period corresponds to the period IV at Plymouth (24 VII to 18 VIII), although the latter is characterized by the abandance of *Rhizosolenia gracillima*, not seen at Helder. On the other hand *Noctiluca* occurred only sparingly at Plymouth.

Period V. *September 1th to 28th.* During this period *Biddulphia mobilensis* and *Coscinodiscus concinnus* appear, and in their company *boreal* forms, such as *Ceratium longipes*, *Chætoceros debilis* and *Phæocystis*. Also new *southern* species arrive, as *Pyrophacus horologium*, *Bacteriastrum varians* and *Lithodesmium undulatum*.

This period evidently corresponds to the periods V and VI at Plymouth.

Seasonal distribution of the Plankton-organisms.

Appendicularia.

Fritillaria borealis Lohm. — *February:* off S. Norway and W. of Jutland *r*. *March:* Plym.*) *r*; Väderö *c*. *April:* 55° N. 6° E. *r*; Måseskär *r*. It reappeared at Plym. in October and November.

This arctic species was found in March to May from the Färöes to 61° N. 1° E. and 59° N. 2° E.

Oikopleura dioica Fol. — *February:* W. of Jutland *r*. *May:* 60° N. 1. E. and 58° N. 4° E. *c*; 58° N. 9° E. *r*. *July, August:* Helder *r*; E. of Newcastle *r*; central North Sea *r*; the W. coast of Denmark to Skagen and into the Skageraek *r* to *c*. It remained in the Skagerak to the end of the year, but decreased in frequency in *November* and *December*.

Pteropoda.

Clione limacina Phipps. Aretic species.
January: Väderö *rr*.

Limacina balea Möller. Aretie species, which was seen in December 1898 from 64° N. 21° W. to 61° N. 6° W.

January: Väderö *rr*; Måseskär *cc*. *July:* 57° N. 1° E. +. *August:* Skagerak *r*. *September:* Skagerak *r*. *October:* Väderö +. *November:* 56° 24′—57° 10′ N. 4° 25′—7° 40′ E. *c*; Skagerak *r*.

Amphipoda.

Bathyporeia pelagica Bate. — *February:* W. of Denmark *rr*.

Parathemisto oblivia Kröyer. — *January:* Måseskär *rr*. *July:* 57° N. 1°—2° E. *r*. This species occurred in October 1898 at the Färöes.

Proto pedata Leach. — *January, February:* W. of Denmark *r*; Måseskär *r*; Väderö +. *November:* from the Engl. Channel to the W. of Jutland *r*; Skagerak *r*. *December:* Måseskär *r*; Väderö +.

*) Abbreviation for Plymouth.

Cladocera.

Evadne Nordmanni LOVÉN. — This species belongs in the Atlantic to styli-plankton and advances in the spring, somewhat later than *Chætoceros decipiens*, towards Iceland and the Färöe Channel.

February: off the Dutch coast *r*. *April:* Plym. *r*; Väderö *c*, *r*. *May:* Plym. *c*; sparingly in the eastern North Sea, but as a rule common from 60° N. 3° W. and 61° N. 1° E. towards the Skagerak, where *cc*, *r*. *June:* 62°—59° N. 5° E. more or less common; Skagerak *c*. *July-August:* E. of the Shetlands and of Scotland +; Firth of Tay to Jutland *c* +; Plym. *r*; off the Dutch coast to Skagen +; Skagerak *c r*. *September to November:* Väderö *c*, +; as a rule very rare in the Skagerak.

Evadne spinifera P. E. MÜLL. — Occurs in the southern or tropical Atlantic, was in 1898, September, seen abundantly at the Azores, where it occurred also in June 1899.

June: Måseskär *rr*. *July-August:* from the Dutch coast to Skagen, more or less common; Skagerak *rr* +. *September:* Skagerak *rr*.

Podon intermedius LILLJEB. — Neritic species of the eastern temperate Atlantic.

July-August: between Firth of Tay, Newcastle and the Skagerak, not common; Skagerak *rr*. *September:* Skagerak *r*. *November:* central North Sea *r*.

P. Leuckartii G. O. SARS. — *May:* rare at 60° N. 1° E., 59° N. 2° E., SW. of Norway; Måseskär +. *June:* Skagerak + *r*.

P. polyphemoides LEACH. — Neritic species of the eastern temperate Atlantic.

June: Helder *r*. *July-August:* Skagerak + *r*.

Copepoda.

Acartia bifilosa GIESBR. — *April:* Måseskär *r*. *June:* Skagerak *r*. *August:* 53°—54° N. 4°—5° E.

A. Clausii GIESBR. — *January:* Plym., Helder and Väderö *r*. *February:* the whole North Sea, increasing in abundance towards the mouth of the Skagerak. *March* and *April:* more or less abundant at Plym., but very rare in the Skagerak. *May:* Irish Sea *c*; more or less rare round Scotland and on several points in the North Sea, as at 58° N. 3°—4° E., common in the western, but rare in the eastern Skagerak. *June:* Plym. *c*, Helder and the Skagerak + *r*. *July-August:* Hebrides *c*; round Scotland *r*; E. of Firth of Tay and Newcastle *cc*; thence rarer towards the Skagerak; Plym. *c*; Helder *r*; off Heligoland *c*, thence more or less *r* to Skagen and into the Skagerak, where in August it was sometimes found abundantly. *September:* Plym. +; Skagerak *r*. *October:* Plym. +;

Väderö and Måseskär *c*. *November:* round the British Islands and from Firth of Tay across the North Sea to S. Norway and the Skagerak; Plym. *rr*; Helder +; Skagerak *r*. *December:* Plym., Väderö and Måseskär *rr*.

A. longiremis Lilljeb. — This species is stationary the whole year at the Färöes. *January* to *March:* Skagerak *rr*. *April:* Väderö and Måseskär *c r*. *May:* some points in the North Sea *r*; Skagerak *r* to +. *June:* Skagerak + to *c*. *July-August:* central North Sea +; W. Skagerak + *c*. *November:* E. of Firth of Tay and Newcastle *r* to *c*; Skagerak *rr*. *December:* Måseskär *r* to +.

Anomalocera Patersonii Templ. — *April:* once at Måseskär *r*. *May:* 54° N. 5° W. *r*; from 57°—58° N. 3° E. to 58° N. 5° E. *July-August:* from 62° N. 0° E. to 58° N. 6° E. +; 56°—57° N. 1° E. *r*; along the W. coast of Jutland *r*; Skagerak + to *r*. *September:* Skagerak *rr*. *October:* Väderö +.

Calanus finmarchicus Gunn. — *January:* Skagerak *rr*. *February:* above the 100 metre plateau +. *March:* N. of Scotland *r*; Skagerak *rr*. *April:* Plym. *c*; Skagerak *rr*. *May:* Plym. +; from the Irish Channel round Scotland, thence and from 60° N. 1° E. across the North Sea to the SW. of Norway, where it occurred abundantly. *June:* Plym. +; 59° N. 5° E. *r*; Skagerak + to *r*; Väderö *c*. *July-August:* Plym. + *c*; from the Irish Sea to the Orkneys *c*; from Firth of Tay to Skagen + *c*; Skagerak *c*, *r*; from the Dutch coast to Skagen *r*. *September:* Skagerak +. *October:* Plym. + *r*; Skagerak + *r*. *November:* round Scotland +; from Scotland to Skagen *r*; Skagerak *rr*.

This species occurred in January—April from the N. of Iceland to the Färöes and was met with in March and April as far south as 37° N. 9° and 26° W., where it was more or less rare. It was enormously abundant in May above the eastern slope of the submarine ridge from Iceland to E. Scotland, but rare on the western slope. In June it occurred in great abundance in the deeper layers from 74° N. 14° W. to 62° N. 1° E.

Centropages hamatus Lilljeb. — *January:* Färöes; Helder *r*; Skagerak + *c*. *February:* off the Dutch coast *r*; Väderö +. *March:* St Vaast +; Väderö *rr*. *April:* Skagerak *c*, *rr*. *May:* 58° N. 2° W.—4° E. + *r*; SE. North Sea *r*; Skagerak *c*, *r*. *June*: Helder *r*; Skagerak + *c*. *July-August:* 58° N. 0° W. *c*; E. of Newcastle +; Helder + *r*; W. coast of Denmark *r c*; Skagerak *c*, *r*. *September:* Väderö *r* +. *November:* Dogger Bank *r*; Skagerak *rr*. *December:* Skagerak + *c*.

This species occurred as a rule more abundantly at Väderö than at Måseskär.

Centropages typicus Kröyer. — *January-February:* Plym. *r*, W. of Denmark to Skagerak *r*, Väderö *rr*. *March:* Plym. +, Väderö *rr*. *April:* Plym. +. *May:* Plym. *r*; 58° N. 4° E. +. *June:* Plym. + *r*. *July-August:* Plym. *r*; Hebrides +; area between 61° N. 2° E., 55° 34′ N. 0° 59′ E., 56° N. 7° E. and Skagen more or less common; Skagerak *r* to *c*. *September:* Plym. *rr*; 59° N. 5° E. +; Skagerak *r* to *c*. *October*, *November:* Måseskär and Väderö *c*.

Corycæus anglicus LUBB. — *January-February:* Plym. *r* +, W. of Denmark *r*, Väderö *rr*. *March-April:* Plym. *r cc*. *July:* Plym. *c*, some points in the central North Sea *r*; W. of Denmark + *r*. *October:* Plym. *c r*; Väderö *c*, *r*; Måseskär + *r*. *November:* Plym. +; area between 58° N. 2° E., Skagen and 55° N. 6° E.; Skagerak *r*. *December:* Plym. *c r*; Skagerak *r*.

C. venustus DANA. — *November:* Plym. *rr* (drifted from the tropical Atlantic).

Euterpe acutifrons DANA. — *January-February:* rare at Plym., St Vaast, Helder, W. of Denmark to Skagen; Måseskär *rr*. *March* to *May:* Plym. *r* +. *July:* Plym. +. *August:* Plym. and Helder *r*. *September:* Plym. + *c*; Helder *cc*. *October:* Plym. *r*. *November:* Plym. + *r*; from the Dutch coast to Hanstholm, above the 50 m. plateau, *c*. *December:* Plym. *r*; Måseskär *rr*.

Isias clavipes BOECK. — *June:* Plym. *r*; *July:* W. of Denmark (55°—56° N. 7° E.) +; Skagerak + *r*; Gullmarfjord *r*.

Labidocera Wollastonii LUBB. — *September:* Måseskär *r*. *November:* above the Fisher Bank *r*; Skagerak *r*.

Metridia hibernica BRADY & ROBTS. — *January:* Måseskär *r*. *February:* E. of Firth of Tay; 57° N. 5° 35′—8° 7′ E. + *r*. *March*: 60° N. 5° W. *r*. *November:* W. Skagerak *r*. *December:* Väderö *rr*.

This species occurred in December 1898 at 50° N. 20°—9° W.

Microsetella atlantica BRADY & ROBTS. — *January, February:* *r* at Plym., E. of Firth of Tay and at 57° N. 7° E. *June:* at 62°—59° N. 5° E. *c* +; Skagerak *r*. *July:* W. Skagerak +; Gullmarfjord *r*. *August:* Gullmarfjord *r*. *November:* E. of Scotland *r*; Måseskär *r*.

This species occurred in January at the Canaries and Madeira (also the Färöes), in March at 44°—46° N. 16°—11° W., in June at 62°—65° N. 1° E.—1° W. (rare in depths below 200 m.), in August at 56° N. 38°—23° W. *r* to *c*.

Oithona plumifera BAIRD. — *January, February:* rare midway between Scotland and Jutland, at Väderö and Måseskär. *May, June:* in deeper layers, very sparingly from 61° N. 1° E. to 67° N. 3° W. *July, August:* rare at 58° N. 0° W. and 56° N. 2° E.; Skagerak *rr*. *November:* central North Sea *rr*.

O. similis CLAUS. — *January, February:* Plym. *r* +; E. of Firth of Tay *r*; at 56° N. 2° E. +; W. of Denmark to Skagerak and Norway, as a rule *r*; W. coast of Sweden *c* to *r*. *March:* Plym. *r*, *cc*; N. of Scotland *r*; Skagerak *rr*. *April:* Plym. *c*, *r*; Skagerak *r*. *May:* Plym. *c* +; from Scotland to the Skagerak, as a rule *r*, 60° N. 1° E. *c*; SE. North Sea *r*, S. of Norway *c*. *June:* Plym. *c* +; 58° N. 7° E. +; Skagerak + *c*. *July, August:* Plym. and Helder +; Hebrides *cc*; 56°—57° N. 0° 30′ W.—1° 30′ E. *ccc*; also in the whole

North Sea from Scotland and England to Jutland and Skagen; Skagerak *r, cc. September:* Plym. and Helder *c*; 59° N. 5° E. +; Skagerak *c, r. October:* Plym. *c r*; Måseskär and Väderö *c* +. *November:* Plym. *c r*; above the whole 100-metre plateau *r c*; Skagerak + *r*. *December:* Plym. + *r*; Måseskär *c*; Väderö +.

Oncæa media Giesbr. — *December:* Plym. *rr* (drifted from the tropical Atlantic).

O. minuta Giesbr. — *January* to *March:* Plym. *rr*. *December:* Plym. *r*.

O. subtilis Giesbr. — *March*: Plym. *rr*. (This species occurred the same month abundantly at 46° N. 11° W.)

Paracalanus parvus Claus. — *January:* Helder *r*; Skagerak *c r*. *February:* from the Dutch coast to Skagen, as a rule *r*, but *c* at 53° N. 8° E.; Plym. +; Helder *r*; Väderö +. *March, April:* Plym. +. *June:* Plym. *cc*; Helder *r*; Skagerak *rr*. *July, August:* Plym. + *r*; Hebrides *c*; 56°—57° N. 0° 30′ W.—4° E. +. Area between the mouth of Scheldt, Newcastle, Skagen and Heligoland, very abundant. Skagerak *cc*. *September:* Plym. + *cc*; 59° N. 5° E. +; Skagerak *c r*. *October:* Plym. *cc, r*; Väderö *c*. *November:* Plym. *r*; from N. Scotland to S. Norway and W. Jutland more or less abundant; off the Dutch coast and Heligoland *c*; Skagerak *c r*. *December:* Plym. + *r*; Måseskär and Väderö *c* +.

This species was seen in March at 33°—37° N. 32°—26° W., in April at 37° N. 9° W. and 48°—50° N. 9°—5° W.

Parapontella brevicornis Brady. — *March, April:* Plym. *r*.

Pseudocalanus elongatus Boeck. — This species occurs along the coasts of the Arctic Sea, at Iceland, the whole year at the Färöes, whence it spreads to the Shetlands and Scotland.

January: St Vaast and Helder *r*; Skagerak + *c*. *February:* Plym. +; Helder *r*; off the Dutch coast +; round Scotland *r*; area Newcastle, Skagen and 55° N. 8° E. *c*; Väderö *rr*. *March:* Plym. *r*; St Vaast +; Skagerak *rr*. *April:* Plym. *r* +; Måseskär and Väderö + *r*. *May:* Irish Sea +; at 60° N. 1° E. +; between Scotland and Skagerak, more or less abundant; W. of Denmark *r*; W. Skagerak *c*; S. of Norway +. *June:* 59° N. 5° E. *c*; Skagerak + *c*. *July-August:* Irish Channel *cc*; between the Shetlands and Norway +; E. of Firth of Tay and Newcastle *c*, but scarce in the central North Sea; W. of Denmark *r c*; Skagerak *c r*. *September, October:* Skagerak *c* +. *November:* more or less common round Scotland and thence above the 100 m. plateau to Skagerak, where + *r*; Väderö + *c*. *December:* Måseskär and Väderö *c*, +.

This species occurred more abundantly at Väderö than at Måseskär.

Temora longicornis O. F. Müll. — Arctic species, which occurs from Iceland to the Färöes, the Shetlands and Scotland.

January: St Vaast *r*; Helder *r*; Skagerak + *c*. *February:* more or less common from Firth of Tay and Newcastle to Skagen and the Danish Peninsula, most abundant

along the British and Danish coasts; Helder *r*; Skagerak + *r*. *March:* Plym. + *r*; Skagerak *r*. *April:* Plym. *cc*; Helder *r*; Måseskär + *r*. *May:* 60° N. 1° E. *r*; W. of Scotland +; between Newcastle and the Skagerak *r*; SW. of Norway +; Väderö *c*, *r*. *June:* 62°—59° N. 5° E. *c*; Plym. *r*; Helder *r*; Skagerak *cr*. *July-August:* between the Shetlands and Norway *c*; area between the Orkneys, Newcastle and Skagen *c*; Plym. *r*; Irish Sea *r*; Helder *r*; more or less common from Scheldt to Skagen; Skagerak *c r*. *September:* Plym. *r*; 59° N. 5° E.; Skagerak *r*, *c*. *October:* Plym. *r*; Väderö and Måseskär *cc* +. *November:* area between the Orkneys, Newcastle and Skagerak, more or less common; Skagerak *c r*; off the Dutch coast *c*. *December:* Väderö and Måseskär *c*, *r*.

This species was more abundant at Väderö than at Måseskär.

Temorella affinis Poppe. — Baltic species.
March: Skagerak *rr*. *May:* Väderö *r*. *June:* 57° N. 9° E. *r*. *July:* Måseskär *r*.

Annelida.

Tomopteris helgolandica Greff. — *March:* Skagerak (58° 29′ N. 9° 44′ W.) *rr*. *July-August:* 58° N. 0° W. *rr*. *December:* Väderö *rr*.

Chætognata.

Sagitta arctica Auriv. — E. of the Scotch coast between Firth of Tay and Newcastle *rr*. — Arctic species.

Sagitta bipunctata Quoi & Gaim. — This species was seen in March at the Azores and at 44° N. 16° W., in August at 55°—56° N. 23°—26° W.

January: Skagerak *c r*. *February:* Plym. *r*; more or less common from Newcastle to Skagerak and W. of Denmark; Väderö *rr*. *March:* Skagerak *r*. *April:* Plym. *r*; Skagerak *r*. *May:* 58° N. 4° E. +; SW. of Norway *r*; W. Skagerak *r*. *June:* Plym. *r*; 59° N. 5° E. *r*; Skagerak *rr*. *July-August:* Plym. *c*; mouth of Scheldt *c*; W. coast of Jutland *c*, thence less common to Newcastle; 57° N. 1° 30′ E. *cc*; Skagerak *c r*. *September:* Plym. *r*; Skagerak *c*, *r*. *October:* Plym. *c*; Måseskär + *c*. *November:* Plym. *r*; common from Scotland to Skagerak, where + *r*. *December:* Plym. *r*; Väderö +.

Ctenophora.

Pleurobrachia pileus Fabr. — Arctic species.
January: Väderö and Måseskär *r*. *April:* Måseskär *r*. *July:* 58° N. 0° W. *r*. *August:* Irish Channel and Måseskär *r*. *October* and *December:* Väderö *rr*.

Ciliata.

Amphorella Steenstrupii Clap. & Lachm. — This species was seen in January at 35° N. 9° W., in March at 37° N. 26° W. and 44° N. 16° W., in May at 50° N. 33° W.

February: centre of the North Sea and S. of Norway *r*. *July-August:* between the Shetlands and Norway *r*; at 5° N. 4° E. *r*; along the W. coast of Jutland *r*; Gullmarfjord *r*. *September:* 59° N. 5° E. *r*; Skagerak *r*. *Oktober-November:* Skagerak *rr*.

Amphorella subulata Ehb. — Neritic species, which occurs from the Mediterranean and the Spanish coast to the White Sea and in the Baltic.

June: 62° N. 5° E. *r*. *July-August:* Plym. *r*; off Heligoland +; Gullmarfjord *r*. *September* and *November:* Skagerak *rr*.

Cyttarocylis Claparedii v. Dad. — *August:* Plym. *r*.

C. denticulata Ehb. Arctic species.

May: 58° N. 5° E. *r*. *June:* 62°—58° N. 5°—7° E. + *r*; Skagerak *r* +. *July-August:* rare at some points between Scotland and Skagen; W. Skagerak *r*; Gullmarfjord *c*, *rr*. *November:* E. of Scotland *r*; Måseskär *r*. *December:* Väderö *rr*.

C. serrata Möb. (*Ptychocylis Ehrenbergii* Cl., Kongl. Sv. Vet.-Akad. Handl., XXXII, n:o 8, pag. 16, fig. 2). — *July-August:* Plym. *c*, *r*; Irish Channel *r*; near the Orkneys *r*; Helder *r*; off Heligoland and W. of Schleswig *r*; Gullmarfjord *r*. *September:* Helder *r*.

Fungella arctica Cl. (Kongl. Sv. Vet.-Akad. Handl., XXXII, n:o 3, Pl. I, fig. 1). — *February:* 57° N. 5° E. *r*; off the Dutch coast *r*; NW. of Skagen *r*. *April:* E. of Firth of Tay and the centre of the North Sea *rr*.

Ptychocylis acuta Brandt. — *January, February:* S. of Norway, Väderö, Måseskär *r*. *March:* Skagerak *r*. *July:* Gullmarfjord *c* +.

Tintinnopsis beroidea Stein. — *January, February:* Plym. *r*; St Vaast +; Helder + *r*; W. of Denmark, W. Skagerak and Måseskär *r*. *March:* Plym. +; Helder *r*. *April, May:* Irish Sea *r*; Hebrides *r*; Helder *r*; Måseskär *r*. *November:* W. of Scotland *r*; Skagerak *rr*.

T. campanula Ehb. — *January:* St Vaast *rr*; Helder *rr*. *July, August:* Plym. *r c*; Helder +; off Heligoland +; Skagerak *r*; Gullmarfjord + *r*. *September:* Plym. +; Helder *r*; Skagerak *c*; Måseskär *r*. *October:* Skagerak *r* +. *November:* Irish Sea *r*; Skagerak *rr*.

T. Davidoffii v. Dad. — *September:* Skagerak +.

T. fistularis Möb. — *July, August:* Gullmarfjord *r*. *September:* Skagerak *r*.

T. Lobiancoi v. Dad. — *September:* Skagerak *rr*.

T. ventricosa Clap. & Lachm. — *February:* S. of Norway and above the Fisher Bank *r*. *March:* Plym. +. *April-May:* Plym. +; central North Sea *r*; Måseskär *r*. *August:* Plym. *r*; Helder *c*. *September:* Helder *r*. *November:* more or less common W. of England to the N. of Scotland; 56° N. 5° E. +; Skagerak *r*. *December:* Måseskär *r*.

Tintinnus acuminatus Clap. & Lachm. (*T. serratus* Brandt). — *July:* Gullmarfjord *r*. *November:* SW. of Norway *rr*. *December:* Måseskär and Väderö *rr*.

Radiolaria.

Acanthochiasma fusiforme Hkl. — *February:* 58° N. 2° E. +. *November:* common E. of Newcastle, whence it became rarer towards the Firth of Tay and to about 57° N. 2° E.

Acanthometron quadrifolium Hkl. — *February:* 58° N. 4° E. *rr*. *July, August:* midway between the Shetlands and Norway *r* and between Scotland and Norway +; W. of Jutland to Skagen *r*; Skagerak *r*. *September* and *November:* Skagerak *r*.

Acanthonia Mülleri Hkl. — *July-August:* 55° N. 6° W. *rr*. Gullmarfjord *r*.

Plectophora arachnoides Clap. & Lachm. — *January:* Måseskär *r*. *February:* W. of Jutland and in the W. Skagerak *rr*. *July:* Gullmarfjord *r*. *September:* Väderö *r*. *October:* Måseskär and Väderö *r*. *November:* SW. and S. of Norway, Skagerak, Väderö and Måseskär *r*. *December:* Väderö *r*.

Rhizopoda.

Globigerina bulloides d'Orb. — *May:* 60° N. 1° E. *r*.

Cystoflagellata.

Noctiluca miliaris Surir. — *April:* 56° N. 6° E. *r*. *June:* Helder *r*. *July, August:* Plym. *r*; off the Dutch coast *ccc*; W. of Jutland (56° N. 8° E.) *c*. *September:* Helder + *r*. *October:* Plym. *c*. *November:* Plym. *r*; N. of Jutland *r*. *December:* Plym. *r*.

Silicoflagellata.

Dictyocha fibula Ehb. — *February:* 57° N. 5° E. *r*. *April, May:* 57° N. 1° E. *r*; Måseskär *r*. *July:* Gullmarfjord *rr*. *November:* *r* at some spots above the 50-metre plateau of the North Sea, in the Skagerak and SW. of Norway. *December:* Måseskär *r*.

Distephanus speculum Ehb. — *February:* *r* at some spots between Newcastle and S. Norway. *April:* Måseskär +. *September* to *November:* Skagerak *r*.

Chlorophyllaceæ.

Halosphæra viridis Schmitz. — *January:* Väderö and Måseskär *c r*. *February:* Plym. *r c*; between Scotland, SW. Norway and Skagen more or less common; Skagerak + *r*. *March:* Plym. + *r*; N. of Scotland *r*; Skagerak *cc r*. *April, May:* between Scotland, SW. Norway and Skagen, as a rule rare; Måseskär + *r*; Väderö *c*. *July, August:* Hebrides +. E. of Scotland *r*. *September:* Plym. *r*. *October:* Plym. *r* +; Skagerak *r*. *November:* Plym. *r*; Hebrides *r*; round Scotland and across the North Sea to SW. Norway and Skagen; Skagerak *r*. *December:* Plym. *r*; Måseskär *r*; Väderö +.

Dinoflagellatæ.

Ceratium (tripos var.) bucephalum Cl. — *January:* Väderö and Måseskär + *r*. *February:* area between S. Norway, Skagen, 56° N. 3° E. and 58° N. 2° E. as a rule not rare; Väderö *r*. *April, May:* 56°—57° N. 4° E. *rr*; 58° N. 4° E. and 59° N. 2° E. *r*. *July, August:* 57° N. 4°—6° E. and 56° N. 2° E. *r*; Skagerak + *r*. *September:* Skagerak *r*. *November:* more or less common on the area between S. Norway, Skagen, 56° N. 1° E. and 58° N. 2° E. Skagerak *r*. *December:* Väderö + *r*.

C. furca Duj. — *January:* Måseskär + *r*. *February:* area between Newcastle, S. Norway and Skagen *cc*; N. of the Dutch coast *r*; W. of Jutland +. *March:* Plym. *r*; N. of Scotland *r*; Skagerak *r*. *April, May:* from 61° N. 1° E. to the Skagerak *r*, at 58° —59° N. 3°—2° E. *c*; area between 58° N. 5° E, 57° N. 2° E. and 56° N. 7° E., rare or dead. *June:* S. and W. of Norway *c*; Skagerak *c r*. *July, August:* Plym. + *r*; off Heligoland *c*; between the Shetlands, Scotland and Norway *cc*; Skagerak + *r*. *September:* 58°—59° N. 7°—5° E. + *r*; Skagerak *r*. *October:* Plym. *r*; Väderö *r*. *November:* Irish Sea *c*; area between Newcastle, 58° N. 2° E., Skagen and 55° N. 6° E.; Skagerak +. *December:* Skagerak + *r*.

C. fusus Duj. — *January:* Helder *r*; Väderö and Måseskär + *r*. *February:* Plym. *r*; Helder +; between Firth of Tay, S. Norway and Skagen, as a rule *r*; along the W. coast of Denmark *c* +. *March:* Plym. *r*; Väderö *r*. *April, May:* Plym. *c r*; area between 60° N. 2° E., 57° N. 1° E. and Jutland, as a rule rare, but common at 59° N. 2° E.; Måseskär + *rr*. *June:* Plym. *r c*; Helder *r*; 59° N. 5° E. +; Måseskär + *r*. *July, August:* Plym. *r*; N. of Scotland *r*; 58° N. 0° W. to 61° N. 2° E. *c* +; W. Skagerak to 56° N. 3° E., as a rule rare; Skagerak *r c*. *September:* 59° N. 5° E. *c*; 58° N. 7° E. *r*; Skagerak *c r*. *October:* Väderö *c r*. *November:* Irish Sea; from E. Scotland and N. England to Skagerak and the W. of Jutland; Skagerak *c r*. *December:* Väderö *r*.

C. lineatum Ehb. — *February:* off S. Norway and on a spot in the centre of the North Sea. *May:* 58° N. 5° E. *r*. *July:* 58° N. 6° E. *r*. *September* to *December:* Skagerak *r*.

C. (tripos var.) longipes Bail. — *January:* Helder *rr*; Skagerak *r c*. *February:* area between Skagen, 58° N. 2° E., 56° N. 5° E., as a rule scarce; W. of Schleswig *c*; Skagerak + *r*. *March:* Skagerak *r*. *April, May:* from 61° N. 1° E. to S. Norway *c*; area between 58° N. 5° E., 57° N. 2° E. and 56° N. 3° E., on the whole rare; 55° N. 6° E. *cc*; Skagerak +. *June:* S. and W. of Norway to 62° N. *c*; Skagerak *c r*. *July, August:* Plym. +; Irish Channel *r*; E. of Scotland *r*; 56° N. 0° W. *cc*; 57° N. 4° E. *r*; 58° N. 6° E. +; Helder *r*; off Heligoland *r*; N. of Skagen *r*; Skagerak *r*. *September:* Helder +; Skagerak + *r*. *October:* Skagerak +. *November:* rare on some points W. and E. of Scotland and off the Dutch coast; Skagerak + *r*. *December:* Plym. *r*; Måseskär *c*; Väderö + *r*.

C. (tripos var.) macroceros Ehb. — *January:* Väderö *r*. *February:* area between 58° N. 0° W., Newcastle, West Jutland and S. Norway, as a rule abundant; Väderö and Skagerak *r*. *April, May:* rare or dead on some spots in the western North Sea (at 58° N. 5° E. common in May). *June:* Plym. *r*; 58°—59° N. 7°—5° E. *cc*; Skagerak *cc*. *July-August:* Plym. *r*; W. of Skagerak and Jutland to about 3° E. *ccc*; Skagerak *ccc*. *September:* Plym. +; 58°—59° N. 7°—5° E. *ccc*; Skagerak *cc*. *October:* Plym. *r*; Skagerak + *c*. *November:* very common over the whole 100 metre plateau, especially in the central and eastern parts; Skagerak *cc r*. *December:* Skagerak *cc* +.

C. tripos Nitzsch. — *January:* Väderö and Måseskär *cc*. *February:* Plym. +; between Newcastle, S. Norway and Skagerak, sparingly in the west, abundant in the east as well as W. of Jutland; Väderö *c*; Måseskär + *r*. *March:* Väderö *c r*. *April, May:* area between 58° N. 5° E., 57° N. 2° E., 56° N. 3°—7° E., more or less common, but frequently dead; from 60° N. 1° E. to S. Norway (May) as a rule very common; Måseskär *c*; Väderö +. *June:* S. and W. of Norway to 62° N.; Skagerak very common. *July, August:* Plym. *r* +; between 54° and 61° N. from Scandinavia towards Scotland and England, where it becomes rare; whole Skagerak *ccc*. *September:* Plym. *cc*; 58°—59° N. 7°—5° E. *ccc*; Skagerak *ccc*. *October:* Väderö *cc*. *November:* Plym. *r*; above the whole 100 metre plateau very abundant; Skagerak *ccc*. *December:* Plym. *r* +; Skagerak *cc*.

Dinophysis acuta Ehb. — *February:* between Newcastle, Skagen and 58° N. 2° E., as a rule *r*. *March:* Skagerak *r*. *April, May:* above the 100 metre plateau *r*. *June:* S. and W. of Norway *r*; Skagerak *r*. *July, August:* Plym. *rr*; on some spots in the northern North Sea and in Skagerak *r*. *September:* 59° N. 5° E. +; 58° N. 7° E. *r*; Skagerak *c r* (maximum). *November:* Irish Sea *r*; between Scotland, N. England and Skagerak *r*; Skagerak *r*. *December:* Skagerak *r*.

Dinophysis homunculus Stein. — *February:* 57° N. 8° E. *rr*. *August:* Plym. *rr*.

D. Michaëlis (Ehb.?) Auriv. — *April, May:* 57° N. 7° E. *r*. *June:* 59° N. 5° E. *r*; Skagerak *r*. *July:* Skagerak *r*. *September:* 58°—59° N. 7°—5° E. *r*; Skagerak *r* + (max.). *November:* at some points W. of Jutland *r*.

D. Vanhöffenii Ostenf. — *July, August:* E. of Scotland *r*; Skagerak *r*. *September:* Skagerak *r*.

Diplopsalis lenticula Bergh. — *February:* 58° N. 4° E. *r*; some spots between Newcastle and Skagen *r*. *July, August:* Plym. *r*; E. and W. of Scotland *r*; W. Skagerak *r*. *September:* Skagerak *rr*. *October:* Måseskär *rr*. *November:* Plym. *r*; off the Dutch coast *r*; Skagerak *rr*. *December:* Plym. *r*.

Gonyaulax polyedra Stein. — *September:* Skagerak *rr*.

G. spinifera Clap. & Lachm. *February:* W. of Schleswig *r*; between Skagen and S. Norway *r*. *March:* Väderö *rr*. *April, May:* between Scotland, Newcastle and the Skagerak *r*; 55° N. 6° E. *r*. *July, August:* W. of Schleswig *r*; Skagerak *rr*. *November:* Måseskär *rr*.

Peridinium depressum Bail. — *January:* Väderö and Måseskär *r*. *February:* E. of Scotland *r*; W. of Jutland *r*. *March:* Skagerak *cc r*. *April, May:* W. of Scotland; from 60° N. 1° E. to 58° N. 4° E. *c*; between Newcastle, S. Norway and Jutland +; 55° N. 6° E. *c*; Väderö and Måseskär *cc r*. *June:* 62° N. 5° E. *r*; Väderö +. *July, August:* 56° N. 0° 30′ W. *c*; between Firth of Tay and Skagerak *r*; W. Skagerak + *r*. *September:* Väderö *r*. *October:* Plym. + *r*. *November:* Plym. + *r*; Irish Sea *r*; between Scotland and Skagerak *r*; Måseskär and Väderö *r*. *December:* Plym. *r*; Måseskär *r*.

P. divergens Ehb. — *January:* Skagerak *rr*. *February:* between Newcastle and Skagerak, as a rule *r*. *April, May:* 58° N. 5° E. and 59° N. 2° E. *rr*. *June:* 60° N. 5° E. *r*; 58° N. 7° E. *r*; Skagerak *r*. *July, August:* Plym. + *r*; Irish Channel *r*; E. of the Shetlands and at 57° N. 1°—6° E. *r*; Skagerak *r*. *September:* Skagerak *c r* (maxim.). *November:* Irish Sea *r*; between Scotland and the Skagerak *r*; Skagerak *r*.

P. exiguum Cl. (K. Sv. Vet. Akad. Handl., XXXIV, N:o 1, p. 17, Pl. VIII, f. 5). — *August:* Plym. *rr*.

P. Michaëlis Ehb. — *April, May:* 57° N. 8° E. *r*. *August:* Plym. *rr*. *September:* 58° N. 7° E. *r*; Skagerak *rr*.

P. oceanicum Vanhöffen. — *July:* off Heligoland *c*; E. of Scotland *r*; N. of Jutland *r*.

P. ovatum Pouchet. — *February:* S. of Norway *r*; W. of Schleswig *r*. *March:* Plym. *r*; N. of Scotland *r*. *April, May:* Plym. *r*; Helder *r*; W. of Scotland *r*; between Firth of Tay, Newcastle and Skagerak *c*. *September:* S. of Norway *r*. *October:* Plym. *r*. *November:* Plym. *r*.

P. pallidum Ostf. — *July:* 58° N. 0° E. *r*. *September:* Skagerak *rr*. *November:* Irish Sea *r*; E. of Jutland *r*.

P. pellucidum Bergh. — *April, May:* follows *P. ovatum* in the North Sea, but rarer; Plym. *rr*; Måseskär *r*. *July:* Gullmarfjord *r*. *August:* Orkneys *r*.

P. vexans Murray & Whitting. — *June, August:* Plym. *rr*.

Pyrophacus horologium Stein. — *February:* North Sea, rare among tripos-plankton. *July, August:* Shetlands *r*; E. of Scotland *r*; Skagerak *r*. *September:* Helder *r*; Skagerak *r*. *November:* at some spots between Scotland and the Skagerak.

Cystæ.

Hexasterias problematica Cl. — *March:* Helder *r*.

Xanthidium brachiolatum Möb. — *July* to *September:* Skagerak *rr*.

X. hystrix Cl. — *January:* Måseskär *rr*. *May:* Plym. *r*; S. of Norway *rr*. *June:* Plym. *rr*; Skagerak *rr*. *July, August:* Plym. *rr*; W. Skagerak *r*.

X. multispinosum Möb. — *May:* 55° N. 6° E. *r*; Måseskär *r*. *August:* W. and E. Skagerak *r*. *November:* off the Dutch coast and in the centre of the North Sea *r*.

Flagellatæ.

Phæocystis Pouchetii Lagh. — *January* and *February:* St Vaast *r* +. *April, May:* 61° N. 1° E. to 58° N. 3° E. *ccc*; 58° N. 2° E. *r*; 56° N. 4° E. *r*; 56° N. 6° E. *c*; Helder *ccc*; Plym. *ccc* +. *June:* Helder *ccc*. *September:* Helder + *c*.

Dinobryum pellucidum Levander. — *April:* Väderö *cc*; Måseskär +. *May:* Måseskär *r*.

Diatomaceæ.

Achnanthes tæniata Grun. — *February:* Väderö *rr*.

Actinocyclus Ehrenbergii Ralf. — *March:* N. of Scotland *r*. *June:* Skagerak *r*.

Asterionella japonica Cl. — *February:* St Vaast *r*. *March:* Helder *rr*; St Vaast *c* +; Plym. *rr*. *April, May:* NE. of Scotland *r*; Plym. *cc*; W. of Denmark, common between 55°—56° N., thence rarer to Skagen and into the Skagerak. *August:* Plym. *cc*. *October:* Skagerak *rr*.

Bacteriastrum varians Lauder. — *July:* off Heligoland *cc*. *September:* Helder *r*. *November:* W. of Jutland *r*.

Biddulphia aurita Lyngb. — *January:* St Vaast *r*; Helder *r*; Väderö and Måseskär *r*. *February:* St Vaast *r*; Helder +; W. of Schleswig *c*; at Skagen *r*; Måseskär and Väderö *c*. *March:* St Vaast *r*; Helder *cc r*; Skagerak + *r*. *April:* Skagerak *rr*. *December:* Måseskär *r*.

B. mobiliensis Bail. — *January:* Plym. *r*; St Vaast +; Helder *r*; Väderö and Måseskär *r*. *February:* Plym. *c*; St Vaast *c* +; off the Dutch coast and W. of Danmark *c r*; round Scotland *r*. *March:* Plym. *cc*; S:t Vaast *r*; Helder *r*; N. of Scotland *r*. *April, May:* Plym. *c*; Helder *r*; W. of Denmark *r*; Måseskär *r*; E. and W. of Scotland. *September:* Helder *r cc*; Skagerak *r*. *October:* Skagerak *r*. *November:* Irish Sea +; W. of Denmark *r* +; Skagerak *r*. *December:* Plym. *r*; Väderö *rr*.

Cerataulina Bergonii H. Per. — *March:* Helder *ccc r*. *April, May:* Irish Sea *r*; some points between Firth of Tay, S. Norway and the Skagerak *r*; Måseskär *r*; Helder *c*. *June:* Plym. *r*; Helder *rr*; Skagerak *r*. *July:* Plym. +; Måseskär *r*; Väderö *rr*. *August:* Plym. +; Skagerak *r*. *September:* S. of Norway and Skagerak *r*. *October:* Skagerak + *r*. *November:* off the Dutch coast *r*; SW. of Norway, Skagerak and Måseskär + *r*.

Chætoceros atlanticus Cl. — *February:* area between 58° N. 2° E., 56° N. 3° E. and Skagen *r*. *March:* N. of Scotland *r*; Skagerak *rr*. *April, May:* S. of Norway *r*; some points in the central North Sea *r*.

C. borealis Btw. — *January:* St Vaast *rr*; Väderö and Måseskär *rr*. *February:* S. of Norway and Måseskär *r*. *March:* Måseskär *r*. *April, May:* 60°—61° N. 1°—2° E. *r*; the North Sea between 58° and 54° N., not rare, most common in the central part; Måseskär *r*; Väderö *r*. *June:* Skagerak *r*. *July:* Gullmarfjord *r*. *October:* Väderö and Måseskär *r*. *November:* SW. of Norway *r*; Skagerak *rr*; Måseskär +. *December:* Väderö and Måseskär + *r*.

Var. Brightwellii Cl. — *February:* 57° N. 5° E. *r*; at Skagen and in the Skagerak *r*. *March:* Måseskär *r*. *April, May:* 61° N. 1° E. *r*; 56° N. 1° E. *r*; 55° N. 6° E. *r*; Måseskär *rr*. *June:* Skagerak, Väderö and Måseskär *r*. *July:* Gullmarfjord *r*. *October:* Måseskär *r*. *November, December:* Skagerak + *r*.

Chætoceros constrictus Gran. — This arctic species occurred in September 1898 at Vestmanna ö, in October the same year at the Färöes. It was seen in 1899, April and May, at the Färöes, in May at 61° N. 6° W.

January: Måseskär *r*; *February:* S. of Norway *r*; Väderö and Måseskär + *c*. *March:* whole Skagerak *cc*. *April, May:* 58° N. 4° E. +; 58° N. 7° E. *cc*; 57°—58° N. 9°—11° E. *c*; 55° N. 6° E. *r*; Skagerak *cc*. *June:* Skagerak *r*. *October, November:* Skagerak +; Väderö *c r*. *December:* Väderö +.

C. contortus Schütt. — *January, February:* Väderö and Måseskär *r*. *March:* Skagerak *c* +; Väderö *c* +; Måseskär *r*. *April, May:* 58° N. 4°—7° E.; 55°—56° N. 6° —7° E. *r*;

Skagerak *c*; Måseskär *c r*. *June:* Skagerak +. *July:* Gullmarfjord. *August—October:* Skagerak and Måseskär *c r*. *November:* SW. of Norway *r*; Skagerak *cc*. *December:* Väderö *r*.

This species appeared in August 1898 at the Färöes and in September at the Azores, in April 1899 abundantly at 48° N. 9° W., in May at Vestmanna ö and the Färöes.

C. criophilus Castr. — *March* and *April:* Skagerak *r*. *November:* Måseskär *r*.

C. curvisetus Cl. — *January:* St Vaast *cc*; Måseskär *r*; *February:* St Vaast *c*; Väderö and Måseskär *r*; S. of Norway *r*. *March:* St Vaast *ccc*; Väderö *r*. *April, May:* Plym. + *r*; Irish Sea *r*; W. of Scotland *r*; E. of Scotland +; 55°—56° N. 6° E. *r*; Väderö +. *June:* Skagerak *c* +. *July:* at Skagen *r*; Gullmarfjord *r*; Väderö *c r*. *August:* Plym. *cc* +; Skagerak *c r*. *September:* Skagerak *c r*. *October:* Plym. +; Skagerak *c*. *November:* SW. of Norway +; Skagerak *cc*. *December:* Plym. *r*; Väderö *c*.

C. danicus Cl. — *March:* St Vaast *r*; Helder *r*. *April, May:* 58° N. 4° E. *cc*; Skagerak, Väderö and Måseskär *cc*; N. of Jutland *c*. *June:* Skagerak and Måseskär *c*. *July:* Måseskär +. *September, November:* Skagerak and Måseskär *r*.

This species was seen in March 1898 at 21° N. 18° W. and 41° N. 21° W. It is common in the Baltic to Åland.

C. debilis Cl. — Arctic species. It was seen in November 1898 from the S. of Iceland to the Färöes, where common, in 1899, April and May, abundantly at the Färöes.

February: Väderö and Måseskär *c r*; Helder *r*. *March:* Skagerak and Måseskär *c*; Helder *cc r*. *April. May:* 61° N. 1° E. *r*; round Scotland *c*; W. of Denmark *r*; Helder *rr*; Plym. + *r*; Måseskär *c* +. *September:* Helder *c*. *October* to *December:* Skagerak *cc* +; S. of Norway + (Nov.).

C. decipiens Cl. — Arctic species of wide distribution. It occurred in December 1898 from S. Iceland to Scotland, in March 1899 from 65° N. 24° W. to 62° N. 8° W. (rare), in April at 48° N. 9° W. *r* and 44° N. 15° W. *r*, but abundantly S. of Iceland and at the Färöes.

January: Plym. *r*; St Vaast *r*; Skagerak *r*. *February:* St Vaast *r*; E. of Scotland *r*; S. of Norway *r*; Skagerak + *r*. *March:* Plym. *c r*; St Vaast *c*; N. of Scotland *rr*; Skagerak *cc r*. *April, May:* 61° N. 1° E. *r*; 58°—59° N. 1°—2° E. *ccc*; 58° N. 4°—7° E. + *r*; 56° N. 6° E. *r*; 55°—56° N. 7° W. *c*; Skagerak *cc r*; Plym. *c r*. *June:* Helder *rr*; Skagerak *rr*. *August:* Irish Channel *r*. *September:* Måseskär *r*. *October:* Plym. *r cc*; Måseskär *rr*; Väderö *r*. *November:* Plym. *r*; W. of England, round Scotland; Skagerak *r*. *December:* Plym. +; Måseskär *rr*; Väderö + *r*.

C. densus Cl. — *January* to *March:* St Vaast + *r*; Plym. (March) *r*. *April, May:* Plym. *r*; 55° N. 6° E. *c*, thence rarer along the Danish coast into the Skagerak, where at Måseskär and Väderö +; between 56°—57° N. 1° E. and 57° N. 4° E., more or less rare; 58°—59° N. 1°—2° E. *r*. *July, August:* Plym. + *r*; Helder *r*; off Heligoland *r*;

E. of Scotland *r*. *September:* Helder *r*. *October:* Plym. +; Måseskär *rr*; Väderö +. *November:* 56° N. 4° E. to Skagerak; SW. of Norway *rr*; Måseskär *r*; Väderö +. *December:* Måseskär and Väderö *r*.

This species was seen in December 1898 at the Azores and in March 1899 at 47° N. 8° W..

Chætoceros diadema Ehb. — *January:* Måseskär *r*. *February:* Helder *r*; W. of Schleswig *r*; Måseskär and Väderö *c* +; S. of Norway *r*. *March:* Helder *cc*; Skagerak *ccc*. *April, May:* N. of Scotland *r*; Måseskär +; 55° N. 7° E. *r*. *June:* Måseskär *rr*. *October:* Måseskär *r*. *November:* Skagerak *c r*.

Arctic species, which was seen in November 1898 sparingly at 51° N. 20° W., in April 1899 at 48° N. 9° W. and not rare at the Färöes.

C. didymus Ehb. — *January:* Plym. *r*; St Vaast *c*. *February:* St Vaast +; some points E. of Scotland *r*. *March:* St Vaast + *c*. *April:* Plym. + *r*; 56° N. 6° E. *r*. *June:* Måseskär *r*. *July:* Helder *r*; Gullmarfjord *rr*. *August:* Plym. *r* +; Skagerak *r*. *September:* Skagerak *c*; Måseskär *cc*; Väderö *r*. *October:* Skagerak, Väderö and Måseskär + *c*. *November:* Irish Sea *r*; Skagerak *cc r*; SW. of Norway *rr*. *December:* Måseskär +; Väderö *r*.

C. furcellatus Bail. — *April:* Plym. *r*.

This is a characteristic arctic, neritic species.

C. hiemalis Cl. — *February:* S. of Norway and at Måseskär *r*. *March:* Skagerak + *c*. *April, May:* W. of Scotland *r*, Skagerak *cc r*; SW. of Norway *c*; 55° N. 6° E. *r*. *June:* Skagerak *rr*; Måseskär +. *September:* Måseskär +. *October* to *December:* Skagerak + *c*.

C. laciniosus Schütt. — *April, May:* NW. of Scotland *r*. *November, December:* Skagerak, Väderö and Måseskär *c r*.

C. Lorenzianus Grun. — *August:* Plymouth *r*.

C. Schüttii Cl. — *February:* central North Sea *r*; Skagerak *r*. *March:* Plym. *r*. *April:* Plym. + *r*; 56° N. 6° E. *r*. *June:* Måseskär *r c*. *July:* Helder +; Gullmarfjord *r*; Väderö +. *August:* Plym. + *c*; Skagerak and Måseskär *cc*. *September:* Skagerak and Måseskär *cc*; Väderö *r*. *October:* Måseskär *cc*; Väderö *r* +. *November:* W. of Denmark *r*; 57° N. 1° E. *r*; Väderö *c*.

C. scolopendra Cl. — *January:* Måseskär *r*. *February:* Väderö, Måseskär and S. of Norway + *rr*. *March:* Skagerak *c r*. *April, May:* Hebrides +; Shetlands *r*; N. of Scotland *r*; central North Sea *r*; N. of Jutland *r*; Måseskär *r*. *July:* Gullmarfjord. *September —November:* Skagerak, Väderö, Måseskär and S. of Norway *c r*.

C. seiracanthus Gran. — *March:* Väderö *rr*. *November:* Skagerak *rr*. *December:* Väderö *rr*.

C. similis Cl. — *March:* Skagerak *rr*. *November:* *r*.

C. socialis Lauder. — Arctic species, which was found in June 1898 abundantly S. of Iceland.

February: Väderö and Måseskär *c r*. *March:* very common in the whole Skagerak. *August:* Måseskär *r*. *September:* once very common at Måseskär. *October:* Plym. +. *November:* Skagerak *c r*.

C. subtilis Cl. — *August:* Måseskär *r*.

C. teres Cl. — Arctic species, found in August 1898 at the Färöes, in March 1899 N. of Iceland, in April at 49° N. 7° W., in May at Vestmannaö (*c*), the Färöes (*r*) and at 61° N. 1° E. (*r*).

February: St Vaast +; Helder *rr*; Väderö and Måseskär *rr*. *March:* Plym. + *c*; St Vaast *r*: Helder *r*; Skagerak *c r*. *April*, *May:* 58° N. 2° E. *r*; 56° N. 1° E. *r*; Plym. +. *November:* Skagerak, Väderö and Måseskär *r*.

Corethron hystrix Hensen. — *March:* Plym. *r*. *April*, *May:* N. of Scotland *r*.

Coscinodiscus concinnus W. Sm. — This species occurred abundantly at the Färöes from September 1898 to May 1899.

January: Plym. *r*; St Vaast + *r*; Helder *r*; Väderö and Måseskär + *c*. *February:* round Scotland *r*, thence more or less common to the Skagerak; St Vaast +; along the W. coast of Denmark; Väderö and Måseskär *cc*. *March:* N. of Scotland *r*; Plym. *c*; Skagerak *rr*; Måseskär *c*. *April*, *May:* rare at some points in the North Sea; Måseskär +. *July:* off Heligoland *r*; Väderö, Måseskär and Gullmarfjord *r c*. *September:* Plym. *c*; Helder *c r*; Skagerak *r*. *October:* Plym. *c*; Väderö +. *November:* Plym. *c*; Irish Sea *r*; some points on the central North Sea *r*; round Jutland *r*; Skagerak *r* +. *December:* Plym. *c*; Väderö +.

C. excentricus Ehb. — This species occurred in November 1898 from 62° N. 8° W. to 60° N. 4° W.

January: St Vaast *c*. *February:* Plym. *r c*; St Vaast *c*; in the North Sea together with *C. concinnus*. *March:* N. of Scotland *r*; Plym. *cc* +; Helder *r*. *April:* Helder *r*. *September:* Skagerak *r*. *November:* Irish Sea *c*; W. of Schleswig *c*; Skagerak *r*. *December:* Måseskär *r*.

C. oculus iridis Ehb. — Arctic species, which was seen abundantly in November 1898 at Vestmanna ö and in February 1899 at the Färöes.

January: Måseskär +. *February:* E. of Firth of Tay +; St Vaast *rr*; W. of Jutland *c*; S. of Norway *r*; Måseskär *c*. *March:* N. of Scotland *r*; Skagerak and Måseskär + *r*. *April*, *May:* central North Sea *r*; Skagerak *r*. *November:* Plym. +; Skagerak *r*. *December:* Plym. +.

C. polychordus Gran. — Arctic species, which was found in July 1898 S. of Iceland and in October at the Färöes.

February: W. of Schleswig *r*; Skagerak and Måseskär *r*; S. of Norway *r*. *March:* Skagerak and Måseskär + *r*. *April, May:* NE. of Scotland *c*; 56° N. 6° E. *r*. *November, December:* Skagerak, Väderö and Måseskär *r*.

C. radiatus Ehb. — *January:* Väderö and Måseskär *r*. *February:* round Scotland, thence to S. Norway, Skagen and the Danish W. coast; Väderö *rr*; St Vaast *r*. *March:* N. of Scotland *r*; Plym. +. *April, May:* British E. and W. coasts; Danish coast; Måseskär *r*. *June:* Skagerak *rr*. *August:* Irish Sea *r*. *September:* Skagerak *rr*. *November:* Irish Sea + *c*; round Scotland; off the Dutch coast; W. of Jutland; Skagerak *r*.

C. stellaris Roper. — *February:* W. of Jutland *r*. *March:* Skagerak *r*. *June:* 59° N. 5° E. *r*. *November:* rare above the Fisher Bank; Måseskär *r*. *December:* Måseskär *r*.

Ditylum Brightwellii West. — *January:* St Vaast + *c*; Helder *r*; Måseskär +. *February:* St Vaast + *r*; Helder *rr*; along the W. coast of Denmark to Skagen *r*; S. Norway *r*. *March:* Plym. *r* +; St Vaast *r*; Helder +. *April, May:* N. and E. of Scotland *r*; Plym. + *r*; Helder *r*; along the W. coast of Jutland to Skagen *cc*. *July:* Plym. *r*; Skagen *r*. *August:* Plym. *r*. *September:* Skagerak *r*. *October:* Skagerak, Väderö and Måseskär *r*. *November:* Plym. *r*; Irish Sea *r*; banks W. of Denmark *c*; Skagerak + *c r*; SW. of Norway *r*. *December:* Väderö and Måseskär *r*.

Eucampia zodiacus Ehb. — *January, February:* St Vaast *r*. *March:* St Vaast *r*; Helder *r* +. *April:* Helder *c*; 56° N. 6° E. *cc*; Måseskär +. *September:* Helder *r*. *October:* Plym. *r c*. *November:* W. of Jutland *rr*; Skagerak + *r*.

Guinardia flaccida Castr. — *February:* off the Dutch coast *rr*. *March:* Plym. +; Helder *c*. *April, May:* Plym. *cc r*; Helder *c*; W. of Denmark *r*; from 56° N. 1° and 6° E. to Skagen *cc*. *June:* Plym. *r*; Helder +; Skagerak + *r*. *July:* Helder *c*. *August:* E. of Scotland *r*. *September:* Plym. +; Skagerak + *r*. *October:* Plym. *c r*; Skagerak +. *November:* Irish Sea +; E. of Newcastle and in the central North Sea *r*; rather common above the whole 50-metre plateau of the North Sea; Skagerak + *r*; Måseskär *r*. *December:* Väderö and Måseskär *r*.

Lauderia annulata Cl. — *March:* Skagerak *rr*. *April, May:* Plym. +; more or less common round Scotland and thence to the Danish Peninsula; Måseskär *c*; Väderö *r*. *October:* Plym. *r*. *November:* Irish Sea *r*; Skagerak *r*. *December:* Måseskär *r*.

Leptocylindrus danicus Cl. — *February:* Måseskär *r*. *March:* Skagerak and Måseskär *r*. *April, May:* Plym. *r*; sparingly N. of Scotland; common S. of Norway (58° N. 4°—7° E.), but rare at 59° N. 2° E.; common at 55° N. 6° E.; rare above the Fisher Bank; Måseskär *r*. *June:* Väderö *r*.

This species was found in May and June 1898 abundantly at the Färöes, less common there in July.

Lithodesmium undulatum Ehb. — *July:* Helder *r*. *August:* Plym. *r*. *September:* Helder *c*.

Navicula membranacea Cl. — *February:* St Vaast *rr*. *April, May:* E. of Scotland *rr*.

Nitzschia delicatissima Cl. — *April, May:* 56° N. 7° E. +.

N. seriata Cl. — *February:* Måseskär +. *March:* Skagerak and Väderö *r*. *April, May:* N. and E. of Scotland; S. of Norway *r*; W. Skagerak *r*; 55° N. 6° E. *r*.
This species was seen in 1898 October at 61°—63° N. 5°—10° W. (*r*).

Rhizosolenia alata Btw. — *April, May:* 57°—60° N. 1° E. *r*. *August:* Skagerak *rr*. *October:* Plym. *r*.

R. atlantica H. Per. — *November:* W. of Jutland and in the Skagerak *rr*.

R. calcar avis Schulze. — *April, May:* Skagerak and Måseskär *r*. *July:* off Heligoland and W. of Denmark *r*. *August* to *December:* Skagerak, Väderö and Måseskär *r*.

R. (alata var.) corpulenta Cl. — *July* to *October:* Plym. + *c*.

R. delicatula Cl. — *February:* St Vaast *rr*.

R. (alata var.) gracillima Cl. — *May:* 58° N. 3° E. +. *June:* Skagerak *rr*; Måseskär + *c*. *July, August:* Plym. *ccc r*; Irish Channel *c*; N. of Jutland *c*; Skagerak *rr*; Väderö + *r*; Måseskär + *cc*. *September* to *December:* Skagerak, Väderö and Måseskär + *r*.

R. robusta Norm. — *January:* Plym. *r*. *March:* Plym. *r*. *August:* Plym. *r*. *September:* Plym. *c*. *November:* 55° N. 6° E. *r*.

R. obtusa Hensen. — *March:* Måseskär *rr*. *May:* 61° N. 1° E. *r*.

R. semispina Hensen. — *January, February:* Väderö and Måseskär *r*. *March:* Skagerak, Väderö, Måseskär *c r*. *April, May:* 61° N. 1° E. *r*; round Scotland *r*; 58° N. 4° E. *c*; N. of Jutland *c*; Väderö and Måseskär *c* +. *June:* Måseskär *r*. *July:* W. of Denmark +.
This arctic species was seen in October 1898 S. of Iceland, in March 1899 abundantly at 49° N. 9° W. and in April at 49° N. 7° W.

R. setigera Btw. — *February:* St Vaast *rr*. *March:* Helder *r*; Skagerak *r*. *April, May:* E. of Scotland *r*; Skagerak *r*; Helder *r*. *September* to *December:* Skagerak + *r*.

R. Shrubsolei Cl. — *January* to *March:* St Vaast *r* +. *April, May:* Plym. + *c*; Helder *r*; 56° N. 6° E. *r*; central North Sea, at some points *r*; Skagerak and Måseskär + *r*; some points E. of Scotland *r*. *June:* Plym. + *r*; Måseskär + *r*. *July:* Helder *c*; W. of Schleswig *c*. *October* to *December:* Plym. + *r*; Väderö *r*.

R. Stolterfothii H. Per. — *January:* St Vaast +. *February:* St Vaast +; Helder *rr*. *March:* Helder +. *April, May:* Plym. *rr*; Helder *r*; 56° N. 6° E. *r*; sparingly from Firth of Tay to the Skagerak. *June:* Plym. *r*; Helder *r cc*. *July:* Plym. *r c*; Helder *cc*. *September:* Skagerak *rr*. *October:* Plym. *r c*; Skagerak *r*; Måseskär and Väderö +. *November:* Irish Sea +; off the Dutch coast *c*; Skagerak *rr*; SW. of Norway *r*.

This species was seen in January to March 1898 W. of Africa, 12°—21° N. 19°—18° W., in April the same year at the Azores and the Engl. Channel, in September at the Shetlands (abundantly). Thus a southern neritic species, which goes both W. of England to the Shetlands and through the Engl. Channel along the continental coast of the North Sea to the Skagerak.

R. styliformis Btw. — *February:* along the W. coast of Denmark *r*. *April, May:* from 61° N. 1° E. to 58° N. 4° E. *r*; area between Firth of Tay, Skagen and 55° N. 6° E., rare in the NW., abundantly in the S. and E.; Väderö +; Måseskär *cc r*. *June:* Måseskär *r*. *July:* W. of Denmark +. *August:* Plym. *r*. *September:* Skagerak *c*. *October:* Plym. *r*; Väderö *r*. *November:* above the 50-metre plateau of the North Sea, as a rule *r*; Skagerak + *r*; SW. Norway *r*.

This species occurred in March at the Azores and from 41° N. 21° W. to 49° N. 9° W.

Skeletonema costatum Grev. — *January:* Måseskär *r*. *February:* St Vaast *r* +; Väderö +; Måseskär *r*. *March:* Plym. *r*; Helder + *r*; Skagerak + *r*; Måseskär *r*. *April, May:* Plym. *cc*; N. of Scotland *r*; 56° N. 7° E. *r*. *July:* Måseskär *r*. *August:* Plym. *cc*; Måseskär *r*. *September* to *December:* Skagerak, Väderö and Måseskär *c r*.

This species was seen in August 1898 at Vestmanna ö and the Shetlands.

Stephanopyxis turgida Grev. — *April, May:* 56° N. 6° E. +; W. of Denmark *c*; N. of Jutland *r*; Måseskär *r*; E. of Scotland *rr*. *October* to *December:* Plym.; Skagerak, Väderö and Måseskär *r*. (In *November:* Irish Sea *rr*; E. of Newcastle *r*.)

This species was found in November 1898 at 51° N. 20° W. and in January 1899 at the Canaries.

Streptotheca thamesis Shrubs. — *January:* St Vaast +. *February:* St Vaast +; Helder and N. of the Dutch coast + *r*. *March:* St Vaast +; Helder *r*; N. of Scotland *r*. *August* and *October:* Plym. *r*. *November:* off the Dutch coast *rr*; Irish Sea and Irish Channel *r*.

This species was seen in March and April 1899 at 48°—50° N. 6° W., in March 1898 at 45° N. 36° W.

Thalassiosira gelatinosa Hensen. — *January:* St Vaast *r*. *February:* St Vaast *r*; Måseskär *r*. *March:* Plym. *r*; St Vaast *r*; Helder *rr*; Skagerak *rr*. *April, May:* 56° N. 7°—8° E. *r*. *November, December:* Skagerak, Väderö and Maseskär *rr*.

Arctic species, which occurred in April 1898 abundantly S. of Iceland, in June 1899 at 69° N. 13° W. and in deep-sea collections from 65° N. 1° W.

T. gravida Cl. — *January:* St Vaast *rr*. *February:* St Vaast *rr*; Väderö and Måseskär *c r*; S. of Norway +. *March:* Plym. + *r*; Skagerak *cr*; Väderö and Måseskär + *r*. *April, May:* E. of Scotland to Newcastle *r*; 56°—57° N. 0°—1° E. *c*; 56° N. 6° E. +; W. of Denmark *r*; Plym. + *c*. *October:* Plym. *c r*.

Arctic species, that occurred from March to October 1898 at the Färöes, in 1899 March sparingly at 66° N. 20°—24° W. and more abundant at 65° N. 24° W., in April abundantly at the Färöes and in May at 61° N. 1° W. *c*.

T. Nordenskiöldii Cl. — *January:* Måseskär *rr*. *February:* Väderö and Måseskär *cc*; S. of Norway *r*. *March:* whole Skagerak *cc*. *April, May:* W. and N. of Scotland *c*; E. of Scotland, *r* at some points; 56° N. 6° E. +; N. of Jutland *r*; Väderö and Måseskär *rr*; Plym. *c*. *November* and *December:* Skagerak and Måseskär *rr*.

Arctic species, which occurred in May and June 1898 abundantly N. of Iceland, in May abundantly at the Färöes. In April 1899 it was seen at the Färöes (*r c*).

Thalassiothrix Frauenfeldii Grun. — *January:* Väderö and Måseskär + *c*. *February:* St Vaast + *c*; Skagen *r*; Väderö and Måseskär + *c*; S. of Norway *c*. *March:* Skagerak and Måseskär *r*. *April, May:* S. of Norway *c*; Måseskär *rr*; 56° N. 7°—8° E. *r*. *June:* Skagerak and Måseskär *r* +. *July:* Måseskär *rr*. *September* to *December:* Skagerak and Måseskär *r*. (In December *c* at Väderö and Måseskär.)

Northern species, which occurred in November 1898 from S. Iceland to the Shetlands, as a rule sparingly.

T. longissima Cl. & Grun. — *January:* Väderö *c*; Måseskär *rr*. *February:* 58° N. 2° E. *r*; S. of Norway *r*; Måseskär *r*. *March:* Väderö and Måseskär *r*. *April, May:* 58° N. 4° E. *r*; 57° N. 1° E. *c*, thence rare towards Skagen; Måseskär *rr*.

Arctic species, which in November 1898 occurred as far to the south as between 50° N. 10° W. and 47° N. 42° W., in April 1899 at 44° N. 15° W. It has about the same seasonal distribution as *Calanus finmarchicus*.

Geographical and Seasonal Distribution of the plankton organisms of the North Sea in 1899.

A. Forms that, as a rule, are confined to the space above the 50-metre plateau on the bottom.

1. From **January:** *Euterpe acutifrons* (to February, but reappeared in November), *Tintinnopsis beroidea* (to May, but reappeared in November), (*Chætoceros curvisetus* and *C. didymus* in the Engl. Channel to March), *Biddulphia mobilensis* (to May, reappeared in September).

2. From **February:** *Biddulphia aurita* (to March), *Rhizosolenia Stoltenfothii* (to July, reappeared in November), *Streptotheca thamesis* (to March, reappeared in November).

3. From **March:** *Asterionella japonica* (to May), *Cerataulina Bergonii* (to June reappeared in November), *Chætoceros danicus* (to May), *Eucampia zodiacus* (April, reappeared in September), *Rhizosolenia setigera* (to May).

4. From **April:** *Phæocystis Pouchetii* (to June, also above the 200-metre plateau), *Chætoceros densus* (to September), *Ditylum Brightwellii* (reappeared in November), *Guinardia flaccida* (to July, reappeared in November), *Rhizosolenia Shrubsolei* (to July), *Stephanopyxis turgida* (to May).

5. From **June:** *Podon polyphemoides.*

6. From **July-August:** *Oikopleura dioica, Evadne spinifera Acartia bifilosa, Isias clavipes, Cyttarocylis serratus, Tintinnopsis campanula, T. ventricosa, Noctiluca miliaris, Lithodesmium undulatum, Rhizosolenia calcar avis, Bacteriastrum varians.*

7. From **November:** *Labidocera Wollastonii, Rhizosolenia robusta.*

B. Forms that, as a rule, are confined to the space above the 100-metre plateau.

1. Spring-forms, or such as occur in April-May.

Southern forms:

Ceratium tripos.
Lauderia annulata.

Northern forms:

Gonyaulax spinifera.
Peridinium depressum.
P. ovatum.
Chætoceros borealis.
var. Brightwellii.
C. decipieus.

2. Summer-forms, or such as occur in July-August.

Southern:

Podon intermedius.
Anomalocera Patersonii.
Centropages typicus.
Oithona plumifera.
Amphorella Steenstrupii.
Acanthometron quadrifolium.
Ceratium furca.
C. macroceros.

Northern:

Acartia longiremis.
Cyttarocylis denticulata.

3. Winter-forms, or such as occur in November (February).

Southern:

Acanthochiasma fusiforme.
Distephanus speculum.
Halosphæra viridis.
Ceratium bucephalus.

Northern:

Limacina balea.
(*Acartia longiremis.*)
Dinophysis acuta.

C. Forms that occur in the spring above the 100-metre plateau, in the summer or winter above the 50-metre plateau.

1. Occurring in the summer above the 50-metre plateau:

Southern:

Evadne Nordmanni.
Acartia Clausii.
Oithona similis.

Northern:

Calanus finmarchicus.
Centropages hamatus.
Temora longicornis.
Ceratium longipes.

2. Occurring in the autumn or spring above the 50-metre plateau:

Southern:

Paracalanus parvus (November).
Ceratium fusus (Jan., Febr.).
Diplopsalis lenticula (Nov.).
Rhizosolenia styliformis (Nov.).

Northern:

Pseudocalanus elongatus (Winter).
Fimgella arctica (Febr.).
Chætoceros debilis (Spring).
Coscinodiscus concinnus (Sept.).
C. radiatus (Nov.).
C. excentricus (Nov.).

D. Forms, which occur chiefly in the eastern part of the North Sea.

Fritillaria borealis. — Febr.
Clione limacina. — Jan.
Podon Leuckarti. — May.
Metridia hibernica. — Febr.
Pleurobrachia pileus. — Jan., April.
Ptychocylis acuta. — Jan., March.

Tintinnus acuminatus. — Nov.
Plectophora arachnoides. — Nov.
Dinobryum pellucidum. — April.
Achnanthes seriata. — Febr.
Chætoceros constrictus. — Febr., April, May.
C. contortus. — April, May.
C. diadema. — Febr.; Sept.—Dec.
C. hiemalis. — Febr., May.
C. scolopendra. — Jan. to May; Sept., Nov.
C. seiracantha. — March; Nov.
C. socialis. — Febr., March; Nov.
Coscinodiscus polychordus. — Febr., April; Nov.
C. stellaris. — Febr. March; Nov.
Leptocylindrus danicus. — April, May.
Nitzschia seriata. — Febr., May.
Rhizosolenia semispina. — Jan., May.
Thalassiosira gravida. — Febr., May.
T. Nordenskiöldii. — Jan. to May.
Thalassiothrix Frauenfeldii. — Jan. to May.
T. longissima. — Jan. to May.

All are arctic or northern species.

The following are of southern origin:

Microsetella atlantica. — June.
Ceratium lineatum. — Febr., July.
Rhizosolenia gracillima. — May to December.

Species excluded from the Table I.

The North Sea in February 1899.

Fritillaria borealis LOHM. 5/2 57° 53′ N. 3° 8′ E. *r*; 18/2 56° 44′ N. 7° 22′ E. *r*.
Bathyporeia pelagica BATE. 2/2 57° 5′ N. 8° 33′ E. *rr*.
Proto pedata LEACH. 4/2 56° 31′ N. 7° 44′ E. *rr*; 4/2 55° 32′ N. 6° 45′ E. *r*; 3/2 55° 48′ N. 7° 29′ E. *rr*.
Centropages hamatus LILLJEB. 5/2 53° N. 4° 30′ E. and 52° 30′ N. 3° 57′ E. *r*.
Enterpe acutifrons DANA. 10/2 52° 52′ N. 4° 19′ E; 2/2 57° 31′ N. 9° 26′ E.; 2/2 56° 27′ N. 7° 53′ E., everywhere *r*.
Metridia hibernica BRADY & ROBTS. 4/2 56° 17′ N. 1° 11′ W. *r*; 2/2 57° 1′ N. 5° 35′ E +; 5/2 57° 10′ N. 6° 46′ E. *rr*; 5/2 57° 19′ N. 8° 7′ E. +.
Microsetella atlantica BRADY & ROBTS. 4/2 56° 17′ N. 1° 11′ W. *r*; 4/2 56° 26′ N. 0° 10′ E. *r*; 5/2 57° 10′ N. 6° 46′ E. *r*.
Oithona plumifera BAIRD. 3/2 56° 26′ N. 4° E. *rr*; 4/2 56° 39′ N. 5° E. +.
Evadne Nordmanni LOVÉN. 5/2 52° 30′ N. 3° 57′ E. *rr*.
Sagitta arctica AURIV. 3/2 56° 8′ N. 2° 32′ W. *rr*; 4/2 56° 17′ N. 1° 11′ W. *r*; 3/2 55° 19′ N. 0° 44′ W. *rr*.
Fungella arctica CL. 4/2 56° 39′ N. 5° E. *rr*; 10/2 52° 52′ N. 4° 19′ E. *rr*; 19/2 57° 40′ N. 9° 57′ E. *rr*; 2/10 57° 31′ N. 9° 26′ E. *r*.
Ptychocylis acuta BRANDT. 5/2 57° 53′ N. 8° 8′ E. +; 58° 12′ N. 4° 4′ E. *rr*.
Tintinnopsis beroidea STEIN. 5/2 57° 53′ N. 8° 8′ E. *r*; 4/2 57° 14′ N. 8° 32′ E. *r*; 3/2 55° 48′ N. 7° 29′ E. *rr*.
Tintinnus Steenstrupii CLAP. & LACHM. 5/2 57° 53′ N. 8° 8′ E. *rr*; 3/2 56° 13′ N. 3° 3′ E. *rr*; 4/2 56° 39′ N. 5° E. *rr*.
Acanthochiasma fusiforme HKL. 6/2 58° 25′ N. 1° 51′ E. +.
Acanthometron quadrifolium HKL. 6/2 58° 12′ N. 4° 4′ E. *rr*.
Dictyocha fibula EHB. 4/2 56° 39′ N. 5° E. *r*.
Ceratium lineatum EHB. 5/2 57° 53′ N. 8° 8′ E. *r*; 3/2 56° 26′ N. 4° E. +.
Dinophysis homunculus STEIN. 5/2 57° 19′ N. 8° 7′ E. *rr*.
Peridinium ovatum POUCHET. 5/2 57° 53′ N. 8° 8′ E. *r*; 18/2 54° 57′ N. 7° 43′ E. *r*.
Actinocyclus Ehrenbergii RALFS. 5/2 57° 51′ N. 9° 50′ E. +; 6/2 58° 12′ N. 4° 4′ E. +; 5/2 57° 34′ N. 9° 41′ E. *r*.
Biddulphia aurita LYNGB. 19/2 57° 40′ N. 9° 57′ E. *r*; 3/2 54° 35′ N. 8° 5′ E. *c*.
Chætoceros borealis BTW. 5/2 57° 53′ N. 8° 8′ E. *r*.
var. *Brightwellii* CL. 5/2 57° 51′ N. 9° 50′ E. *rr*; 4/2 56° 39′ N. 5° E. *r*.
C. constrictus GRAN. 5/2 57° 53′ N. 8° 8′ E. *r*.
C. curvisetus CL. 5/2 57° 53′ N. 8° 8′ E. *r*.
C. diadema EHB. 5/2 57° 53′ N. 8° 8′ E. *r*; 3/2 55° 8′ N. 7° 33′ E. *r*.
C. hiemalis CL. 5/2 57° 53′ N. 8° 8′ E *r*.
C. Schüttii CL. 5/2 57° 34′ N. 9° 41′ E. *rr*; 3/2 56° 13′ N. 3° 3′ E. *rr*; 4/2 56° 39′ N. 5° E. *r*; 2/2 57° 31′ N. 9° 26′ E. *r*.
C. scolopendra CL. 5/2 57° 53′ N. 8° 8′ E. *r*.
Coscinodiscus polychordus GRAN. 5/2 57° 53′ N. 8° 8′ E. *r*; 19/2 57° 40′ N. 9° 57′ E. *r*; 2/2 56° 27′ N. 7° 53′ E. *r*; 3/2 55° 48′ N. 7° 29′ E. *rr*.
C. stellaris ROPER. 5/2 57° 19′ N. 8° 7′ E. *rr*.
Guinardia flaccida CASTR. 4/2 54° 25′ N. 5° 40′ E. *rr*.
Streptotheca thamesis SHRUBS. 10/2 52° 52′ N. 4° 19′ E. *rr*.
Thalassiosira gravida CL. 5/2 57° 53′ N. 8° 8′ E. +.
T. Nordenskiöldii CL. 5/2 57° 53′ N. 8° 8′ E. *r*.
Thalassiothrix Frauenfeldii GRUN. 5/2 57° 51′ N. 9° 50′ E. *r*; 5/2 57° 53′ N. 8° 8′ E. *c*.
T. longissima CL. & GRUN. 5/2 57° 53′ N. 8° 8′ E. *rr*; 58° 25′ N. 1° 51′ E. *rr*.

Species excluded from the Table II.

The North Sea in April-May 1899.

Fritillaria borealis LOHM. $^{30}/_{4}$ 54° 45′ N. 5° 57′ E. *r*.
Anomalocera Patersonii TEMPT. $^{1}/_{5}$ 54° 15′ N. 5° 11′ W. *rr*.
Paracalanus parvus CLAUS. $^{30}/_{4}$ 57° 14′ N. 7° 6′ W. *r*.
Temorella affinis POPPE. $^{7}/_{5}$ 57° 12′ N. 9° 20′ E. *r*.
Sagitta bipunctata QUOI & GAIM. $^{28}/_{4}$ 57° 45′ N. 8° 37′ E. *r*; $^{28}/_{4}$ 56° 30′ N. 0° E. +.
Cyttarocylis denticulata EHB. $^{28}/_{4}$ 58° 9′ N. 4° 50′ E. *r*.
Fungella arctica CL. $^{28}/_{4}$ 56° 17′ N. 1° 43′ W. *rr*; $^{28}/_{4}$ 56° 30′ N. 0° E. *rr*.
Tiutiunopsis beroidea STEIN. $^{1}/_{5}$ 55° 37′ N. 6° 49′ W. *r*; $^{1}/_{5}$ 54° 15′ N. 5° 11′ W. *r*; $^{29}/_{4}$ 57° 39′ N. 11° 26′ E. *r*.
T. centricosa CLAP. & LACHM. $^{30}/_{4}$ 56° 30′ N. 4° 30′ E. *r*.
Dictyocha fibula EHB. $^{29}/_{4}$ 56° 37′ N. 1° 15′ E. *r*.
Ceratium bucephalum CL. $^{29}/_{4}$ 56° 49′ N. 3° 45′ E. *rr*; $^{30}/_{4}$ 56° 30′ N. 4° 30′ E. *r*.
Dinophysis Michaëlis EHB. $^{29}/_{4}$ 57° 8′ N. 7° 28′ E. *r*.
Peridinium divergens EHB. $^{28}/_{4}$ 58° 9′ N. 4° 50′ E. *r*.
P. Michaëlis EHB. $^{30}/_{4}$ 57° 8′ N. 8° 30′ E. *r*.
Xauthidium multispinosum MOEB. $^{20}/_{5}$ 54° 34′ N. 5° 48′ E. *r*.
Phæocystis Pouchetii LAGH. $^{29}/_{4}$ 58° 27′ N. 1° 39′ E. *r*; $^{30}/_{4}$ 56° 30′ N. 4° 30′ E. *r*.
Chætoceros borealis var. Brightwellii CL. $^{30}/_{4}$ 55° 39′ N. 1° 10′ E. *r*; $^{30}/_{4}$ 54° 45′ N. 5° 57′ E. *r*.
C. constrictus GRAN. $^{29}/_{4}$ 57° 39′ N. 11° 26′ E. *c*; $^{30}/_{4}$ 54° 45′ N. 5° 57′ E. *r*; $^{7}/_{5}$ 57° 12′ N. 9° 20′ E. *c*.
C. contortus SCHÜTT. $^{29}/_{4}$ 57° 39′ N. 11° 26′ E. *c*; $^{30}/_{4}$ 55° 54′ N. 7° 30′ E. *r*; $^{30}/_{4}$ 54° 45′ N. 5° 57′ E. *r*.
C. criophilus CASTR. $^{29}/_{4}$ 57° 47′ N. 10° 33′ E. *r*.
C. danicus CL. $^{29}/_{4}$ 57° 39′ N. 11° 26′ E. *c*; $^{30}/_{4}$ 54° 45′ N. 5° 57′ E. *r*; $^{7}/_{5}$ 57° 12′ N. 9° 20′ E. *ccc*.
C. diadema EHB. $^{29}/_{4}$ 58° 48′ N. 2° 3′ W. *r*; $^{30}/_{4}$ 58° 40′ N. 4° 37′ W. *r*; $^{30}/_{4}$ 55° 14′ N. 7° 29′ E. *r*.
C. laciniosus SCHÜTT. $^{30}/_{4}$ 58° 40′ N. 4° 37′ W. *rr*.
C. teres CL. $^{29}/_{4}$ 58° 27′ N. 1° 39′ E. *r*; $^{30}/_{4}$ 55° 39′ N. 1° 10′ E. *r*.
Corethron hystrix HENSEN. $^{29}/_{4}$ 58° 48′ N. 2° 3′ W. *rr*.
Coscinodiscus polychordus GRAN. $^{29}/_{4}$ 58° 48′ N. 2° 3′ W. *c*.
Leptocylindrus danicus CL. $^{29}/_{4}$ 58° 48′ N. 2° 3′ W. +; $^{30}/_{4}$ 57° 14′ N. 7° 6′ W. *r*; $^{30}/_{4}$ 54° 45′ N. 5° 57′ E. *c*.
Navicula membranacea CL. $^{28}/_{4}$ 56° 17′ N. 1° 43′ W. *rr*; $^{29}/_{4}$ 56° 37′ N. 1° 15′ E. *rr*.
Nitzschia delicatissima CL. $^{30}/_{4}$ 55° 54′ N. 7° 30′ E. +.
Rhizosolenia alata BTW. $^{29}/_{4}$ 56° 37′ N. 1° 15′ E. *r*.
R. calcar avis SCHULZE. $^{29}/_{4}$ 57° 34′ N. 9° 24′ E. *r*.
R. setigera BTW. $^{28}/_{4}$ 56° 17′ N. 1° 43′ W. *rr*; $^{29}/_{4}$ 56° 37′ N. 1° 15′ E. *r*; $^{29}/_{4}$ 57° 39′ N. 11° 26′ E. *r*.
Skeletonema costatum GREV. $^{30}/_{4}$ 58° 40′ N. 4° 37′ W. *r*; $^{30}/_{4}$ 55° 54′ N. 7° 30′ E. *r*.
Thalassiosira gelatinosa HENSEN. $^{30}/_{4}$ 55° 54′ N. 7° 30′ E. *r*.
Thalassiothrix Frauenfeldii GRUN. $^{7}/_{5}$ 57° 12′ N. 9° 20′ E. *r*.

Species excluded from the Table III.

The North Sea in July-August 1899.

Acartia bifilosa GIESBR. $^{2}/_{8}$ 53° 28′ N. 4° 39′ E. *r*.
A. longiremis LILLJEB. $^{29}/_{7}$ 57° 11′ N. 8° E. *r*; $^{29}/_{7}$ 56° 15′ N. 4° 9′ E. +; $^{31}/_{7}$ 57° 44′ N. 10° 52′ E. *r*; $^{30}/_{7}$ 57° 7′ N. 8° 28′ E. *c*.
Isias clavipes BOECK. $^{29}/_{7}$ 55° 7′ N. 7° 35′ E. +; $^{29}/_{7}$ 55° 59′ N. 7° 37′ E. +; $^{3}/_{8}$ 55° 6′ N. 6° 26′ E. *r*.
Oithona plumifera BAIRD. $^{24}/_{7}$ 57° 53′ N. 0° 6′ W. *rr*; $^{29}/_{7}$ 55° 54′ N. 2° 23′ E. *r*.

Tomopteris helgolandica GREFF. $^{24}/_{7}$ 57° 53′ N. 0° 6′ W. *rr.*
Pleurobrachia pileus FABRIC. $^{24}/_{7}$ 57° 53′ N. 0° 6′ W. *r*; $^{20}/_{8}$ 55° 15′ N. 5° 47′ W. +.
Cyttarocylis serrata MŒB. $^{20}/_{8}$ 55° 15′ N. 5° 47′ W. *rr*; $^{22}/_{8}$ 58° 42′ N. 2° 48′ W. *r*; $^{29}/_{7}$ 54° 13′ N. 8° 4′ E. *c*; $^{29}/_{7}$ 55° 7′ N. 7° 35′ E. +.
Tintinnopsis campanula EHB. $^{31}/_{7}$ 57° 44′ N. 10° 52′ E. *r*; $^{29}/_{7}$ 54° 13′ N. 8° 4′ E. +.
Tintinnus subulatus EHB. $^{29}/_{7}$ 54° 13′ N. 8° 4′ E. +.
Acanthonia Mülleri HKL. $^{20}/_{8}$ 55° 15′ N. 5° 47′ W. *rr.*
Noctiluca miliaris SURIR. $^{29}/_{7}$ 55° 59′ N. 7° 37′ E. *c*; $^{2}/_{8}$ 53° 28′ N. 4° 39′ E. *ccc.*
Halosphæra viridis SCHMITZ. $^{21}/_{8}$ 58° 14′ N. 5° 54′ W. +.
Ceratium tripos var. bucephala CL. $^{29}/_{7}$ 55° 54′ N. 2° 23′ E. *r.*
Dinophysis Michaëlis (EHB.) AURIV. $^{30}/_{7}$ 57° 25′ N. 9° 6′ W. *r.*
D. Vanhöffenii OSTENF. $^{24}/_{7}$ 57° 53′ N. 0° 6′ W. *rr*; $^{30}/_{7}$ 57° 25′ N. 9° 6′ E. *r.*
Gonyaulax spinifera CLAP. & LACHM. $^{29}/_{7}$ 55° 7′ N. 7° 35′ E. *rr.*
Peridinium Michaëlis EHB. $^{24}/_{7}$ 57° 53′ N. 0° 6′ W. *r*; $^{30}/_{7}$ 57° 25′ N. 9° 6′ E. *r.*
P. oceanicum VANHÖFFEN. $^{24}/_{7}$ 57° 53′ N. 0° 6′ W. *rr*; $^{30}/_{7}$ 56° 57′ N. 7° 37′ E. *rr*; $^{29}/_{7}$ 54° 13′ N. 8° 4′ E. *c.*
P. pallidum OSTENF. $^{24}/_{7}$ 57° 53′ N. 0° 6′ W. *r.*
P. pellucidum BERGH. $^{22}/_{8}$ 58° 42′ N. 2° 48′ W. *r.*
Pyrophacus horologium STEIN. $^{24}/_{7}$ 57° 53′ N. 0° 6′ W. *rr*; $^{25}/_{7}$ 60° N. 1° E. *rr*; $^{22}/_{8}$ 58° 25′ N. 0° 28′ E. *rr.*
Xanthidium hystrix CL. $^{30}/_{7}$ 57° 25′ N. 9° 6′ E. *rr*; $^{31}/_{7}$ 57° 44′ N. 10° 52′ E. *rr.*
X. multispinosum MŒB. $^{23}/_{8}$ 57° 38′ N. 7° 2′ E. *r.*
Bacteriastrum varians LAUDER. $^{29}/_{7}$ 54° 13′ N. 8° 4′ E. *ccc.*
Chætoceros curvisetus CL. $^{31}/_{7}$ 57° 44′ N. 10° 52′ E. *rr.*
C. decipiens CL. $^{20}/_{8}$ 55° 15′ N. 5° 47′ W. *rr.*
C. densus CL. $^{22}/_{8}$ 58° 42′ N. 2° 48′ W. *r*; $^{29}/_{7}$ 54° 13′ N. 8° 4′ E. +.
Coscinodiscus concinnus W. SM. $^{29}/_{7}$ 54° 13′ N. 8° 4′ E. *r.*
C. radiatus EHB. $^{20}/_{8}$ 55° 15′ N. 5° 47′ W. *rr.*
Ditylum Brightwellii WEST. $^{31}/_{7}$ 57° 44′ N. 15° 52′ E. *rr.*
Guinardia flaccida CASTR. $^{22}/_{8}$ 58° 42′ N. 2° 48′ W. +.
Rhizosolenia calcar avis SCHULZE. $^{29}/_{7}$ 54° 13′ N. 8° 4′ E. *r*; $^{29}/_{7}$ 55° 59′ N. 7° 37′ E. +.
R. semispina HENSEN. $^{29}/_{7}$ 55° 7′ N. 7° 35′ E. +.
R. Shrubsolei CL. $^{29}/_{7}$ 55° 7′ N. 7° 35′ E. *c.*
R. Styliformis BTW. $^{29}/_{7}$ 55° 7′ N. 7° 35′ E. +; $^{29}/_{7}$ 55° 59′ N. 7° 37′ E. +.

Species excluded from the Table IV.

The North Sea in November 1899.

Centropages hamatus LILLJEB. $^{6}/_{11}$ 55° 40′ N. 4° 48′ E. *r.*
Labidocera Wollastonii LUBB. $^{5}/_{11}$ 56° 48′ N. 6° 1′ E. *r.*
Metridia hibernica BRADY & ROBERTS. $^{5}/_{11}$ 57° 34′ N. 9° 21′ E. *r.*
Oithona plumifera BAIRD. $^{4}/_{11}$ 57° 10′ N. 3° 48′ E. *rr*; $^{5}/_{11}$ 56° 48′ N. 6° 1′ E. *rr.*
Podon intermedius LILLJEB. $^{4}/_{11}$ 57° 10′ N. 3° 48′ E. *r.*
Limacina balea MÖLLER. $^{4}/_{11}$ 56° 24′ N. 4° 25′ E. +; $^{5}/_{11}$ 57° 48′ N. 6° 1′ E. *c*; $^{5}/_{11}$ 57° 10′ N. 7° 40′ E. *c.*
Amphorella Steenstrupii CLAP. & LACHM. $^{3}/_{11}$ 57° 54′ N. 6° 51′ E. *rr*; $^{4}/_{11}$ 56° 24′ N. 4° 25′ E. *rr*; $^{5}/_{11}$ 55° 58′ N. 7° 2′ E. *rr.*
Cyttarocylis denticulata EHB. $^{5}/_{11}$ 58° 19′ N. 0° 55′ W. +.
Tintinnopsis beroidea STEIN. $^{9}/_{11}$ 54° 14′ N. 5° 6′ W. *r.*
T. campanula EHB. $^{9}/_{11}$ 54° 14′ N. 5° 6′ W. *r.*
Tintinnus acuminatus CLAP. & LACHM. $^{3}/_{11}$ 57° 54′ N. 6° 51′ E. *rr.*

Plectophora arachnoides Clap. & Lachm. 5/11 58° 19′ N. 0° 55′ W. *rr*; 5/11 57° 34′ N. 9° 21′ E. *rr*.
Noctiluca miliaris Sur. 5/11 57° 2′ N. 8° 9′ E. *r*.
Dictyocha fibula Ehb. 3/11 57° 54′ N. 6° 51′ E. *r*; 4/11 54° 14′ N. 5° 6′ W.; 5/11 57° 2′ N. 8° 9′ E. *r*.
Ceratium lineatum Ehb. 1/11 55° 13′ N. 0° 35′ W. +; 5/11 57° 10′ N. 7° 40′ E. *r*.
Dinophysis Michaëlis (Ehb.) Auriv. 4/11 57° 31′ N. 8° E. *rr*; 5/11 55° 27′ N. 6° 22′ E. *rr*.
Peridinium pallidum Ostenf. 9/11 54° 14′ N. 5° 6′ W. *r*; 5/11 55° 58′ N. 7° 2′ E. *rr*.
Xanthidium multispinosum Mœb. 4/11 56° 48′ N. 2° 24′ E. *rr*; 6/11 52° 58′ N. 4° 25′ E. *rr*.
Bacteriastrum varians Lauder. 5/11 57° 2′ N. 8° 9′ E. *rr*.
Cerataulina Bergonii H. Per. 3/11 57° 54′ N. 6° 51′ E. *r*; 6/11 52° 58′ N. 4° 25′ E. *r*.
Chætoceros borealis Btw. 3/11 57° 54′ N. 6° 51′ E. *r*.
C. contortus Schütt. 3/11 57° 54′ N. 6° 51′ E. +.
C. curvisetus Cl. 3/11 57° 54′ N. 6° 51′ E. +; 5/11 57° 34′ N. 9° 21′ E. *r*; 4/11 57° 30′ N. 9° 20′ E. *rr*.
C. debilis Cl. 3/11 57° 54′ N. 6° 51′ E. +.
C. didymus Ehb. 3/11 57° 54′ N. 6° 51′ E. *rr*; 9/11 54° 14′ N. 5° 6′ W. *r*.
C. Schüttii Cl. 1/11 56° 35′ N. 1° 7′ E. *rr*; 5/11 57° 34′ N. 9° 21′ E. *r*; 5/11 55° 27′ N. 6° 22′ E. *r*; 6/11 54° 32′ N. 5° 38′ E. *rr*.
C. scolopendra Cl. 3/11 57° 54′ N. 6° 51′ E. *rr*.
Coscinodiscus stellaris Roper. 5/11 55° 27′ N. 6° 22′ E. *r*.
Eucampia zodiacus Ekb. 5/11 57° 2′ N. 8° 9′ E. *rr*.
Lauderia annulata Cl. 9/11 54° 14′ N. 5° 6′ W. *r*.
Rhizosolenia atlantica H. Per. 5/11 57° 2′ N. 8° 9′ E. *r*; 5/11 55° 58′ N. 7° 2′ E. *r*.
R. gracillima Cl. 3/11 57° 54′ N. 6° 51′ E. *r*.
R. robusta Norm. 5/11 55° 27′ N. 6° 22′ E. *r*.
R. Shrubsolei Cl. 3/11 57° 54′ N. 6° 51′ E. *r*.
Stephanopyxis turgida Grev. 9/11 54° 14′ N. 5° 6′ W. *r*; 55° 13′ N. 0° 35′ W. *r*.

Species excluded from the Table V.

Maseskär 1899.

Fritillaria borealis Lohm. 24/3 *r*; 23/4 *r*.
Parathemisto oblivia Kröyer. 4/1 *rr*.
Proto pedata Leach. 4/1 +; 17/11 *rr*.
Acartia bifilosa Giesbr. 23/4 *r*.
Anomalocera Patersonii Templ. 25/4 *r*; 21/8 +.
Euterpe acutifrons Dana. 18/1 *r*; 8/9 *r*.
Labidocera Wollastonii Lubb. 8/9 *r*.
Metridia hibernica Brady & Robts. 1/1 *r*.
Microsetella atlantica Brady & Robts. 17/11 *r*.
Oithona plumifera Baird. 4/1; 21/1.
Temorella affinis Poppe. 5/7 *r*.
Podon polyphemoides Leach. 15/7 +.
Limacina balea Möller. 4/1 *cc*.
Ptychocylis acuta Brandt. 21/1; 10/2 *r*.
Tintinnopsis beroidea Stein. 4/1 *r*; 1/1 *r*.
T. fistularis Mœb. 28/7 *r*; 21/8 *r*.
T. ventricosa Clap. & Lachm. 25/4 *r*; 18/12 *r*.
Tintinnus acuminatus Clap. & Lachm. 6/12 *rr*.
Acanthometron quadrifolium Hkl. 31/7 *r*.
Plectophora arachnoides Clap. & Lachm. 24/1 *r*; 21/10 *r*; 7/11 *r*.
Dictyocha fibula Ehb. 20/5 *r*; 18/12 *r*.
Ceratium lineatum Ehb. 18/12 *r*.
Diplopsalis lenticula Bergh. 21/10 *rr*.
Gonyaulax spinifera Clap. & Lachm. 7/11 *rr*.
Peridinium pellucidum Bergh. 4/1 *r*.
Protoceratium reticulatum Clap. & Lachm. 30/8 *rr*.
Pyrophacus horologium Stein. 30/8 *rr*.
Dinobryum pellucidum Levander. 4/1 +; 14/1 +; 29/5 *r*.
Xanthidium brachiolatum Mœb. 26/6 *r*; 5/7 *r*.
X. hystrix Cl. 18/1 *r*; 8/6 *r*.
X. multispinosum Mœb. 29/5 *rr*; 31/7 *r*; 30/8 *rr*.
Chætoceros criophilus Castr. 23/4 *r*; 7/11 *rr*.
C. laciniosus Schütt. 7/11 *c*; 17/11 *r*.
C. similis Cl. 17/11 *r*; 18/12 *r*.
C. subtilis Cl. 10/8 *r*.
C. teres Cl. 10/2 *r*; 17/2 *r*; 7/11 *r*.
Coscinodiscus excentricus Ehb. 6/12; 18/12, 28/12 *r*.

Coscinodiscus radiatus EHB. $^{4}/_{1}$ *r*; $^{18}/_{1}$ +; $^{20}/_{5}$ *r*; $^{7}/_{11}$ *r*; $^{17}/_{11}$ *r*.
C. stellaris ROPER. ^{7} 11 *r*; $^{17}/_{11}$ *r*; $^{18}/_{12}$ *r*; $^{28}/_{12}$ *r*.
Encampia zodiacus EHB. $^{23}/_{1}$ +; $^{25}/_{4}$ +; $^{29}/_{5}$ *rr*.
Landeria annulata CL. $^{23}/_{4}$ *c*; $^{25}/_{4}$ *c*; $^{18}/_{12}$ *r*.
Leptocylindrus danicus CL. $^{17}/_{2}$ *rr*; $^{16}/_{3}$ *r*; $^{4}/_{4}$ *r*; $^{29}/_{5}$ *r*.
Nitzschia seriata CL. $^{23}/_{2}$ +; $^{1}/_{3}$ +; $^{16}/_{3}$ +; $^{4}/_{4}$ *r*.
Rhizosolenia obtusa HENSEN. $^{24}/_{3}$ *rr*.
R. Stolterfothii H. PER. $^{5}/_{10}$ +.
Thalassiosira gelatinosa HENSEN. $^{10}/_{2}$ *r*; $^{7}/_{11}$ *rr*; $^{18}/_{12}$ *r*; $^{28}/_{12}$ *r*.

Species excluded from the Table VI.

Plymouth 1899.

Corycæus venustus DANA. $^{14}/_{11}$ *rr*.
Isias clavipes BOECK. $^{14}/_{6}$ *r*.
Microsetella atlantica BRADY & ROBTS. $^{17}/_{1}$ *r*.
Oncæa media GIESBR. $^{8}/_{12}$ and $^{9}/_{12}$ *rr*.
O. minuta GIESBR. $^{17}/_{1}$ *r*; $^{3}/_{2}$ *r*; $^{3}/_{3}$ *rr*; $^{8}/_{12}$ *rr*.
O. subtilis GIESBR. $^{7}/_{3}$ *rr*.
Parapontella brevicornis BRADY. $^{20}/_{3}$ *rr*; $^{12}/_{4}$ *r*.
Amphorella subulata EHB. $^{28}/_{7}$ *r*.
Cyttarocylis Claparedii V. DAD. $^{4}/_{8}$ *r*.
Tintinnopsis beroidea STEIN. $^{20}/_{2}$ *r*; $^{3}/_{3}$ +.
T. ventricosa CLAP. & LACHM. ^{7} 3 +; ^{24} 5 +; $^{18}/_{8}$ *r*.
Dinophysis acuta EHB. $^{11}/_{8}$ *rr*.
D. homunculus STEIN. $^{24}/_{8}$ *rr*.
Peridinium exiguum CL. $^{4}/_{8}$ *rr*.
P. Michaëlis EHB. $^{1}/_{8}$ *rr*.
P. pellucidum BERGH. $^{27}/_{4}$ *rr*.
P. vexans MURRAY & WHITTING. $^{5}/_{6}$ *rr*; $^{4}/_{8}$ *r*.
Xanthidium hystrix CL. $^{1}/_{5}$ *r*; $^{29}/_{6}$ *rr*; $^{4}/_{8}$ *rr*; $^{18}/_{8}$ *r*.
Cerataulina Bergonii H. PER. $^{29}/_{6}$ *r*; $^{28}/_{7}$ +; $^{24}/_{8}$ +.
Chætoceros debilis CL. $^{12}/_{4}$ +; $^{27}/_{4}$ *r*; $^{31}/_{8}$ +.
C. furcellatus BAIL. $^{12}/_{4}$ *r*; $^{27}/_{4}$ *r*.
C. Lorenzianus GRUN. $^{24}/_{8}$ *r*.
C. socialis LAUDER. $^{25}/_{10}$ +.
Corethron hystrix HENSEN. $^{30}/_{3}$ *r*.
Coscinodiscus radiatus EHB. $^{14}/_{3}$ +.
Landeria annulata CL. $^{4}/_{4}$ +; $^{13}/_{10}$ *r*.
Lithodesmium undulatum EHB. $^{31}/_{8}$ *r*.
Rhizosolenia alata BTW. $^{10}/_{10}$ *r*.
Streptotheca thamesis SHRUBS. $^{24}/_{8}$ *r*; $^{7}/_{10}$ *r*.
Thalassiosira gelatinosa HENSEN. $^{20}/_{3}$ *r*.
T. Nordenskiöldii CL. $^{12}/_{4}$ *c*; $^{27}/_{4}$ +; $^{1}/_{5}$ *rr*.

Species excluded from the Table VII.

St Vaast la Hogue 1898—1899.

Acartia Clausii GIESBR. $^{4}/_{6}$ +.
Centropages hamatus LILLJEB. $^{4}/_{6}$ *r*; $^{15}/_{3}$ +.
Oithona similis CLAUS. $^{8}/_{11}$ +.
Pseudocalanus elongatus BOECK. $^{4}/_{6}$ *r*; $^{21}/_{1}$ *r*; $^{15}/_{3}$ +.
Peridinium oceanicum VANHÖFF. $^{18}/_{6}$ *r*.
Bellerochea malleus BTW. $^{8}/_{11}$ *r*; $^{21}/_{11}$ *rr*.
Chætoceros borealis BTW. $^{21}/_{1}$ *rr*.
C. contortus SCHÜTT. $^{6}/_{6}$ *r*; $^{12}/_{8}$ +.
C. danicus CL. $^{6}/_{7}$ *r*; $^{8}/_{3}$ *r*.
C. Schüttii CL. $^{12}/_{8}$ *rr*.
Coscinodiscus radiatus EHB. $^{6}/_{2}$ *r*; $^{28}/_{2}$ *r*; $^{15}/_{3}$ *r*.
Leptocylindrus danicus CL. $^{6}/_{7}$ *r*; $^{9}/_{7}$ *r*; $^{12}/_{8}$ *r*.
Navicula membranacea CL. $^{6}/_{2}$ *rr*.
Rhizosolenia setigera BTW. $^{21}/_{1}$ *rr*; $^{6}/_{2}$ *r*.
Skeletonema costatum GREV. $^{6}/_{2}$ +; $^{28}/_{2}$ *r*; $^{8}/_{3}$ *r*.
Thalassiothrix Frauenfeldii GRUN. $^{6}/_{2}$ +; $^{28}/_{2}$ *c*.

Species excluded from the Table VIII.

Helder 1899.

Pseudocalanus elongatus BOECK. $^{5}/_{1}$ *r*; $^{4}/_{2}$ *r*.
Podon polyphemoides LEACH. $^{23}/_{6}$ *r*.
Tintinnopsis ventricosa CLAP. & LACHM. $^{4}/_{8}$ *c*; $^{15}/_{9}$ *r*.
Peridinium ovatum POUCHET. $^{13}/_{1}$ *r*.
Pyrophacus horologium STEIN. $^{25}/_{8}$ *r*; $^{7}/_{9}$ *r*; $^{15}/_{9}$ *r*.
Hexasterias problematica CL. $^{30}/_{3}$ *r*.

Xanthidium hystrix Cl. $^{28}/_{9}$ *r.*
Asterionella japonica Cl. $^{17}/_{3}$ *rr.*
Bacteriastrum varians Lauder $^{28}/_{9}$ *rr.*
Chætoceros danicus Cl. $^{17}/_{3}$ *r.*
C. decipiens Cl. $^{2}/_{6}$ *rr.*
C. diadema Ehb. $^{4}/_{2}$ *r*; $^{17}/_{3}$ *cc.*
C. didymus Ehb. $^{6}/_{7}$ *r.*
C. Schüttii Cl. $^{6}/_{7}$ +; $^{17}/_{7}$ +.
C. teres Cl. $^{4}/_{2}$ *rr*; $^{17}/_{3}$ *r.*
Coscinodiscus excentricus Ehb. $^{17}/_{3}$ *r*; $^{30}/_{3}$ *r*; $^{13}/_{4}$ *r.*
Lithodesmium undulatum Ehb. $^{6}/_{7}$ *r*; $^{15}/_{9}$ *r*; $^{28}/_{9}$ *c.*
Rhizosolenia setigera Btw. $^{17}/_{3}$ *r*; $^{27}/_{5}$ *r.*
Skeletonema costatum Grev. $^{10}/_{3}$ *r*; $^{17}/_{3}$ +.
Thalassiosira gelatinosa Hensen. $^{17}/_{3}$ *rr.*

Species excluded from the Table IX.

Väderöboda 1899.

Fritillaria borealis Lohm. $^{27}/_{3}$ *c.*
Clione limacina Phipps. $^{8}/_{1}$ *rr.*
Limacina balea Möll. $^{13}/_{1}$ *r*; $^{16}/_{10}$ +.
Metridia hibernica Brady & Robts. $^{6}/_{12}$ *rr.*
Oithona plumifera Baird. $^{8}/_{1}$ *r*; $^{21}/_{2}$ *rr.*
Temorella affinis Poppe. $^{18}/_{5}$ *r.*
Podon intermedius Lilljeb. $^{11}/_{9}$ *r.*
Tomopteris helgolandica Greff. $^{6}/_{12}$ *rr.*
Ptychocylis acuta Brandt. $^{13}/_{1}$ *rr*; $^{21}/_{2}$ *rr*; $^{27}/_{3}$ *r.*
Tintinnopsis campanula Ehb. $^{24}/_{7}$ *r*; $^{16}/_{10}$ *rr.*
Tintinnus acuminatus Clap. & Lachm. $^{21}/_{12}$ *rr.*
Acanthometron quadrifolium Hkl. $^{7}/_{8}$ *r.*
Ceratium lineatum Ehb. $^{16}/_{10}$ *r*; $^{26}/_{10}$ *r.*
Dinophysis acuta Ehb. $^{31}/_{7}$ *rr.*
Xanthidium hystrix Cl. $^{24}/_{7}$ *r.*
Actinantes taeniata Grun. $^{13}/_{2}$ *rr.*
Biddulphia mobilensis Bail. $^{8}/_{1}$ *rr*; $^{16}/_{11}$ *rr*; $^{6}/_{12}$ *rr.*
Cerataulina Bergonii H. Per. $^{24}/_{7}$ *rr.*
Chætoceros danicus Cl. $^{9}/_{5}$ *c*; $^{18}/_{5}$ *cc.*
C. laciniosus Schütt. $^{7}/_{11}$ *rr*; $^{6}/_{11}$ +; $^{21}/_{12}$ *r.*
C. seiracanthus Gran. $^{8}/_{3}$ *r*; $^{21}/_{12}$ *r.*
C. teres Cl. $^{21}/_{2}$ *rr*; $^{28}/_{8}$ *r*; $^{7}/_{11}$ *r.*
Coscinodiscus oculus iridis Ehb. $^{8}/_{1}$ *r*; $^{8}/_{3}$ *r.*
C. polychordus Gran. $^{21}/_{2}$ +; $^{21}/_{12}$ +.
C. radiatus Ehb. $^{8}/_{1}$ *r*; $^{3}/_{2}$ *r.*
Eucampia zodiacus. $^{26}/_{10}$ *r*; $^{6}/_{11}$ *rr.*
Lauderia annulata Cl. $^{21}/_{4}$ *r.*
Leptocylindrus danicus Cl. $^{27}/_{3}$ *r*; $^{12}/_{6}$ *r.*
Nitzschia seriata Cl. $^{8}/_{3}$ *r*; $^{16}/_{3}$ *r*; $^{6}/_{11}$ *r.*
Rhizosolenia delicatula Cl. $^{19}/_{6}$ *rr.*
R. setigera Btw. $^{7}/_{11}$ *r*; $^{21}/_{12}$ *r.*
R. Shrubsolei Cl. $^{26}/_{10}$ *r*; $^{6}/_{11}$ *r.*
R. Stolterfothii H. Per. $^{16}/_{10}$ +.
Thalassiosira gelatinosa Hensen. $^{21}/_{12}$ *r.*
T. gravida Cl. $^{21}/_{2}$ *c*; $^{28}/_{2}$ *c*; $^{8}/_{3}$ +.
Thalassiothrix longissima Cl. & Grun. $^{13\ 1}$ *c*; $^{16}/_{3}$ *r*; $^{12}/_{6}$ *rr.*

TABLES.

Table I. The Nor

Date	5	5	6	6	7	7	8	8
Lat. N.	57° 51′	57° 53′	58° 12′	58° 25′	58° 47′	58° 37′	57° 6′	56° 14′
Long.	9° 50′ E.	8° 8′ E.	4° 4′ E.	1° 51′ E.	2° 37′ W.	5° 5′ W.	6° 13′ W.	6° 42′ W
Temperature	5,2	3,5	5,0	7,0	6,4	7,2	7,6	7,9
Salinity	34,67	32,51	33,92	35,41	35,06	34,57	34,62	34,29
Acartia Clausii Giesbr.	—	c	+	—	rr	r	—	—
Calanus finmarchicus Gunn.	—	—	+	+	—	r	—	—
Centropages typicus Kröyer	—	r	—	—	—	—	—	—
Corycæus anglicus Lubb.	—	—	—	—	—	—	—	—
Oithona similis Claus	+	+	—	—	r	r	—	—
Paracalanus parvus Claus	r	—	—	—	—	r	—	—
Pseudocalanus elongatus Boeck	c	—	—	—	rr	+	—	—
Temora longicornis O. F. Müll.	c	c	—	—	—	—	—	—
Sagitta bipunctata Quoi & Gaim.	+	+	—	—	—	—	—	—
Tintinnopsis ventricosa Clap. & Lachm.	—	r	—	—	—	r	—	—
Acanthomethron pellucidum J. Müll.	—	rr	rr	—	r	—	rr	—
Plectophora arachnoides Hkl.	rr	—	—	—	—	—	—	—
Distephanus speculum Ehb.	—	r	—	—	—	—	—	—
Halosphæra viridis Schmitz	r	c	c	+	r	—	—	—
Ceratium furca Duj.	c	c	c	r	—	—	—	—
C. fusus Duj.	r	c	r	—	—	—	rr	—
C. tripos Nitzsch	cc	c	cc	r	r	—	rr	—
var. bucephala Cl.	r	+	+	rr	—	—	—	—
var. longipes Bail.	+	r	+	+	—	—	—	—
var. macroceros Ehb.	cc	r	c	r	—	—	—	—
Dinophysis acuta Ehb.	—	+	r	r	—	—	—	—
Diplopsalis lenticula Bergh	—	—	r	—	—	—	—	—
Gonyaulax spinifera Clap. & Lachm.	—	+	rr	—	—	—	—	—
Peridinium depressum Bail.	—	+	—	+	—	—	—	—
P. divergens Ehb.	+	—	+	—	—	—	—	—
Pyrophacus horologium Stein	rr	—	rr	—	—	—	—	—
Biddulphia mobiliensis Bail.	r	—	—	r	r	r	rr	—
Chætoceros atlanticus Cl.	r	r	—	r	—	—	—	—
C. decipiens Cl.	r	r	—	+	r	—	—	—
Coscinodiscus concinnus W. Sm.	r	+	—	r	r	+	rr	—
C. excentricus Ehb.	—	—	—	—	—	r	rr	r
C. oculus iridis Ehb.	—	r	rr	—	—	—	—	—
C. radiatus Ehb.	+	r	r	+	—	—	—	r
Ditylum Brightwellii West.	r	r	—	—	—	—	—	—
Rhizosolenia styliformis Btw.	—	—	—	—	—	—	—	—
Planktontype	Tp.	Tp. Nh.	Tp. Nh.	Nh. Ns.	O.	(Nc.)	O.	O.

ruary 1899.

4	4	4	4	4	5	5	5	3	3	3	3	3
56° 26′	56° 35	56° 43′	56° 52′	57° 1′	57° 10′	57° 19′	57° 34′	55° 19′	55° 33′	55° 46′	55° 59′	56° 13′
0° 10′ E.	1° 32′ E.	2° 53′ E.	4° 14′ E.	5° 35′ E.	6° 46′ E.	8° 7′ E.	9° 41′ E.	0° 44′ W.	0° 8′ E.	1° 1′ E.	2° 1′ E.	3° 3′ E.
6,6	6,7	6,6	6,1	6,0	5,9	5,1	5,0	6,2	7,3	6,8	6,8	6,2
35,10	35,08	35,13	35,10	35,25	33,95	33,97	34,60	34,88	35,08	31,62	35,08	34,40
—	rr	—	—	r	—	+	—	—	—	—	r	—
—	r	—	+	+	+	+	—	+	r	c	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	r	—	—	—	—	—
—	—	—	—	—	—	r	r	—	—	—	+	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	+	—	c	+	c	c	r	c	c	c	c	—
—	+	—	—	—	—	+	r	c	c	—	+	—
—	—	—	+	+	—		r	+	c	c	c	—
—	—	—	—	—	rr	—	—	—	—	—	—	
r	—	—	—	—	—	—	rr	rr	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	r	—	—	—
—	r	—	r	—	r	+	r	—	—	—	—	—
—	—	+	+	—	r	c	c	r	+	+	c	c
—	r	r	r	—	r	r	r	—	r	—	—	r
r	+	+	c	—	c	cc	c	r	+	+	c	c
—	—	r	+	—	+	+	+	r	—	—	—	+
—	—	—	—	—	+	r	—	—	—	—	—	—
—	+	r	c	—	c	+	c	r	+	+	cc	c
—	—	r	—	—	—	rr	—	r	c	r	rr	—
—	—	—	—	—	—	—	—	r	r	—	rr	—
—	—	—	—	—	—	—	r	—	—	—	—	—
r	r	—	—	—	r	r	r	—	—	—	r	—
—	—	r	—	r	r	r	r	r	+	+	r	—
—	—	r	—	—	—	—	—	—	—	—	r	—
—	—	—	—	—	—	—	r	—	—	—	—	—
—	—	—	—	—	—	—	rr	—	—	—	—	rr
r	—	—	—	—	—	—	—	—	—	—	—	rr
r	+	—	+	—	r	—	r	—	—	—	c	—
—	—	—	—	—	—	—	—	—	—	—	—	+
—	—	—	r	—	r	r	—	—	—	—	—	—
r	r	—	—	—	—	—	r	+	+	—	—	+
—	—	—	—	—	r	—	r	—	—	—	—	—
—	—	—	—	—	—	—	r	—	—	—	—	—
O.	(Tp. Nc.)	(Tp.)	Tp. (Nc.)	(Ns.)	Tp.	Tp.	Tp.	(Tp.)	(Tp.)	(Tp.)	Tp. Nc	Tp

Table I (continued). The Nor

Date	3	4	4	4	4	4	4
Lat. N.	56° 26′	56° 39′	56° 51′	57° 4′	57° 14′	57° 43′	56° 31′
Long.	4° E.	5° E.	6° E.	7° 3′ E.	8° 32′ E.	9° 58′ E.	7° 44′ E.
Temperature	6,2	6,2	5,6	5,4	—	5,8	6,0
Salinity	34,88	33,71	34,35	34,72	—	34,72	34,72
Acartia Clausii Giesbr.	—	—	—	—	—	+	+
Calanus finmarchicus Gunn.	—	—	—	+	—	r	—
Centropages typicus Kröyer	—	—	—	—	—	—	r
Corycæus anglicus Lubb.	—	—	—	—	—	—	r
Oithona similis Claus	—	—	—	c	—	—	—
Paracalanus parvus Claus	—	—	—	—	—	—	—
Pseudocalanus elongatus Boeck	+	c	r	cc	c	c	+
Temora longicornis O. F. Müll.	+	—	—	—	—	c	—
Sagitta bipunctata Quoi & Gaim.	—	c	—	—	c	+	r
Tintinnopsis ventricosa Clap. & Lachm.	—	—	—	—	—	—	—
Acanthometron pellucidum J. Müll.	—	—	—	—	—	—	—
Pleetophora arachnoides Hkl	—	—	—	rr	—	—	—
Distephanus speculum Ehb.	—	r	—	r	—	—	—
Halosphæra viridis Schmitz	—	r	—	c	—	—	—
Ceratium furca Duj.	cc	cc	cc	cc	c	+	r
C. fusus Duj.	r	r	r	r	+	r	—
C. tripos Nitzch.	cc	cc	c	c	cc	c	r
var. bucephala Cl.	—	+	+	r	+	r	—
var. longipes Bail.		r	—	r	—	r	—
var. macroceros Ehb.	cc	cc	cc	cc	ccc	c	—
Dinophysis acuta Ehb.	—	r	+	r	r	—	—
Diplopsalis lenticula Bergh	r	—	—	—	—	—	—
Gouyaulax spinifera Clap. & Lachm.	—	—	—	—	—	r	—
Peridinium depressum Bail.	—		r	r	—	—	—
P. divergens Ehb.	+	+	c	—	+	—	—
Pyrophagus horologium Stein	—	r	r	rr	—	—	—
Biddulphia mobilensis Bail.	—	—	—	—	—	r	—
Chætoceros atlanticus Cl.	—	rr	—	rr	—	—	—
C. decipiens Cl.	—	—	—	—	—	—	—
Coscinodiscus concinnus W. Sm.	r	+	+	c	r	r	r
C. excentricus Ehb.	r	+	r	—	r	r	—
C. oculus iridis Ehb.	—	—		—	—		—
C. radiatus Ehb.	—	—	r	+	—	—	+
Ditylum Brightwellii West.	—	—	—	—	—	—	—
Rhizosolenia styliformis Brw.	—	—	—	—	—	—	—
Planktontype	Tp.	Tp. (Nc.)	Tp. (Nc.)	Tp. Nc. Nh	Tp.	Tp.	O.

ɔruary 1899.

4	5	5	10	18	18	19	2	2	2	3	3	3
54° 25′	53	52 30′	52 52′	54 57′	56 41′	57 40′	57 31′	57 5′	56 27′	55 18′	55 8′	54 35′
5° 40′ E.	4° 30′ E.	3° 57′ E.	4° 19′ E.	7° 45′ E.	7° 22′ E.	9° 57′ E.	9° 26′ E.	8° 33′ E.	7° 53′ E.	7° 29′ E.	7° 33′ E.	8° 5′ E.
7,0	7,0	7,0	7,0	4,8	5,0	—	4,9	3,4	5,0	3,8	4,2	3,6
34,93	34,57	34,18	31,50	29,67	34,00	—	34,60	33,61	34,12	32,79	33,11	30,10
rr	+	r	—	c	c	—	—	—	—	—	—	—
—	—	—	—	—	rr	—	—	—	r	+	—	—
—	—	—	r	—	-	+	—	—	—			
	—	—	—	+	rr	—	—	—	—	—	r	—
—	—	—	r	—	—	+	—	—	—	+	+	—
rr	+	—	c	—	—	—	—	-		-	-	—
rr	—	—	+	+	cc	+	c	+	c	+	+	
—	c	—	-	+	c	+	r	c	—	—	c	—
—	—	—	—	—	—	r	—	+	+	—	—	—
—	—	—	—	—	r	—	—	—	—	—	-	—
—	—	—	—	—	—	—	—			—	-	—
—	—	—	—	—	—	—		—	r	-	rr	
—	—	—	—	—	-	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
r	r	—	—	r	r	—	—	—	—	+	—	—
—	—	—	—	c	+	+	+	—	+	+	c	
—	—	—	r	+	+	+	+	—	+	—	c	—
	—	—	-	—	—	—	—	—	—	rr		—
—	—	—	—	c	rr	+		—	r	—	—	—
—	—	—	—	—	—	—	r	-	+	c	+	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—			—	-	—	—	—	—		—
—	—	—	—	—	—	r	—	—		r	—	—
—	—	—	—	—	—	r	—	r	r	—	r	—
—	—	—	—	—	—	r	—	—	—	—	r	—
—	-	—		—	—	—	—	—	—	-	-	—
r	—	—	r	c	—	+	r	—	r	+	+	r
-	—	—	—	—	—	—	—	-	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	-
r	--	—	—	c	+	cc	r	+	+	+	c	+
—	r	—	—	—	—	—	—	—	—	r	—	—
—	—	—	—	—	-	—	—	—	—	c	—	—
r		—	—	r	+	+	+	c	+	+	—	c
—	—	—	—	—	—	r	—	—	—	r	r	—
—	—	—	—	—	—	r	-	r	—	r		r
) O.	O.	O.	O.	Ne. Ns.	Tp. Ne.	Ne.	(Tp. Ne.)	(Ne. Tp.)	(Ne. Tp.)	(Ne. Tp.)	Tp. Ne.	Ne.

Table II. The North

Month	4	4	4	4	4	4	
Date	28	28	29	29	30	30	
Lat. N.	57° 45′	58° 9′	58° 27′	58° 48′	58° 40′	57° 14′	
Long.	8° 37′ E.	4° 50′ E.	1° 39′ E.	2° 3′ W.	4° 37′ W.	7° 6′ W.	6
Temperature	—	5,5	6,5	7,0	9,0	8,5	
Salinity	—	31,50	35,18	35.00	34,57	34,79	
Acartia Clausii Giesbr.	—	—	r	—	r	r	
A. longiremis Lilljeb.	+	—	—	—	—	—	
Calanus finmarchicus Gunn.	c	+	c		c	c	
Centropages hamatus Lilljeb.	+	—	r	—		—	
Oithona similis Claus	—	r	r	—	r	—	
Pseudocalanus elongatus Boeck	—	r	c	—	+	—	
Temora longicornis O. F. Müll.	+	—	—	—	—	c	
Evadne Nordmannii Lovén	+	r	—	—	—	—	
Halosphæra viridis Schmitz	r	r	—	—	—	—	
Ceratium furca Duj.	r	r	—	—	—	r	
C. fusus Duj.	r	r	—	—	—	—	
C. longipes Bail.	c	cc	—	—	—	—	
C. macroceros Ehb.	r	r	—	—	—	—	
C. tripos Nitzsch	cc	cc	—	—	—	—	
Dinophysis acuta Ehb.	+	r	—	—	—	—	
Gonyaulax spinifera Clap. & Lachm.	—	—	—	—	rr	—	
Peridinium depressum Bail.	c	+	—	—	—	r	
P. ovatum Pouchet	—	—	—	—	—	+	
P. pellucidum Bergh	—	—	—	—	—	+	
Asterionella japonica Cl.	—	—	—	r	—	—	
Biddulphia mobilensis Bail.	—	—	—	—	—	—	
Cerataulina Bergonii H. Per.	—	—	—	—	—	—	
Chætoceros atlanticus Cl.	—	—	—	—	—	—	
C. borealis Btw.	—	—	+	—	—	—	
C. curvisetus Cl.	—	—	+	—	—	—	
C. debilis Cl.	—	—	c	c	ccc	—	
C. decipiens Cl.	—	—	ccc	+	+	—	
C. densus Cl.	—	—	rr	—	—	—	
C. didymus Ehb.	—	—	—	—	—	—	
C. hiemalis Cl.	—	—	—	—	—	—	
C. scolopendra Cl.	—	—		—	r	—	
Coscinodiscus concinnus W. Sm.	—	—	r	—	—	—	
C. oculus iridis Ehb.	—	—	—	—	—	—	
C. radiatus Ehb.	—	—		—	—	—	
Ditylum Brightwellii Wert.	—	—	—	r	+	—	

ril—May 1899.

4	4	4	4	4	4	4	4	4	4	4
28	28	29	29	29	29	29	29	29	29	29
56° 17′	56° 30′	56° 37′	56° 43′	56° 49′	56° 55′	57° 2′	57° 8′	57° 34′	57° 3′	56° 53′
1° 43′ W.	0° E.	1° 15′ E.	2° 30′ E.	3° 45′ E.	5° E.	6° 14′ E.	7° 28′ E.	9° 24′ E.	7° 45′ E.	6° 14′ E.
7	7	7	8	7	6	6	6	6	6,5	6,1
34,89	35,00	35,17	34,79	34,74	34,94	35,00	34,91	34,21	35,00	35,00
r	+	—	rr	r	—	—	r	+		—
—	—	—	r	—	—	—	r	—	r	r
r	+	—	r	r	—	—	r	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	+	—	—	r	—	—	—	—	r	—
—	—	—	—	—	—	—	+	—	—	r
—	—	—	—	—	—	—	r	—	r	r
—	—	—	—	—	—	—	—	—	—	—
—	r	r	—	c	—	r	+	r	r	+
—	—	—	+	r	r	—	r	—	r	r
—	—	r	r	—	—	r	—	—	r	r
—	—	—	r	+	r	—	—	+	—	+
—	—	—	r	r	—	+	—	—	—	—
—	—	+	ccc	c	r	+	+	—	c	c
—	—	r	—	rr	—	+	r	r	r	r
—	r	—	—	—	—	r	—	—	—	—
—	+	+	—	+	—	+	—	—	r	r
cc	c	c	c	c	—	c	—	—	r	—
r	+	r	—	—	—	+	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	+	—	—	—	—	—	—	r	—	—
—	—	r	—	rr	—	—	—	—	r	—
—	—	—	—	r	—	—	—	—	—	—
—	—	r	—	+	—	—	—	—	r	—
—	+	c	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
r	—	+	—	+	—	—	—	—	—	—
—	—	r	—	+	—	—	—	+	—	—
r	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	rr	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	r
—	—	—	+	r	r	—	+	—	—	—
r	—	—	r	—	—	r	r	r	—	—
r	+	rr	—	—	—	—	—	r	—	—

Table II (continued). The Nor

Month	4	4	4	4	4	4
Date	28	28	29	29	30	30
Eucampia zodiacus Ehb.	—	—	—	—	—	—
Guinardia flaccida Castr.	—	—	—	—	—	—
Lauderia annulata Cl.	—	—	+	+	+	r
Navicula membranacea Cl.	—	—	—	—	—	—
Nitzschia seriata Cl.	—	—	+	+	r	—
Rhizosolenia semispina Hensen	—	—	r	r	—	—
R. Shrubsolei Cl.	—	—	r	r	—	—
R. Stolterfothii H. Per.	—	—	—	—	—	—
R. styliformis Btw.	—	—	r	—	—	—
Stephanopyxis turgida Grev.	—	—	—	—	—	—
Thalassiosira gravida Cl.	—	—	—	r	—	—
T. Nordenskiöldii Cl.	—	—	—	c	+	cc
Thalasiothrix longissima Cl. & Gun.	—	—	—	—	—	—
Planktontype	Ns. Tp.	Tp. Ns.	C.	Ns. Si.	Ns. (Si.)	Si.

pril—May 1899.

	4	4	4	4	4	4	4	4	4	4	4
	28	28	29	29	29	29	29	29	29	29	29
	—	—	rr	—		—	rr	—	—	—	—
	r	r	c	—	—	ccc	cc	ccc	cc	ccc	c
	c	c	—	—	+	r	—	—	r	—	—
	rr	—	rr	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	+	r	+	—	—	—	—	—	—	—	—
	—	—	—	—	r	—	—	—	—	r	—
	r	r	+	—	r	—	rr	—	—	r	—
	r	+	r	—	r	r	rr	r	cc	r	r
	—	—	rr	—	—	—	—	—	r	—	—
	r	c	c	—	—	—	—	—	—	—	—
	—	—	+	—	—	—	—	—	—	rr	—
	—	—	c	—	+	—	rr	rr	—	rr	—
	Ns.	Ns. S.	T. Ns.	Tp. Ns.	Ns. Nh.	Nm.	Nm. Ns.	Nm. (Ns.)	S. Nm.	Nm.	{ Tp. Nm. } { Nh. Ns. }

Table II (continued). The Nort

Month	4	4	4	5	4	4
Date	30	30	30	1	29	29
Lat. N.	56° 30′	56° 7′	55° 39′	55°	57° 39′	57° 47′
Long.	4° 30′ E.	2° 48′ E.	1° 10′ E.	0° 29′ W.	11° 26′ E.	10° 33′ E.
Temperature	6	7	7	6	6,5	6,3
Salinity	34,96	35,10	35,10	34,79	23,12	33,20
Acartia Clausii Giesbr.	r	r	—	r	—	—
A. longiremis Lilljeb.	—	—	—	r	—	—
Calanus finmarchicus Gunn.	—	—	—	—	—	—
Centropages hamatus Lilljeb.	—	—	—	—	—	—
Oithona similis Claus	—	r	r	r	—	—
Pseudocalanus elongatus Boeck	+	c	+	+	—	—
Temora longicornis O. F. Müll.	r	+	—	r	—	—
Evadne Nordmannii Lovén	—	—	—	—	—	—
Halosphæra viridis Schmitz	—	—	—	—	—	—
Ceratium furca Duj.	r	—	—	—	—	—
C. fusus Duj.	r	r	—	—	—	—
C. longipes Bail.	+	r	—	—	—	rr
C. macroceros Ehb.	r	—	—	—	—	—
C. tripos Nitzsch	+	c	—	—	r	—
Dinophysis acuta Ehb.	r	—	r	r	r	—
Gonyaulax spinifera Clap. & Lachm.	—	—	r	r	—	—
Peridinium depressum Bail.	r	—	—	r	—	—
P. ovatum Pouchet	r	—	r	c	—	—
P. pellucidum Bergh	—	—	—	—	—	rr
Asterionella japonica Cl.	—	—	—	—	—	rr
Biddulphia mobilensis Bail.	—	—	—	—	—	—
Corataulina Bergonii H. Per.	—	r	r	—	r	r
Chætoceros atlanticus Cl.	—	r	r	—	—	—
C. borealis Btw.	—	cc	ccc	—	—	—
C. curvisetus Cl.	—	—	r	+	—	—
C. debilis Cl.	—	—	c	—	—	—
C. decipiens Cl.	—	rr	c	—	+	rr
C. densus Cl.	—	+	r	—	—	r
C. didymus Ehb.	—	—	r	r	—	—
C. hiemalis Cl.	—	—	—	—	c	r
C. scolopendra Cl.	—	—	—	—	—	—
Coscinodiscus concinnus W. Sm.	—	—	r	—	—	—
C. oculus iridis Ehb.	—	—	—	—	—	—
C. radiatus Ehb.	—	—	r	r	—	—
Ditylum Brightwellii Wert.	—	—	—	rr	—	ccc

pril—May 1899.

	4	4	4	4	4	4	4	5	5	5	5
	30	30	30	30	29	29	30	7	13	20	21
′	56° 34′	55° 54′	55° 14′	54° 36′	57° 31′	56° 8′	54° 45′	57° 12′	56° 30′	54° 31′	57° 7′
E.	7° 50′ E.	7° 30′ E.	7° 29′ E.	7° 48′ E.	9° 20′ E.	7° 20′ E.	5° 57′ E.	9° 20′ E.	7° 25′ E.	5° 48′ E.	8° 20′ E.
	6,8	7,3	7,3	7,5	9,5	9,5	9	11	—	10	8
	32,73	33,28	33,46	31,36	35,12	34,91	33,83	—	—	—	34,98
	—	—	—	—	rr	+	—	—	+	+	—
	—	—	—	—	—	—	—	r	—	r	—
	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	r	r	—	+	—
	—	—	—	—	—	r	r	—	—	+	—
	—	—	r	—	—	r	r	—	—	—	—
	—	—	—	—	—	—	r	—	—	—	—
	—	—	—	—	—	—	r	—	r	—	—
	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	r	—	—	r	—	r
	—	—	—	—	—	—	—	—	r	r	—
	—	r	—	—	—	—	cc	—	—	—	—
	—	—	—	—	—	r	—	—	—	—	—
	—	—	—	—	—	c	—	—	—	+	+
	—	r	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	rr	—
	—	—	—	—	r	c	—	—	r	c	—
	r	—	—	—	—	—	—	—	r	—	—
	r	r	—	—	—	—	—	r	—	—	—
	rr	c	c	+	—	—	—	—	—	—	—
	—	—	r	r	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	+	c	+	—	—	+	r
	—	—	—	—	—	r	r	—	—	—	—
	—	—	—	r	—	—	r	—	—	—	—
	r	c	c	r	—	—	r	+	—	rr	—
	r	—	—	—	r	+	+	—	—	c	—
	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	r	c	—	—	—
	r	—	—	—	—	—	—	—	—	—	—
	—	—	—	r	—	—	r	—	—	r	—
	—	—	—	—	—	—	—	—	—	—	—
	+	—	c	—	—	+	—	—	—	—	r
	ccc	c	—	—	—	—	—	—	—	—	—

Table II (continued). The North

Month	4	4	4	5	4	4	
Date	30	30	30	1	29	29	
Eucampia zodiacus Ehb.	—	—	rr	—	—	r	
Guinardia flaccida Castr.	+	ccc	c	—	—	—	
Lauderia annulata Cl.	—	—	c	—	—	c	
Navicula membranacea Cl.	—	—	—	—	—	—	
Nitzschia seriata Cl.	—	—	—	—	—	—	
Rhizosolenia semispina Hensen	—	—	—	r	c	—	
R. Shrubsolei Cl.	—	—	—	—	—	r	
R. Stolterfothii H. Per.	r	—	—	r	—	—	
R. styliformis Btw.	rr	c	—	—	—	+	
Stephanopyxis turgida Grev.	—	—	—	—	—	—	
Thelassiosira gravida Cl.	—	—	—	+	—	—	
T. Nordenskiöldii Cl.	—	—	—	rr	—	—	
Thalassiothrix longissima Cl. & Gun.	—	—	—	—	—	—	
Planktontype	Tp. Ns.	Nm. Tp. / S. Ns.	C. Ns. (Nm.)	Ns.	Ns. C.	Nm.	N

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	4	4	4	4	4	4	4	5	5	5	5
	30	30	30	30	29	29	30	7	13	20	21
	—	—	—	—	r	r	r	—	—	—	rr
	—	—	—	—	r	r	+	—	—	+	+
	c	+	—	—	—	r	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	r	—	r	—	—	—	—
	—	—	—	—	+	—	—	r	—	r	—
	—	—	—	—	r	—	—	—	r	—	r
	—	—	—	—	—	—	—	—	—	—	rr
	r	—	—	—	r	+	c	—	c	c	c
	—	—	—	—	—	c	c	—	—	—	—
	—	+	—	r	—	—	r	—	—	—	—
	rr	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
.)	Nm. (Ns.)	Ns. C. Nm.	Ns. C.	(Ns.)	Ns. (Nm.)	Nm. S. Ns.	Ns. S.	Nm. Ns.	S.	S. (Ns.)	S.

Table III. The Nor

Month	7	7	7	8	8	8
Day	24	25	26	20	21	21
Lat. N.	57° 53′	60°	61° 3′	55° 15′	56° 42′	58° 14′
Long.	0° 6′ W.	1° E.	2° 10′ E.	5° 47′ W.	7° 18′ W.	5° 54′ W.
Temperature	15,4	14,8	14,20	13,2	14,2	13,9
Salinity	34,96	35,41	35,08	34,28	34,69	35,05
Oikopleura dioica Fol.	—	—	—	—	—	—
Acartia Clausii Giesbb.	r	—	—	+	—	r
Anomalocera Patersonii Brady & Robts.	—	+	+	—	—	—
Calanus finmarchicus Gunn.	—	—	—	c	c	r
Centropages hamatus Lilljeb.	c	—	—	—	—	—
C. typicus Kröyer	—	+	+	—	+	—
Corycæus anglicus Lubbock	—	—	—	—	—	—
Oithona similis Claus	c	c	+	+	cc	—
Paracalanus parvus Claus	—	—	c	—	c	—
Pseudocalanus elongatus Boeck	—	+	+	cc	cc	—
Temora longicornis O. F. Müll.	c	c	—	r	—	—
Evadne Nordmannii Lovén	+	+	—	—	—	—
E. spinifera P. E. Müll.	—	—	—	—	—	—
Podon intermedius Lilljeb.	—	—	—	—	—	—
Sagitta bipunctata Quoi & Gaim.	—	—	—	—	—	—
Cyttarocylis denticulata Ehb.	—	—	—	—	—	—
Tintinnus Steenstrupii Clap. & Lachm.	—	r	—	—	—	—
Acanthometron quadrifolium Hkl.	—	—	r	—	—	—
Ceratium furca Duj.	ccc	cc	cc	—	—	—
C. fusus Duj.	c	+	+	—	—	—
C. longipes Bail.	—	—	—	r	—	—
C. macroceros Ehb.	—	r	+	—	—	—
C. tripos Nitzsch	c	r	+	r	—	—
Dinophysis acuta Ehb.	—	r	—	—	—	—
Diplopsalis lenticula Bergh	rr	—	—	rr	—	—
Peridinium depressum Bail.	—	—	—	—	—	—
P. divergens Ehb.	+	+	—	rr	—	—
Rhizosolenia gracillima Cl.	—	—	—	r	c	—
Planktontype	Tp.	Tp.	Tp.	Ns.	S. Ns.	O.

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8	8	8	7	7	7	7	7	7	7	7	7	7
23	23	24	28	28	29	29	29	29	29	29	28	29
58° 6′	57° 38′	57° 53′	56° 14′	56° 22′	56° 31′	56° 40′	56° 49′	56° 58′	57° 4′	57° 11′	55° 10′	55° 34′
3° 44′ E.	7° 2′ E.	10° 13′ E.	2° 2′ W.	0° 36′ W.	0° 50′ E.	2° 18′ E.	3° 11′ E.	5° 2′ E.	6° 33′ E.	8° E.	1° 16′ W.	0° 59′ E.
14,0	15,4	—	12	15	15	15,5	16	16,5	16	16	14,5	16
32,51	30,38	—	34,38	34,71	35,10	35,06	34,33	33,32	32,96	29,76	34,36	34,83
—	—	—	—	—	—	—	—	—	—	r	+	+
—	—	—	r	cc	+	r	r	+	r	—	c	cc
—	—	—	—	—	r	—	—	—	—	—	—	—
—	+	+	+	c	—	+	+	—	+	—	—	+
—	—	—	—	—	—	—	—	+	—	r	+	—
+	—	+	—	—	r	—	—	r	—	—	—	c
—	—	—	—	—	r	—	—	—	—	—	—	—
+	+	—	—	c	+	c	+	c	c	+	cc	cc
—	c	+	—	—	—	r	—	+	—	r	—	cc
—	—	+	+	c	—	+	—	+	—	+	ccc	—
c	c	c	+	+	+	c	+	—	—	c	ccc	c
—	—	—	—	+	c	c	+	—	r	+	—	—
—	—	—	—	—	—	—	—	—	—	+	—	—
—	—	—	—	+	+	+	—	+	—	—	r	+
—	r	r	—	—	—	—	r	—	r	—	r	+
—	—	—	—	+	—	—	—	+	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
cc	—	—	—	—	—	+	—	—	—	—	—	—
cc	—	—	—	—	—	—	r	r	r	—	—	—
—	—	—	+	—	—	—	r	r	r	r	r	—
—	—	—	+	+	—	—	—	+	—	—	r	—
r	cc	ccc	—	—	r	—	+	+	r	c	—	—
—	ccc	cc	+	—	r	c	+	—	c	+	r	r
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	r	c	—	—	—	+	—	—	—	—
r	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	+
Tp.	Tp.	Tp.	Tp.	Ns. S.	Tp.?	Tp.	Tp.	(Tp.) (Ns.)	Tp.	Tp.	Ns. S.	S. Ns.

Table III (continued). The Nort

Month	7	7	7	7	7	
Day	29	29	30	30	30	
Lat. N.	55° 54′	56° 15′	56° 31′	56° 57′	57° 25′	
Long.	2° 23′ E.	4° 9′ E.	5° 52′ E.	7° 37′ E.	9° 6′ E.	1
Temperature	16	16	16	16,5	15,8	
Salinity	35,03	33,78	33,61	31,01	29,41	
Oikopleura dioica Fol.	+	+	—	+	+	
Acartia Clausii Giesbr.	+	+	+	+	—	
Anomalocera Patersonii Brady & Robts.	—	—	—	rr	—	
Calanus finmarchicus Gunn.	c	c	c	c	+	
Centropages hamatus Lilljeb.		—	—	—	+	
C. typicus Kröyer	c	+	c	+	—	
Corycæus anglicus Lubbock	—	r	r	—	—	
Oithona similis Claus	cc	c	c	cc	cc	
Paracalanus parvus Claus	c	c	c	c	—	
Pseudocalanus elongatus Boeck	—	—	c	c	c	
Temora longicornis O. F. Müll.	+	cc	—	—	cc	
Evadne Nordmanni Lovén	—	r	—	r	—	
E. spinifera P. E. Müll.	—	r	—	—	r	
Podon intermedius Lilljeb.	—	—	+	—	—	
Sagitta bipunctata Quoi & Gaim.	r	+	+	+	+	
Cyttarocylis denticulata Ehb.	—	—	—	—	r	
Tintinnus Steenstrupii Clap. & Lachm.	—	—	—	r	r	
Acanthometron quadrifolium Hkl.	—	—	—	+	rr	
Ceratium furca Duj.	+	r	—	—	—	
C. fusus Duj.	—	—	—	—	—	
C. longipes Bail.	—	—	—	—	—	
C. macroceros Ehb.	c	c	c	+	c	
C. tripos Nitzsch	c	c	—	c	c	
Dinophysis acuta Ehb.	—	—	—	r	+	
Diplopsalis lenticula Bergh	—	—	—	r	r	
Peridinium depressum Bail.	—	—	—	—	r	
P. divergens Ehb.	—	r	—	r	r	
Rhizosolenia gracillima Cl.	—	—	—	cc	cc	
Planktontype	Tp.	Tp.	Tp.	Tp. Nm.	Tp. Nm.	Tp

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	7	7	7	7	7	8	8	8	8	8	8	8	8
	29	29	30	30	30	2	2	2	2	3	3	3	3
3′	55° 7′	55° 59′	57° 7′	57° 29′	57° 39′	51° 48′	52° 36′	53° 28′	54° 18′	55° 6′	55° 43′	56° 32′	57° 16′
E	7° 35′ E.	7° 37′ E.	8° 28′ E.	9° 31′ E.	10° 26′ E.	3° 23′ E.	3° 57′ E.	4° 39′ E.	5° 36′ E.	6° 26′ E.	7° 4′ E.	7° 52′ E.	8° 31′ E.
	17,3	17	17	16,8	16,5	—	18,2	18,2	16,5	16	16,8	15,3	15,0
9	32,82	33,97	30,91	29,65	29,17	—	35,27	33,46	34,40	33,87	31,65	31,13	31,70
	c	c	+	—	—	—	—	—	—	+	+	+	—
	+	+	—	—	+	—	—	+	—	—	—	—	+
	—	rr	rr	—	—	—	—	—	—	—	r	—	—
	r	—	—	—	r	—	—	r	r	+	—	+	—
	r	+	c	c	+	+	—	—	—	—	r	+	—
	—	—	r	—	c	—	—	—	—	—	c	c	—
	+	—	—	—	—	—	—	—	—	r	—	rr	—
	—	+	c	c	cc	—	—	+	+	—	c	c	c
	c	c	c	—	c	c	—	c	c	c	cc	cc	c
	+	—	r	+	—	—	—	—	—	+	—	+	—
	+	+	c	cc	—	c	+	c	—	—	—	r	cc
	—	—	r	+	c	—	—	+	+	r	—	c	+
	—	—	+	—	+	—	—	—	c	+	c	c	c
	—	—	—	—	—	—	—	—	r	—	—	—	r
	—	c	r	c	r	c	—	—	—	+	—	+	—
	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	rr	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	r	r	—	—	—	—	—	r	r	r
	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—
	+	—	—	—	—	—	—	—	—	—	—	—	—
	r	c	cc	c	cc	r	—	—	+	+	c	c	cc
	—	+	+	cc	cc	r	—	—	+	r	+	+	r
	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	r	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—
r	Nm. (Ns.)	Nm. Tp.	Tp. Ns.	Tp.	Tp.	Nm. Ns.	O.	Nm.	Tp.	(Tp.) Nm.	Tp.	Tp.	Tp.

Table IV. The North

Date	3	4	4	5	
Latitude N.	57° 54′	57° 46′	57° 55′	58° 19′	5
Longitude	6° 51′ E.	3° 41′ E.	2° 20′ E.	0° 55′ W.	4°
Temperature	10,5	9,5	9,5	10,5	
Salinity	32,91	35,12	35,24	35,22	
Proto pedata LEACH.	—	—	—	—	
Acartia Clausii GIESBR.	—	—	+	r	
A. longiremis LILLJEB.	—	—	—	—	
Calanus finmarchicus GUNN.	—	—	+	r	
Centropages typicus KRÖYER	+	+	c	—	
Corycæus anglicus LUBB.	r	—	r	—	
Enterpe acutifrons DANA	—	—	—	—	
Microsetella atlantica BRADY & ROBS.	—	—	—	r	
Oithona similis CLAUS	+	+	c	r	
Paracalanus parvus CLAUS	+	+	c	—	
Pseudocalanus elongatus BOECK	+	+	+	+	
Temora longicornis O. F. MÜLL.	+	+	—	—	
Sagitta bipunctata QUOI & GAIM.	—	—	c	r	
Tintinnopsis ventricosa CLAP. & LACHM.	—	—	—	—	
Acanthochiasma fusiforme HKL.	—	—	—	—	
Halosphæra (small)	r	r	—	r	
Ceratium (tripos var.) bucephala CL.	r	r	r	—	
C. furca DUJ.	+	cc	c	—	
C. fusus DUJ.	+	c	c	+	
C. (trip. var.) longipes BAIL.	—	—	—	r	
C. macroceros EHB.	ccc	cc	ccc	+	
C. tripos NITZSCH	ccc	c	+	+	
Dinophysis acuta EHB.	—	r	r	r	
Diplopsalis lenticula BERGH	—	—	—	—	
Peridinium depressum BAIL.	r	r	—	—	
P. divergens EHB.	—	r	r	r	
Pyrophacus horologium STEIN	—	—	rr	—	
Biddulphia mobiliensis BAIL.	—	—	—	—	
Chætoceros decipiens CL.	rr	—	—	r	
C. densus CL.	rr	—	—	—	
Coscinodiscus concinnus W. SM.	—	—	—	—	
C. excentricus EHB.	—	—	—	r	
C. radiatus EHB.	—	r	—	c	
Ditylum Brightwellii WEST.	r	—	—	—	
Guiardia flaccida CASTR.	r	—	—	—	
Rhizosolenia calcar avis SCHULZE	rr	—	—	—	
R. Stolterfothii H. PER.	r	—	—	—	
R. styliformis BTW.	r	—	—	—	
Streptothera thamesis SHRUBS.	—	—	—	—	
Planktontype	Tp.	Tp.	Tp.	(Tp.)	(Tp.

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	9	9	9	3	3	4	4	4	4	4	1
94′	55° 50′	51° 14′	53° 52′	56° 13′	56° 22′	56° 35′	56° 18′	57° 10′	57° 17′	57° 21′	57° 31′
W.	6° 44′ W.	5° 6′ W.	4° 27′ W.	1° 28′ W.	0° 10′ E.	1° 7′ E.	2° 21′ E.	3° 48′ E	5° 12′ E.	6° 36′ E.	8° E.
	12	12	11	10	9,75	9,75	10	10,5	10	9,5	9,5
33	34,94	34,36	34,45	34,50	34,53	37,41	34,69	35,55	35,05	35,03	35,00
	—	—	—	—	—	—	—	—	—	—	—
	—	r	+	r	+	c	+	+	—	—	—
	—	—	—	—	+	+	—	—	—	—	—
	—	+	—	r	+	c	r	—	—	—	—
	—	—	—	+	—	c	+	—	—	c	—
	—	—	—	—	—	—	—	+	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	—	+	—	r	—	—	—	—	—	—	—
	—	—	—	r	—	+	r	+	—	+	—
	—	—	—	—	—	—	—	—	r	—	—
	—	+	r	+	+	+	+	c	r	+	—
	—	—	—	+	+	c	r	c	r	+	—
	—	r	—	r	r	c	+	—	r	+	—
	+	+	r	—	—	—	—	—	—	—	—
	—	—	—	r	r	+	r	—	—	—	—
	—	—	—	—	—	—	—	r	—	r	—
	—	—	—	—	—	—	—	+	c	—	—
	—	c	r	r	+	r	+	r	+	c	+
	—	+	—	r	—	—	—	r	+	+	+
	r	r	—	r	r	—	—	—	—	—	r
	—	—	—	—	+	+	c	c	c	cc	c
	+	r	—	+	+	+	c	c	cc	c	c
	—	r	—	—	—	—	—	—	—	rr	r
	—	—	—	—	—	—	—	—	—	—	r
	—	r	—	—	r	—	r	r	r	—	r
	—	r	—	—	—	—	—	—	r	+	r
	—	—	—	r	—	—	—	r	—	rr	—
	—	+	r	—	—	—	—	—	—	—	—
	rr	r	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	—	—	r	—	—	—	—	—	—	—	—
	r	c	r	—	—	—	—	—	—	—	—
	+	c	r	—	—	—	—	—	—	rr	—
	—	+	r	—	—	—	—	—	—	—	—
	—	+	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	—	+	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	r	r	r	—	—	—	—	—	—	—	—
	Ns.?	Nm.	(Nm.?)	Tp.?	(Tp.)	Tp.	Tp.	Tp.	Tp.	Tp.	Tp.

Table IV (continued). The North

Date	1	4	4	
Latitude N.	55° 13′	55° 35′	56°	
Longitude	0° 35′ W.	1° 1′ E.	2° 44′ E.	4
Temperature	10,5	10	10,5	
Salinity	34,71	34,89	35,00	
Proto pedata LEACH	—	—	—	
Acartia Clausii GIESBR.	+	—	—	
A. longiremis LILLJEB.	c	r	—	
Calanus finmarchicus GUNN.	+	—	r	
Centropages typicus KRÖYER	c	—	+	
Corycæus anglicus LUBB.	—	rr	—	
Euterpe acutifrons DANA	—	—	—	
Microsetella atlantica BRADY & ROBTS.	—	—	—	
Oithona similis CLAUS	+	r	r	
Paracalanus parvus CLAUS	—	—	—	
Pseudocalanus elongatus BOECK	c	—	+	
Temora longicornis O. F. MÜLL.	+	+	+	
Sagitta bipunctata QUOI & GAIM.	—	ccc	c	
Tintinnopsis ventricosa CLAP. & LACHM.	—	—	—	
Acanthochiasma fusiforme HKL.	cc	cc	—	
Halosphæra (small)	—	—	—	
Ceratium (trip. var.) bucephala CL.	—	—	cc	
C. furca DUJ.	c	c	r	
C. fusus DUJ.	+	—	—	
C. (trip. var.) longipes BAIL.	—	—	—	
C. macroceros EHB.	c	c	cc	
C. tripos NITZSCH	c	c	—	
Dinophysis acuta EHB.	—	r	r	
Diplopsalis lenticula BERGH	—	r	—	
Peridinium depressum BAIL.	—	r	—	
P. divergens EHB.	—	r	+	
Pyrophacus horologium STEIN	—	—	—	
Biddulphia mobilensis BAIL.	—	—	—	
Chætoceros decipiens CL.	—	—	—	
C. densus CL.	—	—	—	
Coscinodiscus concinnus W. SM.	—	—	r	
C. excentricus EHB.	r	—	—	
C. radiatus EHB.	—	—	—	
Ditylum Brightwellii WEST.	—	—	—	
Guinardia flaccida CASTR.	r	—	r	
Rhizosolenia calcar avis SCHULZE	—	—	—	
R. Stolterfothii H. PER.	—	—	—	
R. styliformis BTW.	—	—	—	
Streptotheca thamesis SHRUBS.	—	—	—	
Planktontype	Tp.	Tp.	Tp.	

ovember 1999.

	5	5	4	5	5	5	5	6	6	6	6
3'	57° 10'	57° 34'	57° 30'	57° 2'	56° 31'	55° 58'	55° 27'	54° 52'	55° 40'	52° 58'	52° 15'
).	7° 40' E.	9° 21' A.	9° 20' E.	8° 9' E.	7° 35' E.	7° 2' E.	6° 22' E.	5° 38' E.	4° 48' E.	4° 25' E.	3° 45' E.
	11,75	11,2	10,2	11,1	11,4	11,2	11,6	12,2	12,2	12	12,6
)	34,47	34,29	34,36	33,99	33,83	33,35	33,97	34,53	33,90	33,90	34,89
	r	—	—	—	—	—	r	+	+	—	r
	c	r	—	r	r	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	—	r	—	—	—	—	—	—	—	r	—
	+	r	r	—	—	r	—	—	r	c	r
	+	—	—	r	r	r	c	r	r	—	—
	—	—	—	c	—	c	c	r	c	+	—
	—	—	—	—	—	—	—	—	—	—	—
	—	r	r	+	—	r	+	r	c	+	—
	+	c	r	+	+	c	c	—	+	+	c
	c	+	—	r	r	r	+	r	—	—	—
	c	+	r	—	—	—	+	+	—	c	c
	c	+	—	c	c	r	+	—	—	—	—
	—	—	—	—	—	—	—	—	+	—	—
	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	c	+	—	—	—	—	—	—	—	—	—
	—	—	+	+	+	+	c	+	—	r	—
	r	r	r	—	—	r	+	—	—	r	—
	—	—	—	—	—	—	—	—	r	r	—
	c	cc	c	—	—	+	c	r	—	—	—
	c	cc	c	r	+	c	c	r	—	—	—
	—	—	—	—	—	—	rr	—	—	—	—
	—	—	—	—	—	—	—	—	r	r	—
	—	—	—	—	—	—	—	—	—	—	—
	r	—	r	—	—	r	—	—	—	—	—
	—	—	—	r	—	—	—	—	r	—	—
	r	—	—	r	—	+	r	+	—	—	—
	—	r	rr	—	—	—	—	—	—	—	—
	r	+	—	—	—	—	—	—	c	—	—
	r	—	—	r	—	—	r	—	—	—	—
	—	—	—	—	—	—	c	c	r	—	—
	r	—	—	+	+	+	c	—	r	+	—
	—	—	+	r	+	+	+	c	+	r	—
	—	+	+	+	+	+	c	+	+	cc	c
	—	—	—	r	r	r	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	cc	c
	—	—	r	r	r	r	c	r	r	—	—
	—	—	—	—	—	—	—	rr	—	—	—
	Tp.	Tp.	Tp.	Nm.	Nm. Tp.	Tp. Nm.	Tp. S. Nm.	Nm.	Nm.	Nm.	Nm.

Tabl

Month	1	1	1	1	2	2	2	3	3	3	4	4	4	4
Day	4	13	18	24	10	17	23	1	16	24	4	13	21	23
Temperature	4,30	—	3,25	2,50	1,15	2,10	2,20	1,75	3,40	2,90	2,85	4,10	4,80	—
Salinity	31,27	—	35,15	25,16	25,45	24,84	24,03	23,09	27,45	32,73	24,18	26,58	22,14	—
Oikopleura dioica Fol.	—	—	—	—	—	—	—	—		—	—	—	—	—
Acartia Clausii Giesbr.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
A. longiremis Lilljeb.	—	—	+	—	—	—	r	—	—	—	—	r	—	cc
Calanus finmarchicus Gunn.	r	—	—	—	—	—	—	—	—	—	r	—	—	r
Centropages hamatus Lilljeb.	+	—	+	+	+	—	—	—	—	—	—	—	r	+
C. typicus Kröyer	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Corycæus anglicus Lubb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Oithona similis Claus	c	r	+	+	r	—	—	—	—	—	r	—	r	r
Paracalanus parvus Claus	r	r	+	—	—	—	—	—	—	—	—	—	—	—
Pseudocalanus elongatus Boeck.	c	+	+	—	—	—	—	—	r	—	+	—	+	c
Temora longicornis O. F. Müll.	c	+	+	+	—	rr	r	—	—	—	+	—	+	r
Evadne Nordmanni Lovén	—	—	—	—	—	—	—	—	—	—	—	—	—	—
E. spinifera P. E. Müll.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Podon intermedius Lilljeb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
P. Leuckartii G. O. Sars	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sagitta bipunctata Quoi & Gaim.	r	c	+	—	—	rr	—	—	—	—	—	—	—	—
Pleurobrachia pileus Febr.	—	—	—	r	—	—	—	—	—	—	—	—	—	r
Cyttarocylis denticulata Ehb.	—	—	—	—	—	—	—			—	—	—	—	—
Tintinnopsis campanula Ehb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Distephanus speculum Ehb.	—	—	—	—	—	—	—	—	—	—	—	—	—	+
Halosphæra viridis Schmitz	—	—	+	—	+	r	—	—	+	—	r	—	—	+
Ceratium (trip. var.) bucephalum Cl.	+	—	—	—	—	—	—	—	—	—	—	—	—	—
C. furca Duj.	+	—	r	—	—	—	—	—	—	—	—	—	—	—
C. fusus Duj.	+	—	r	—	—	—	—	—	—	—	—	—	—	r
C. longipes Bail.	+	c	+	r	+	r	r	—	r	—	—	—	r	r
C. macroceros Ehb.	c	—	r	r	—		—	—	—	—	—	—	—	r
C. tripos Nitzsch	ccc	cc	cc	c	+	r	+	+	—	—	—	—	r	r
Dinophysis acuta Ehb.	—	—	—	—			—	—	—	—		—	r	r
Peridinium depressum Bail.	—	r	r	—	r	—	—	—	—	r	+	r	r	—
P. divergens Ehb.	—	—	r	—	—	—	—	—	—	—	—	—	—	r
Biddulphia aurita Lyngb.	—	r	r	—	+	c	c	c	+	—	—	—	—	—
B. mobilensis Bail.	r	—	r	—	—	—	—	—			—	—	—	r
Cerataulina Bergonii H. Per.	—	—		—	—	—	—	—	—	—	r	—	—	r
Chætoceros borealis Btw.	r	—	r	r	r	—	r	—	—	r	—	—	—	—
v. Brightwelli Cl.	—	—	—	—	—	rr	r	—	—	rr	—	—	rr	—
C. constrictus Gran.	—	—	r	r	+	c	c	c	c	ccc	cc	cc	cc	c
C. contortus Schütt.	—	—	r	r	—	r	—	r	+	+	c	—	+	r
C. curvisetus Cl.	—	r	r	r	r	r	rr	—	—	—	—	—	—	—

eskär 1899.

5	5	6	6	6	7	7	7	7	8	8	8	9	9	9	10	10	11	11	12	12	12
20	29	8	15	26	5	15	22	31	10	21	30	8	16	25	5	21	7	17	6	18	28
9,80	8,85	11,75	13,00	15,80	18,10	22,20	20,20	16,20	18,20	15,90	16,55	15,45	14,60	13,15	12,10	10,80	9,50	8,01	7,20	3,15	1,20
19,08	32,53	30,01	26,54	19,55	17,17	14,59	17,59	29,72	21,24	30,70	20,10	23,54	22,81	24,48	25,71	27,86	27,51	28,98	32,62	28,10	19,36
—	—	+	—	—	—	—	c	c	—	–	r	c	r	c	c	+	c	r	—	–	—
r	—	+	—	—	r	—	—	+	—	—	—	—	—	—	—	cc	—	—	—	r	—
+	—	c	c	—	—	—	—	—	—	—	—	—	—	—	–	—	—	—	r	—	+
—	—	r	r	—	—	—	—	—	—	+	r	—	–	—	—	r	—	—	—	—	—
+	—	+	+	+	c	—	r	r	—	—	—	—	—	–	—	–	–	—	—	c	+
—	—	—	—	—	—	—	—	—	r	+	+	c	+	—	c	+	c	r	—	—	—
—	—	—	—	—	—	—	—	—	r	—	—	—	—	—	r	+	r	—	r	—	—
—	r	c	+	+	c	—	+	+	r	r	+	c	—	c	c	+	—	—	+	—	cc
–	—	—	—	—	c	c	cc	cc	c	cc	ccc	c	c	cc	cc	cc	c	+	+	c	—
—	—	+	—	—	—	—	—	+	—	+	—	—	+	—	—	+	—	+	r	c	—
—	—	r	r	r	—	—	r	—	r	+	—	—	—	—	cc	+	—	r	—	c	cc
cc	r	c	c	c	c	c	r	c	—	—	—	—	r	r	r	r	—	—	—	—	—
—	—	—	—	r	—	—	r	+	r	+	—	r	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	r	r	r	—	—	—	—	—	—	—
+	—	r	r	—	r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	r	+	r	r	r	—	—	—	c	+	+	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	r	—	—	—	—	—	—	—	—	r	—
—	—	r	c	—	—	—	—	—	—	—	—	—	—	—	—	—	r	—	—	r	—
—	—	—	—	—	r	—	—	r	—	r	r	—	—	r	+	—	r	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	rr	—	—	—	—	–
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	—	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	—	—	r	—	rr	—	—
—	+	c	+	r	—	—	—	—	—	—	—	—	—	—	—	—	—	r	+	—	rr
—	+	+	r	—	—	—	—	r	—	—	—	+	r	r	r	—	—	r	—	—	—
—	c	c	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	—	+	cc
—	—	+	+	—	—	—	—	ccc	—	ccc	r	c	r	c	c	cc	+	+	cc	+	—
—	c	c	c	ccc	c	ccc	c	ccc	c	c	r	c	+	cc	ccc	c	cc	+	cc	c	cc
—	rr	—	—	—	—	—	—	—	rr	—	—	—	—	—	—	—	r	—	r	—	rr
r	+	r	r	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	—	+	r
r	r	—	+	r	—	—	—	—	r	r	—	r	r	r	r	—	rr	—	r	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	rr	r	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	—	—	—
r	—	—	r	—	+	—	r	—	r	—	—	—	r	—	—	—	rr	—	—	—	—
r	r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	—	+	—	+	r
—	r	r	r	—	—	—	—	—	—	—	—	—	—	—	—	r	r	+	—	+	r
c	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	+	+	—	—	—
—	—	+	+	+	r	—	—	—	+	—	rr	cc	+	+	—	c	c	cc	—	r	—
—	cc	cc	c	c	c	—	—	—	+	—	c	cc	cc	cc	—	cc	cc	ccc	+	+	r

Table V (cont

Month	1	1	1	1	2	2	2	3	3	3	4	4	4	4
Day	4	13	18	24	10	17	23	1	16	24	4	13	21	23
C. danicus Cl.	—	—	—	—	—	—	—	—	—	—	—	r	—	r
C. debilis Cl.	—	—	—	—	—	c	c	c	c	—	+	—	—	—
C. decipiens Cl.	—	r	r	r	+	r	+	+	+	—	cc	c	+	+
C. densus Cl.	—	—	—	—	—	—	—	—		—	—	—	—	+
C. diadema Ehb.	—	—	—	r	+	+	c	c	c	c	+	+	—	—
C. didymus Ehb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
C. hiemalis Cl.	—	—	—	—	—	—	r	—	—	—	r	—	r	—
C. Schüttii Cl.	—	—	r	—	—	—	—	—	—	—	—	—	—	—
C. scolopendra Cl.	—	r	—	—	+	r	+	r	—	+	—	—	r	—
C. socialis Laud.	—	—	—	r	r	c	c	c	ccc	—	—	—	—	—
Coscinodiscus concinnus W. Sm.	c	cc	c	+	ccc	ccc	cc	—	—	—	—	+	—	+
C. oculus iridis Ehb.	—	+	+	—	c	c	—	+	r	—	—	—	—	—
C. polychordus Gran.	—	—	r	r	r	r	+	r	-	—	—	—	—	—
Ditylum Brightwellii West.	—	—	+	—	—	—	—	—	—	—	—	—	—	+
Guinardia flaccida H. Per.	—	—	—	—	—	—	—	—	—	—	—	—	—	+
Rhizosolenia calcar avis Schulze	—	—	—	—	—	—	—	—	—	—	—	—	—	r
R. gracillima Cl.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
R. semispina Hensen	—	r	r	—	r	r	r	r	c	c	c	c	+	—
R. setigera Btw.	—	—	—	—	—	—	—	—	—	—	r	—	r	—
R. Shrubsolei Cl.	—	—	—	—	—	—	—	—	—	—	—	—	—	r
R. styliformis Btw.	—	—	—	—	—	—	—	—	—	—	—	—	—	cc
Skeletonema costatum Grev.	—	rr	r	—	—	r	—	—	r	—	—	—	—	—
Stephanopyxis turgida Grev.	—	—	—	—	—	—	—	—	—	—	—	—	—	r
Thalassiosira gravida Cl.	—	—	—	—	—	r	+	r	r	+	—	—	—	—
T. Nordenskiöldii Cl.	—	rr	—	—	c	c	cc	cc	+	cc	—	—	—	rr
Thalassiothrix Frauenfeldii Grun.	—	+	c	c	c	r	—	r	r	—	—	—	r	—
T. longissima Cl. & Grun.	—	rr	—	—	rr	rr	—	—	—	rr	—	—	—	—
Planktontype	Tp. Ns. Nc.	Tp. Ns. Nc.	Tp. Ns. Nc.	Tp. Ns. (Nc.)	Nc. Ns. Si.	Nc. Si.	Si. Nc.	Si. Nc.	Si.	Si.	C. Ns.	C. Ns.	C. Ns.	S. Nm. Ns.

eskär 1899.

5	5	6	6	6	7	7	7	7	8	8	8	9	9	9	10	10	11	11	12	12	12
20	29	8	15	26	5	15	22	31	10	21	30	8	16	25	5	21	7	17	6	18	28
cc	r	c	—	c	—	—	—	—	—	—	—	—	r	—	—	—	—	—	r	r	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	cc	cc	cc	r	+	—
r	rr	r	r	—	—	—	—	—	—	—	—	—	rr	—	—	—	r	—	r	r	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	rr	rr	—	r	rr	rr
—	—	r	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	—	—	—	—
—	—	—	r	—	—	—	—	—	r	—	rr	cc	cc	cc	—	cc	c	cc	+	+	—
cc	c	+	+	—	—	—	—	—	—	—	—	—	+	—	—	—	+	c	—		—
—	—	c	r	—	—	—	—	—	c	+	ccc	ccc	ccc	cc		cc	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—		—		—	+	—	r	—	—	—
—	—	—	—	—	—	—	—	—	r	—	—	—	ccc	—	—	—	—	—	—	—	—
—	—	—	—	—	—	cc	cc	—	r	—	—	—	—	—	—	—	—	—	—	—	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	r	r	—
—	rr	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	r	r	rr	r	rr
—	r	r	—	—	—	—	—	—	—	—	—	—	r	—	—	+	r	r	—	r	rr
r	—	r	—	—	—	—	—	—	—	rr	—	—	r	—	—	r	—	—	rr	—	—
—	—	—	+	c	+	—	—	cc	r	+	r	r	+	—	—	r	—	r	—	r	—
c	—	r	r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	+	—	+	—
r	+	+	r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
r	c	r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	r	—	—	—	r	—	—	—	—	—	—	r	r	r	r	r	—
—	rr	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	—	—	—	r	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	rr	—	—	rr	—
—	r	+	r	—	r	—	—	—	—	—	—	—	—	—	—	r	—	r	—	c	r
—	rr	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nm. Ns.	Nm. S. Ns.	Nm. Ns. Tp.	Ns. Nm. Tp.	Tp. Nm.	Tp. Nm.	Tp. Nc.	Tp. Nc.	Tp. Nm.	Tp. (Nm.)	Tp. (Nm.)	Nm.	Nm.	Nm. Si.	Nm.	Tp.	Nm. Tp. (Ns.)	Nm. Tp. (Ns.)	Nm. Ns.	Tp. (Nm.) (Ns.)	Tp. Nm. Ns.	—

Table

Month	1	2	2	2	2	3	3	3	3	3	4	4	4	4	5	5	5	3
Day	17	3	15	20	24	3	7	14	20	30	4	12	17	27	1	6	12	2
Fritillaria borealis Lohm.	—	—	—		—	—	r	—	r	—	—	—	—	—	—	—	—	—
Acartia Clausii Giesbr.	r	—	—	—	—	—	—	+	cc	c	cc	r	r	r	—	—	r	—
Calanus finmarchicus Gunn.	—	—	—	—	—	—	—	—	—	—	—	—	c	—	—	—	—	—
Centropages typicus Kröyer	—	r	—	—	—	—	—	+	+	—	+	—			—	—	r	—
Corycæus anglicus Lubbock	r		—	—	+	r	—	—	+	cc	c	+	r	—	—	—	—	—
Euterpe acutifrons Dana	r	—	—	—	—	—	—	—	—	+	+	r	—	—	—	—	—	—
Oithona similis Claus.	r	+	r	—	+	r	+	+	cc	—	+	c	—	r	—	r	—	—
Paracalanus parvus Claus.		—	—	—	+	+	+	+	+	—	—	—	+	—	—	—	—	—
Pseudocalanus elongatus Bœck	—	+	—	—	—	—	—	—	r	—	—	r	+	—	—	—	—	—
Temora longicornis O. F. Müll.	—	—	—	—	—	—	—	—	+	r	—	c	cc	—	—	—	—	—
Evadne Nordmannii Lovén	—	—	—	—	—	—	—	—	—	—	—	—	—	r	c	—	—	—
Sagitta bipunctata Quoi & Gaim.	—	r	—	—	—	—	—	—	—	—	—		r	—	—	—	—	—
Cyttarocylis serratus Mœb.	—	—		—	—	—	—	—	—	—	—	—		—	—	—	—	—
Tintinnopsis campanula Ehb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Noctiluca miliaris Suriray	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Halosphæra viridis Schmitz	—	+	r	r	c	—	r	+	—	—	—	—	—	—	—	—	—	—
Ceratium furca Duj.	—	—	—	—		r	—		—		—	—	—	—	—	—	—	—
C. fusus Duj.	—	—	—	—	—	r	—	—	r		—	—	—	—	—	r	—	c
C. longipes Bail.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
C. macroceros Ehb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
C. tripos Nitzsch.	—	—	—	—	+	—	—	—	—	—	—	—	—	—	—	—	—	—
Diplopsalis lenticula Bergh	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Peridinium depressum Bail.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
P. divergens Ehb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
P. ovatum Pouchet	—	—	—	—	—	—	r	—	—	—	r	r	—	rr	—	—	—	—
Phæocystis Poucheti Lagh.	—	—	—	—	—		—	—	—	—	+	ccc	—	ccc	c	+	c	—
Asterionella japonica Cl.	—	—	—	—	—	r	—	—	—	—	cc	c	—	+	—	—	—	—
Biddulphia mobiliensis Bail.	+	—	r	—	c	c	cc	cc	c	c	c	—	—	—	—	—	—	—
Chætoceros curvisetus Cl.	—	—	—	—	—	—	—			—	+	—	—	r	—	—	—	—
C. decipiens Cl.	r	—	—	—	—	rr	r	c	c	cc	c	—	—	r	r	—	—	—
C. densus Cl.	—	—	—	—	—	—	—	—	r	—	—	r	—	r	r	—	—	—
C. didymus Ehb.	r	—	—	—	—	—	—	—		—	+	r	—	r	—	—	—	—
C. Schuttii Cl.	—	—	—	—	—	—	—	—	r	r	+	r	—	—	—	—	—	—
C. teres Cl.	—	—	—	—	—	—	—	+	c	c	+	—	—	—	—	—	—	—
Coscinodiscus concinnus W. Sm.	+	—	—	—	—	+	c	c	+	c	c	—	—	—	—	—	—	—
C. excentricus Ehb.	—	+	r	—	c	cc	cc	+	—	—	—	—	—	—	—	—	—	—
C. oculus iridis Ehb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dityhum Brightwelli West.	—	—	—	—	+	r	r	r	r	+	+	r	—	r	—	—	—	—
Encampia zodiacus Ehb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guinardia flaccida Castr.	—	—	—	—	—	—	—	+	—	+	+	+	c	c	c	r	—	c
Leptocylindrus danicus Cl.	—	—	—	—	—	—	—	—	—	—	—	rr	—	rr	r	—	—	r

nouth 1899.

6	6	6	7	7	7	7	8	8	8	8	8	9	9	10	10	10	10	10	11	11	11	12	12	12	12
4	27	29	12	19	24	28	1	11	18	24	31	10	25	7	10	13	19	25	14	23	28	8	11	28	19
–	–	—	–	—	—	–	—	—	—	–	—	–	–	—	–	—	r	—	–	—	rr	–	–	—	–
–	r	–	+	—	cc	c	–	–	r	+	–	+	–	r	–	—	–	–	–	r	–	–	–	—	r
	r	—	r	–	—	c	+	—	–	–	–	–	–	–	–	–	–	r		–	–	–	–	—	—
+	r		—	–	r	r	—	–	–	–	r	r	–	–	–	–	–			–	–	–	–	–	–
	–	–	–	—	c		–	r	r	–	–	–	–	–	r	c	r	r	–	+		c	r	—	+
–	–	—	—	–	+	—	r	r	r	–	–	+	c	–	r	–	—	r	r	+	r	r	–	r	–
c	c	+	+	—	+	—	r	–	–	c	—	c	c	c	r	+	+	r	+	c	r	+	r	r	+
cc	—	—	—	—	—	—	–	–	+	r	r	cc	+	+	+	cc	c	r	–	r	r	+	r	–	+
	–	–	—	–	—	–	—	–	—	—		—	–	–	—	—	—	–	–			—			—
–	r	—	r	—	—	–	–	—	—	—	–	r	–	—	–	r	—	–	–	–	–	–	–	–	–
–	—	—	r	—	–	r	—	—	—	—	–	—	–	—	—	–	–	–	–	—	—	—	–	–	–
–	r	–	—	–	–	–	c	–	–	–	–	r	–	–	–	–	c	–	–	r	–	r	–	–	–
–	–	—	–	—	—	–	+	+	c	r	—	–	–	–	—	—	–	—	–	–	–	–	–	–	–
–	—	–	r	—	—	c	+	+	—	+	—	+	—	—	—	–	–	–	–	–	–	–	–	–	—
–	–	–	—	–	–	–	–	r	r	–	–	–	–	–	–	–	–	c	–	–	r	–	–	–	r
–	–	—	–	–	–	–	–	–	–	–	–	r	–	+	r	–	—	–	r	–	–	r	–	–	r
–	–	–	–	–	–	–	r	–	+	–	–	–	–	–	–	–	–	r	–	–	–	–	–	–	–
–	r	c	–	–	–	–	r	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
–			+	–	+	+	r	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	r
–	r	–	–	–	–	–	–	–	r	r	–	+	–	–	–	–	–	r	–	–	–	–	–	–	–
–	–	–	–	–	–	–	r	–	+	+	–	cc	–	–	–	–	r	+	–	r	r		r	r	+
–	–	–	–	–	–	–	r	–	r	–	–	–	–	–	–	–	–	–	–	–	r		–	–	r
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	r	+	+	–	r	–	–	r	r
–	–	–	–	–	–	–	r	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	r
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	r	–	–	–	r	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	r	cc	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	r	r
–	–	–	–	–	–	–	+	–	–	cc	+	–	–	–	+	–	–	–	–	r	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	r	+	cc	–	r	–	+	–	–	+
–	–	+	+	–	+	r	–	–	r	+	–	–	–	–	r	+	+	+	–	–	–	–	–	–	–
–	–	–	–	–	–	–	+	–	–	r	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	c	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	c	–	+	c	c	c	–	r	c	cc	+	–	c	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	+	r	–	+	+
–	–	–	–	–	r	r	+	–	r	–	r	–	–	–	–	–	–	r	–	r	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	r	c	c	r	–	–	–	–	–	–	–
r	–	r	–	–	–	–	–	–	–	–	–	+	–	–	–	c	c	r	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–

Table VI (contin

Month	1	2	2	2	2	3	3	3	3	3	4	4	4	4	5	5	5	5
Day	17	3	15	20	24	3	7	14	20	30	4	12	17	27	1	6	12	24
Rhizosolenia corpulenta Cl.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
R. gracillima Cl.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
R. robusta Btw.	r	—	—	—	—	—	—	r	—	—	—	—	—	—	—	—	—	—
R. Shrubsolei Cl.	—	—	—	—	—	—	—	—	—	—	+	—	—	+	c	—	—	c
R. Stolterfothii H. Per.	—	—	—	—	—	—	—	—	—	—	—	—	—	rr	—	—	—	r
R. styliformis Btw.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Skeletonema costatum Gren.	—	—	—	—	—	r	—	—	—	r	cc	—	—	—	—	—	—	—
Stephanopyxis turgida Gren.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thalassiosira gravida Cl.	—	—	—	—	—	r	+	r	—	—	+	c	—	—	—	—	—	—
Planktontype	Nm. / Nc.	Nh.	O.	O.	S. / Nm. / Nh.	Nm.	Nm. / Ns.	Nm. / Nh.	S. / Nm. / Ns.	Nm. / Ns.	Ns. / Nm.	C. / Ns.	Ns.	C. / Ns.	Nm.	O.	(C.)	Nm

nouth 1899.

5	6	6	7	7	7	7	8	8	8	8	8	9	9	10	10	10	10	10	11	11	11	12	12	12	12
4	26	29	12	19	24	28	4	11	18	21	31	10	25	7	10	13	19	25	14	23	28	8	11	28	19
—	—	—	—	—	+	+	r	r	r	+	r	c	+	+	cc	c	c	r	—	—	—	—	—	—	—
—	—	—	c	—	cc	cc	ccc	r	c	—	—	+	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	r	—	+	+	+	cc	c	c	r	—	—	—	—	—	—	—
c	—	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	r		r	—		r	—	—
r	r	—	r	—	+	c	r	—	—	—	—	—	—	—	—	c	—	+	—	-		—	—	—	—
—	—	—	—	—	—	—	—	—	r	—	—	—	—	r	—	—	—	r	—	—	—	—	—	r	—
—	—	—	—	—	—	—	—	—	—	—	cc	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	—	—	r	—	—	—	r	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	c	—	+	—	—	—	—	—	—	—
S.	S.	Nm.	Nm.	O.	S. Nm.	S. Nm.	Nm.	(Nm.)	Nm.	Nm.	Ns.	Tp. Nm.	Nm.	(S.)	Nm.	Nm. Ns.	Nm. (Ns.) Nc.	C. Ns. Nm.	?	Nc.	Nc.	Nc. Nm. C.	O.	Nc.	C. Nm.

Table VII. St V

Month	6	6	6	7	7	7
Day	4	12	18	6	9	21
Temp.	11	12,5	15	15,5	16	16,2
Salinity	31,21	—	34,02	33,71	—	33,92
Euterpe acutifrons Dana	—	—			—	
Temora longicornis O. F. Müll.	+	—	—	—	—	—
Tintinnopsis beroidea v. acuminata Dad.	—	—	—	—	—	—
T. campanula Ehb.	—	—	—	—	—	—
T. ventricosa Clap. & Lachm.	—	—	—	—	—	—
Phæocystis Pouchetii Lagh.	c	—	—	—	—	—
Asterionella japonica Cl.	—	—	—	—	—	—
Bacteriastrum varians Lauder	—	—	—	—	—	—
Biddulphia aurita Lyngb.	—	—	—	—	—	—
B. mobilensis Bail.		—	—	—	—	—
Cerataulina Bergonii H. Per.	rr	—	+	r	—	—
Chætoceros curvisetus Cl.	—	—	—	—	—	—
C. decipiens Cl.	ccc	—	—	—	—	—
C. (borealis v.) densus Cl.	+	—	—	—	—	—
C. didymus Ehb.	c	—	—	c	—	—
C. teres Cl.	r	—	—	—	—	—
Coscinodiscus centralis Ehb.	—	—	—	—	—	—
C. excentricus Ehb.	—	—	—	—	—	—
C. oculus iridis Ehb.	—	—	—	—	—	—
Ditylum Brightwellii West.		—	—	—	—	—
Eucampia zodiacus Ehb.	—	—	—	r	r	—
Guinardia flaccida Castr.	—	—	r	ccc	c	cc
Rhizosolenia delicatula Cl.	rr	—	—	—	—	—
R. Shrubsolei Cl.	—	ccc	ccc	c	ccc	ccc
R. Stolterfothii H. Per.	—	—	r	—	r	—
Streptotheca thamesis Shrubs.	—	—	—	—	—	—
Thalassiosira gelatinosa Hensen	—		—	—	—	—
T. gravida Cl.	—	—	—	—	—	—
Planktontype	C.	Nm.	Nm.	Nm.	Nm.	Nm.

ogue 1898—99.

	10	11	11	12	12	1	1	2	2	3	3
	20	8	21	13	24	5	21	6	28	8	15
	13	12	11	10	10	10	9	9	8	9	9
9	34,19	34,16	34,16	—	33,87	33,92	34,02	34,09	34,12	34,16	34,17
	—	rr	—	—	r	r	r	—	—	—	—
	—	r	—	—	r	r	r	—	—	—	—
	—	—	—	rr	—	r	+	+	+	—	—
	—	—	—	rr	—	—	—	—	—	—	—
	r	+	—	rr	—	—	—	—	—	—	—
	—	—	—	—	c	r	—	—	+	—	—
	—	—	—	—	—	—	—	r	+	c	+
	—	+	r	r	+	—	—	—	—	—	—
	—	—	rr	—	—	rr	rr	rr	r	rr	—
	—	r	—	—	—	+	+	c	+	r	—
	—	—	—	—	—	—	—	—	—	—	—
	ccc	cc	c	ccc	cc	cc	ccc	c	+	ccc	+
	r	—	—	rr	—	r	rr	r	r	c	+
	r	r	—	—	+	r	+	rr	—	—	+
	+	+	+	—	+	c	c	+	+	c	+
	—	—	—	—	—	r	+	+	+	r	rr
	—	—	—	—	—	+	r	+	+	—	—
	—	—	—	—	—	c	c	c	c	—	—
	—	—	rr	—	—	—	rr	rr	rr	—	—
	—	—	—	r	—	+	c	+	r	r	—
	r	rr	r	rr	—	—	r	r	—	r	—
	—	—	—	—	—	—	—	—	—	—	—
	—	r	—	—	—	—	—	rr	—	—	—
	r	+	r	r	—	r	r	—	+	+	+
	c	cc	c	c	+	+	+	+	—	—	—
	—	—	—	—	—	+	+	+	+	+	—
	—	—	—	—	—	—	r	r	r	r	—
	—	—	—	rr	—	—	rr	rr	rr	—	
	Nm.	Nm.	Nm.	Nm. (Ns.)	Nm. (C.)?	Nm.	Nm. (Ns.)	Nm. Ns.	Ns. Nm.	Nm. (Ns.)	Nm. (Ns.)

Table

Month	1	1	1	2	2	2	2	3	3	3	3	4	4	4
Day	5	13	20	4	11	17	26	3	10	17	30	7	13	20
Temp.	5,7	5,7	6,1	4,2	5,4	5,7	3,6	5,0	4,9	6,0	6,4	7,6	7,3	8,7
Areom. Density	1,0248	1,0244	1,0247	1,0252	1,0258	1,0244	1,0239	1,0258	1,0254	1,0243	1,0253	1,0246	1,0241	1,0246
Wind	N.W.	S.W.	S.W.	S.W.	S.W.	S.E.	E.	W.	S.W.	W.	N.W.	S.W.	S.E.	S.W.
Tide	Ebb.	Ebb.	Flood.	Ebb.	Ebb.	Ebb.	Ebb.	Ebb.	Flood.	Ebb.	—	Flood.	Ebb.	Flood.
Oikopleura dioica Fol.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acartia Clausii Giesbr.	rr	—	—	—	—	—	—	—	—	—	—	—	—	—
Centropages hamatus Lilljeb.	rr	—	—	—	—	—	—	—	—	—	—	—	—	—
Euterpe acutifrons Dana	—	r	—	—	—	—	—	—	—	—	—	—	—	—
Oithona similis Claus.	r	—	—	r	—	—	—	—	—	—	—	—	—	—
Paracalanus parvus Claus.	rr	—	—	r	—	—	—	—	—	—	—	—	—	—
Temora longicornis O. F. Müll.	r	r	r	r	—	—	—	—	—	—	—	r	—	—
Cyttarocylis serrata Moeb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tintinnopsis beroidea Stein.	r	r	r	+	—	—	r	—	—	—	r	r	—	r
T. campanula Ehb.	r	—	—	—	—	—	—	—	—	—	—	—	—	—
Noctiluca miliaris Surir.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ceratium fusus Duj.	r	—	r	r	—	—	—	—	—	—	—	—	—	—
C. longipes Bail.	r	—	—	—	—	—	—	—	—	—	—	—	—	—
Pbæocystis Pouchetii Lagh.	—	—	—	—	—	—	—	—	—	—	—	—	—	cc
Biddulphia aurita Lyngb.	rr	—	rr	+	+	+	+	c	cc	+	r	rr	—	—
B. mobilensis Bail.	r	—	r	+	r	—	—	r	r	r	r	r	—	—
Cerataulina Bergonii H. Per.	—	—	—	—	—	—	—	r	r	cc	ccc	—	—	c
Chætoceros debilis Cl.	—	—	—	r	—	—	—	—	rr	cc	r	—	—	—
C. densus Cl.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Coscinodiscus concinnus W. Sm.	r	—	r	—	—	—	—	—	—	—	—	—	—	—
Ditylum Brightwellii West.	—	r	—	—	—	rr	—	—	—	+	—	—	—	r
Encampia zodiacus Ehb.	—	—	—	—	—	—	—	—	—	+	r	cc	c	c
Guinardia flaccida Castr.	—	—	—	—	—	—	—	—	—	c	r	cc	c	c
Rhizosolenia Shrubsolei Cl.	—	—	—	—	—	—	—	—	—	—	—	—	—	r
R. Stolterfothii H. Per.	—	—	—	—	—	rr	—	—	—	+	+	+	+	+
Streptothera thamesis Shrubs.	—	—	—	+	—	+	—	r	—	—	—	—	—	—
Planktontype	(Nc.)	(Nm.) (Ns.)	(Nc.) (Ns.)	(Ns.)	(Ns.)	(Ns.)	(Ns.)	Ns.	Ns.	Ns. Nm.	Nm. (Ns.)	Nm.	Nm.	Nm. C.

ller 1899.

5	5	5	6	6	6	6	6	7	7	7	8	8	8	8	9	9	9	9
13	18	27	2	9	16	23	30	6	17	27	4	10	17	25	1	7	15	28
10,5	11,7	11,3	13,8	14	15	16,1	16,2	15,6	19,5	18	18,6	19,4	18,3	17,0	17,9	18,1	17,1	14
1,0255	1,0230	1,0234	1,0232	1,0238	1,0240	1,0246	1,0245	1,0246	1,0226	1,0242	1,0240	1,0240	1,0252	1,0247	1,0248	1,0237	1,0224	1,0232
S.W.	S.W.	N.	S.E.	N.W.	N.	N.E.	N.W.	N.W.	N.W.	N.W.	N.E.	N.	W.N.W.	E.	W.S.W.	E.N.E.	N.W.	W.S.W.
Ebb.	Ebb.	Ebb.	Flood.	Ebb.	Ebb.	Flood.	Ebb.	Flood.	Ebb.	—	Flood.	Ebb.	Ebb.	Flood.	Flood.	Ebb.	Flood.	Flood.
—	—	—	—	—	—	—	—	—	—	r	—	r	—	—	+	—	—	—
—	—	—	—	—	—	r	—	—	—	r	—	—	—	r	+	—	—	—
—	—	—	—	r	—	r	—	r	—	—	—	—	—	+	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	r	—	r	r	—	—	cc
—	—	—	—	—	—	—	r	+	+	+	—	+	r	+	—	—	—	c
—	—	—	—	r	—	r	—	—	r	—	—	—	—	—	—	—	—	—
—	—	—	—	r	—	r	+	r	r	—	—	—	—	r	—	—	—	—
—	—	—	—	—	—	—	—	r	—	—	—	—	—	r	—	—	r	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	+	—	—	—	—	—	r	—	c	—	—
—	—	—	—	r	—	r	+	c	cc	ccc	c	c	ccc	+	+	+	r	—
—	—	rr	rr	r	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	r	r	—	+	—	—	—
ccc	ccc	ccc	ccc	—	—	r	—	—	—	—	—	—	—	—	c	+	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	cc
—	—	—	—	—	—	r	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	c	—	—
—	—	—	—	—	—	—	—	r	—	r	—	—	—	r	—	r	r	+
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	c
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	—
—	—	r	r	—	r	+	+	—	cc	—	+	r	—	—	—	—	—	—
—	—	—	—	—	—	r	—	+	cc	—	r	r	—	—	—	—	—	—
—	—	—	—	r	r	+	cc	cc	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
C.	C.	C.	C.	(Nm.)	(Nm).	Nm.	Nm.	Nm.	Nm.	Nm.	Nm.	Nm.	Nm.	Nm.	Nm. C.	Nm. C. Ns.	(Nm.) (Nc.)	Nc.

Table

Month	1	1	1	2	2	2	2	3	3	3	4	4	5	5
Day	8	13	24	3	13	21	28	8	16	27	13	21	9	18
Temperature	4	3,5	3,4	2,5	1,8	2,8	2.0	3	4	3	4,4	4,8	8,2	9,5
Salinity	31,01	28,72	30,25	32.49	28,53	28,78	24,20	33,11	30,76	32.97	32,49	31,57	21,71	20,36
Oikopleura dioica FOL.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Proto pedata LEACH.	+	r	r	—	—	—	—	—	—	—	—	—	—	—
Acartia Clausii GIESBR.	r	—	—	—	—	—	—	—	—	r	—	+	r	—
A. longiremis LILLJEB.	—	—	r	+	—	—	—	—	—	+	r	c	c	c
Anomalocera Patersonii TEMPLT.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Calanus finmarchicus GUNN.	+	r	—	—	—	—	—	—	r	—	+	c	—	—
Centropages hamatus LILLJEB.	—	c	+	r	+	—	+	—	—	—	r	c	c	c
C. typicus KRÖYER	—	—	r	—	—	—	—	rr	—	r	—	—	—	—
Corycæus anglicus LUBB.	—	rr	—	r	—	—	—	—	—	—	—	—	—	—
Oithona similis CLAUS	c	+	c	+	+	—	—	—	—	—	r	r	+	+
Paracalanus parvus CLAUS	c	—	+	+	—	—	—	—	—	—	—	—	—	—
Pseudocalanus elongatus BOECK	—	+	+	—	—	rr	—	—	—	+	+	+	+	+
Temora longicornis O. F. MÜLL.	+	+	c	+	+	rr	c	—	—	+	—	—	c	r
Evadne Nordmanni LOVÉN	—	—	—	—	—	—	—	—	—	—	c	r	—	r
E. spinifera P. E. MÜLL.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
P. Leuckartii G. O. SARS	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sagitta bipunctata QUOI & GAIM.	c	+	+	—	+	—	—	—	—	—	—	—	—	—
Pleurobrachia pileus FABR.	—	+	—	—	—	—	—	—	—	—	—	—	—	—
Cyttarocylis denticulata EHB.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Plectophora arachnoides CLAP. & LACHM.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Halosphæra viridis SCHMITZ	—	+	c	r	r	—	—	—	+	cc	c	c	—	—
Ceratium (trip. v.) bucephalum CL.	r	r	r	—	—	—	—	—	—	—	—	r	—	r
C. furca DUJ.	—	—	—	—	—	—	—	r	—	—	—	—	—	—
C. fusus DUJ.	r	r	r	+	—	—	—	—	—	—	—	—	—	—
C. longipes BAIL.	r	r	+	r	+	—	—	r	+	c	+	+	+	+
C. macroceros EHB.	+	—	—	r	—	—	—	—	—	—	—	—	—	—
C. tripos NITZSCH	cc	ccc	cc	c	c	—	c	r	—	cc	+	+	—	+
Peridinium depressum BAIL.	r	—	—	—	—	—	—	—	r	cc	cc	+	—	—
P. divergens EHB.	—	r	r	—	—	—	—	—	—	—	—	—	—	—
Biddulphia aurita LYNGB.	rr	—	—	rr	+	c	+	+	c	r	—	—	—	—
Chætoceros borealis BTW.	rr	r	—	—	—	—	—	—	—	—	—	—	—	r
v. Brightwellii CL.	—	—	—	—	r	—	—	—	—	—	—	—	—	—
C. constrictus GRAN	—	—	—	—	—	c	+	—	cc	r	—	c	c	c
C. contortus SCHÜTT	—	—	—	—	—	+	—	+	c	—	—	—	r	—
C. curvisetus CL.	—	—	—	—	—	r	—	+	—	—	—	—	—	+
C. debilis CL.	—	—	—	—	—	+	r	c	—	—	—	—	—	—
C. decipiens CL.	rr	—	—	—	r	rr	+	+	cc	+	—	+	+	—
C. densus CL.	—	—	—	—	—	—	—	—	—	—	—	+	—	—

eröboda.

	6	6	7	7	7	7	7	8	8	8	8	9	9	9	10	10	10	11	11	12	12
	19	26	3	10	18	24	31	7	14	22	28	4	11	25	2	16	26	7	16	6	21
	15,2	15,4	17,0	18,0	21,0	20,0	17	17,8	17,8	15,5	16,0	15,8	14,6	13	12	11,4	10,0	10	8,2	6,5	3,0
	28,14	24,23	19,89	26,32	17,11	17,89	25,44	30,08	28,19	31,32	24,17	22,41	30,13	28,45	26,93	30,83	30,10	30,38	30,01	33,01	27,76
	–	–	–	–	–	–	cc	–	–	–	+	c	c	c	–	+	+	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	rr	–	–	·	–
	·	+	cc	–	+	–	+	+	c	–	·	–	–	–	–	–	c	–	–	r	r	–
	·	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		–	–	–	–	–	–	–	r	–	r	–	rr	–	–	–	–	+	–	–	–	–
		c	c	–	+	–	–	c	+	c	–	r	+	r	–	–	+	r	+	+	r	
	–	–	+	r	c	cc	+	–	–	+	+	–	–	–	–	–	r	+	–	–	–	+
	–	r	–	–	–	–	–	+	r	–	c	r	r	+	c	–	c	c	c	–	–	–
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	c	r	r	r	r	–
	+	cc	cc	ccc	cc	c	+	–	cc	c	c	c	cc	+	cc	+	+	–	–	–	+	+
	–	–	–	cc	+	cc	cc	ccc	cc	cc	cc	cc	cc	c	cc	c	cc	–	c	c	c	+
	–	–	+	–	–	–	–	r	+	–	–	r	–	+	c	+	+	cc	c	+	c	+
	–	–	c	+	–	c	–	r	c	+	c	–	r	cc	–	r	+	–	r	c	r	+
	3	c	cc	c	cc	c	c	–	–	+	–	–	c	cc	–	–	+	–	–	+	–	–
	–	–	–	–	–	r	–	–	+	+	r	–	r	–	r	–	–	–	–	–	–	–
	c	r	–	r	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	–	r	+	r	–	r	+	–	c	+	c	+	r	c	c	–	+	+	r	–	+	–
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	rr	–	–	r	–
	c	–	r	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	rr
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	r	–	–	r	r	–	r	r
	r	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	rr	–	r	r	+	+
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	r	–	–	rr	–	+	+	r
	r	–	–	–	–	–	–	–	–	–	–	r	–	r	r	r	–	+	r	r	·	
	r	–	–	–	–	–	–	–	–	r	–	–	r	r	c	+	r	+	r	r	–	
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+
	+	+	–	–	r	–	–	+	c	–	cc	c	–	ccc	ccc	c	ccc	cc	c	+	c	–
	cc	ccc	cc	c	cc	c	c	c	c	c	cc	cc	c	cc	c	c	ccc	cc	c	c	c	c
	+	–	–	–	–	–	–	–	–	–	–	–	–	–	r	–	–	r	r	r	–	–
	–	–	–	–	–	–	–	rr	–	–	–	–	–	–	–	r	–	–	–	–	r	–
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	r	r	–	–	–	–	–	–	–	–	–	–	–	–	–	r	r	–	–	–	–	+
	r	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	r	r	+	–	c	
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	c	r	+	–	+	
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	r	+	–	r	
	+	+	r	–	r	–	c	–	–	–	–	–	–	r	–	+	cc	cc	cc	–	c	
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	+	–	–	+	
	r	r	r	–	–	–	–	–	–	–	–	–	–	–	–	r	r	r	–	–	+	
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	+	–	–	–	r	

Table IX (contin

Month	1	1	1	2	2	2	2	3	3	3	4	4	5	5
Day	8	13	24	3	13	21	28	8	16	27	13	21	9	18
Chætoceros diadema EHB.	—	—	—	—	+	c	—	c	c	—	—	—	—	—
C. didymus EHB.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
C. hiemalis CL.	—	—	—	—	—	—	—	—	—	—	—	—	—	+
C. Schüttii CL.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
C. scolopendra CL.	—	—	—	—	—	rr	—	+	—	—	—	—	—	rr
C. socialis LAUDER	—	—	—	—	—	c	+	c	r	—	—	—	—	—
Coscinodiscus concinnus W. SM.	c	c	c	c	ccc	cc	ccc	+	—	—	—	—	—	—
Ditylum Brightwellii WEST.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guinardia flaccida CASTR.	—	—	—	—	—	—	—	—	—	—	—	r	—	—
Rhizosolenia calcar avis SCHULZE	—	—	—	—	—	—	—	—	—	—	—	—	—	—
R. gracillima CL.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
R. semispina HENSEN	—	—	r	—	—	+	—	+	+	c	—	—	+	—
R. styliformis BTW.	—	—	—	—	—	—	—	—	—	—	—	+	—	—
Skeletonema costatum GREV.	—	—	—	—	—	+	—	—	—	—	—	—	—	—
Stephanopyxis turgida GREV.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thalassiosira Nordenskiöldii CL.	—	—	—	—	+	cc	+	ccc	c	c	—	—	—	—
Thalassiothrix Frauenfeldii GRUN.	+	—	+	—	+	c	—	+	+	—	—	—	—	—
Planktontype	Tp. Nc.	Tp. Nc. T.	Tp. Nc.	Nc.	Nc.	Si. Nc.	Nc. Si.	Si.	C. Si. Ns.	Nh. Tp. Ns. Si.	Nh. Ns. (Tp.)	Nh. Ns. (Tp.)	Ns. C. Balt.	Ns. Balt.

äleröboda.

6	6	7	7	7	7	7	8	8	8	8	9	9	9	10	10	10	11	11	12	12
19	26	3	10	18	24	31	7	14	22	28	4	11	25	2	16	26	7	16	6	21
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	c	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	r	—	r	c	—	—	—	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	c	+	—	+
—	—	—	—	—	+	—	—	—	—	r	—	—	r	—	r	+	c	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	r	c	+	—	—	—	—	—	—	—	—	—	+	—	+	—	+	+
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	rr	r	r	r	r	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	—	r	—	r
—	—	—	—	—	—	—	rr	—	—	—	r	r	—	—	r	r	—	rr	r	r
r	—	—	r	—	+	+	—	—	—	+	—	—	r	—	—	r	—	r	—	c
r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—		—	—	—	—	—	—	—	—	—	—	—	r	—	r	r	r	rr	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	+	—	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	r	r	r	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	c
Tp.	Tp.	Tp.	Tp.	Tp. Nc.	Tp. Nm. Nc.	Tp. Nm.	Tp.	Tp.	Tp.	Tp. (Nm.)	Tp.	Tp.	Tp.	Tp.	Tp.	Tp. Nm. (Ns.)	Tp. Nm. (Ns.)	Ns. Nm. (Tp.)	Tp.	Tp. Nm. Ns.

Table IX (conti

Month	1	1	1	2	2	2	2	3	3	3	4	4	5	5
Day	8	13	24	3	13	21	28	8	16	27	13	21	9	18
Chætoceros diadema Ehb.	—	—	—	—	+	c	-	c	c	—	—	—	—	—
C. didymus Ehb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
C. hiemalis Cl	—	—	—	—	—	—	—	—	—	—	—	—	—	+
C. Schüttii Cl.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
C. scolopendra Cl.	—	—	—	—	-	rr	—	+	—	—	—	—	—	rr
C. socialis Lauder	—	—	—	—	-	c	+	c	r	—	—	—	—	—
Coscinodiscus concinnus W. Sm.	c	c	c	c	ccc	cc	ccc	+	—	—	—	—	—	—
Ditylum Brightwellii West.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guinardia flaccida Castr.	—	—	—	—	—	—	—	—	—	—	—	r	—	—
Rhizosolenia calcar avis Schulze	—	—	—	—	—	—	—	—	—	—	—	—	—	—
R. gracillima Cl.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
R. semispina Hensen	—	—	r	—	—	-	—	+	+	c	-	—	-	—
R. styliformis Btw.	—	—	—	—	—	—	—	—	—	—	—	+	—	—
Skeletonema costatum Grev.	—	—	—	—	—	+	—	—	-	—	—	—	—	—
Stephanopyxis turgida Grev.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thalassiosira Nordenskiöldii Cl.	—	—	—	—	+	cc	+	ccc	c	c	—	—	—	—
Thalassiothrix Frauenfeldii Grun.	+	—	+	—	+	c	—	+	+	—	—	—	—	—
Planktontype	Tp. Nc.	Tp. Nc. T.	Tp. Nc.	Nc.	Nc.	Si. Nc.	Nc. Si.	Si.	C. Si. Ns.	Nh. Tp. Ns. Si.	Nh. Ns. (Tp.)	Nh. Ns. (Tp.)	Ns. C. Balt.	Ns. Balt.

ıröboda.

6	6	7	7	7	7	7	8	8	8	8	9	9	9	10	10	10	11	11	12	12
19	26	3	10	18	21	31	7	14	22	28	4	11	25	2	16	26	7	16	6	21
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	c	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	r	—	r	c	—	—	—	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	c	+	—	+
—	—	—	—	—	+	—	—	—	—	r	—	—	r	—	r	+	c	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	r	c	+	—	—	—	—	—	—	—	—	—	+	—	+	—	+	+
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	rr	r	r	r	r	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	—	r	—	r
—	—	—	—	—	—	—	rr	—	—	—	r	r	—	—	r	r	—	rr	r	r
r	—	—	r	—	+	+	—	—	—	+	—	—	r	—	—	r	—	r	—	c
r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	r	—	r	r	r	rr	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	+	—	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	r	r	r	r	r
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	c
Tp.	Tp.	Tp.	Tp.	Tp. Nc.	Tp. Nm. Nc.	Tp. Nm.	Tp.	Tp.	Tp.	Tp. (Nm.)	Tp.	Tp.	Tp.	Tp.	Tp.	Tp. Nm. (Ns.)	Tp. Nm. (Ns.)	Ns. Nm. (Tp.)	Tp	Tp. Nm. Ns.