REPORT

ON THE

PLANKTON OF THE ENGLISH CHANNEL IN 1903,

BY

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(WITH 16 CHARTS AND 7 FIGURES IN THE TEXT).

CONTENTS.

INTRODUCTION.

General Statement of Results.

When commencing to consider the bearing upon general problems of the results obtained from the detailed examination of the plankton taken during the four quarterly cruises, I started with the supposition that the plankton would show distinctly the direction and position of the currents in the English Channel. To test this supposition maps of the distribution of single species were first constructed, in order to find out which species might be distinctive of waters of different origins.

In doing this a remarkable fact came out at once. No two plankton organisms had quite the same distribution at the same season. This certainly did not point to currents as being, in the area under investigation, the chief factor in the distribution of the plankton; for if such were the case, how could some species spread out in one direction, say from west to east, while others spread out in another direction, say from north to south.

In place of the distribution of individual species, I then tried to work out the distribution of groups of species, contrasting those known elsewhere to live generally under more oceanic conditions with those known to be neritic, that is to say, those known elsewhere to be found most frequently in shallow water near shore. Perhaps by working out the relative value of the number of oceanic species to that of neritic better results could be obtained.

Again, however, the results did not show any great sign of currents. On the other hand, an interesting and perhaps unexpected condition of things was proved to exist, which seems to me to be the most important conclusion established by the year's plankton-work. It can be briefly stated as follows: The plankton throughout the whole breadth of the Channel changes in character gradually from oceanic to neritic as we proceed from west to east. At the mouth of the Channel, oceanic plankton species are almost exclusively met with; the further we get up Channel and the shallower the water becomes, the greater is the percentage of neritic forms. The first neritic organisms to appear are usually diatoms; the last oceanic species that linger in the neritic waters are copepods, amphipods and Peridinidæ.

If there were a strong current from the Atlantic going up Channel, we should expect to meet a community of oceanic forms, with little or no admixture of neritic ones, within perhaps a circumscribed area or axis of water running from west to east. No such condition was, however, found, excepting perhaps at stations 19 and 17, which have usually somewhat higher proportions of oceanic forms than the surrounding stations. It seems unlikely, therefore, that during 1903 there was a current rapid enough to carry its plankton unmixed far up the Channel. If there was a current it must have been a very slow one, sufficiently slow to allow the neritic fauna and flora to develop and supercede the original oceanic inhabitants. One species, *Ceratium tripos*, seems however to indicate a movement. In May it is not seen further east than a line connecting Lyme Regis and Guernsey, in August it had spread as far as St. Catharine's, and by November it was south of Dungeness.

The objection might be raised that the oceanic current carries along with it the germs from which the neritic fauna and flora arises. I do not think that this objection can be held to be valid, considering that almost all the neritic species, whether of southerly, boreal or arctic character, are to be found at all times of the year at one or more places in the Channel, and that the germs themselves have never been found in oceanic water. It seems simpler and more natural to suppose that these species are native to the

Channel itself, and that they develop from spores, or from mature organisms previously living in the Channel, rather than that they have been brought there from elsewhere. Why should it be necessary to postulate, as Cleve (*Plankton of the North Sea, English Channel and Skagerrak in* 1899, page 7) appears to do, an arctic or boreal current carrying the plankton, because some of the plankton organisms chance to belong to species which are commonly found further north? Is it not quite as conceivable that the Channel may be within their usual range, and that they live and breed in the Channel as well as in the north? In my opinion there is no justification for assuming that the water has come from so far, but we should rather say that the geographical range of such and such an organism is wider than hitherto supposed.

A similar distribution of oceanic and neritic forms is found in the southern funnel of the North Sea, that is to say, in the region between the Straits of Dover and a line drawn, say, from the Wash to Heligoland. The results obtained by the Belgian, Dutch and German expeditions working in connection with the international scheme, show that the plankton in the North Sea north of the Wash to Heligoland line contains a preponderating percentage of oceanic forms, whilst the further south we get and the nearer to the Straits of Dover the more neritic does the character of the plankton become. In this region, as in the Channel, the percentage of oceanic to neritic species varies from 70% or more in the open sea to 20% or less near the Straits of Dover, and the same phenomenon as that found in the Channel is repeated. These facts all tend to support the view advanced by Gran, that the neritic plankton organisms are dependent on the bottom,* whilst the oceanic are limited by conditions which are perhaps at present uncertain.

Positions of the Stations and of the Areas they form.

The material examined in 1903 was collected on four cruises—in February, May, August and November. Whenever possible a vertical haul was taken with a small model of the Hensen net; besides this a set of samples was taken at the surface with nets of different grades of silk, so as to ensure catching all kinds of plankton animals and plants correctly; and, lastly, samples were taken with a Garstang closing net at 10 metres, midwater and close above the bottom (*see* page 349).

The positions and bearings of the stations at which samples were taken are as follow:—

Station E. 1, 50° 02′ N., 4° 22′ W., 10 miles S.W. ¼ S. of Eddystone, depth 75 metres.†
Station E. 2, 49° 27′ N., 4° 42′ W., 47 miles S.W. ¼ S. of Eddystone, depth 94 metres.
Station E. 3, 48° 34′ N., 5° 13′ W., 8 miles N. by W. of Ushant, depth 110 metres.
Station E. 4, 48° 27′ N., 6° 35′ W., 55 miles W. by N. of Station E. 3, depth 166 metres.
Station E. 5, 49° 06′ N., 6° 32′ W., 40 miles N.N.E. of Station E. 4, depth 122 metres.
Station E. 6, 50° 24′ N., 6° 05′ W., 30 miles N. of Wolf Rock, depth 85 metres.
Station E. 7, 49° 53′ N., 5° 38′ W., 8 miles S.E. of Wolf Rock, depth 78 metres.
Station E. 8, 49° 16′ N., 5° 37′ W., 95 miles S.E. of Wolf Rock, depth 80 metres.
Station E. 9, 49° 39′ N., 3° 09′ W., 30 miles N.E. by E. of Station E. 8, depth 74 metres.
Station E. 10, 49° 49′ N., 2° 33′ W., 9 miles N.E. by N. of Casquets (Hurd's Deep), depth 160 metres.
Station E. 11, 50° 05′ N., 1° 58′ W., 28 miles E.N.E. ½ E. of Station E. 10 (off Cape La Hague), depth 61 metres.

* The salinity does not seem to be an important factor in limiting the range of the oceanic plankton. This may be seen by comparing the salinity of the water at the mouth of the Channel, in which oceanic communities are found, with the salinity of the North Sea water containing similar plankton. The water in the Channel will be found to have salinities of well over 35‰, that in the North Sea usually much less.

† The depths here given are the actual soundings found when the stations were worked in May, 1903.

Station E. 12, 49° 55′ N., 1° 09′ W., 14 miles N.E. by N. of Cape Barfleur, depth 57 metres.

Station E. 13, 50° 20′ N., 1° 15′ W., 25 miles N. ¾ E. of Station E. 12, depth 53 metres.

Station E. 14, 50° 33′ N., 1° 17′ W., 2 miles S. ¾ W. of St. Catharine's Point, depth 40 metres.

Station E. 15, 50° 27′ N., 1° 50′ W., 10 miles S. by E. of Anvil Point, depth 38 metres.

Station E. 16, 50° 23′ N., 2° 28′ W., 8 miles S.S.W. of Portland Low Light, depth 53 metres.

Station E. 17, 50° 11′ N., 2° 52′ W., 30 miles E.S.E. of Start Point, depth 64 metres.

Station E. 18, 50° 23′ N., 3° 08′ W., 15 miles N.N.W. of Station E. 17 (Great West Bay), depth 55 metres.

Station E. 19, 49° 56′ N., 3° 23′ W., 20 miles S. by E. of Start Point, depth 70 metres.

Station E. 20, 50° 08′ N., 3° 47′ W., 5 miles S.S.W. of Bolt Head, depth 64 metres.

Station E. 21, 50° 21′ N., 0° 19′ W., 29 miles S. by E. ⅞ E. of Selsea Bill, depth 59 metres.

Station E. 22, 50° 33′ N., 0° 36′ E., 13 miles S. by E. ⅞ E. of Beachy Head, depth 57 metres.

These stations are situated in such a manner that they may be conveniently arranged in six distinct groups; each of these differs from the others not only in geographical position, but also to some extent in the nature of its fauna and flora. These districts, arranged in order from west to east are as follows (*see Charts* 13–16):—

1. The South-Western Area, comprising stations E. 4, E. 5, E. 3, and E. 2, is situated between 8° 0′ W. & 4° 0′ W., and 48° 0′ N. & 49° 30′ N. Its fauna and flora are the most oceanic in character found in the Channel.

2. The North-Western Area, containing stations E. 6, E. 7 and E. 1, lies between 8° 0′ W. & 4° 0′ W., and 49° 30′ N. & 51° 0′ N. The plankton found in this area is usually only a little less oceanic in its composition than that of the South-Western Area.

3. The Channel Islands Area, including stations E. 8, E. 19, E. 9 and E. 10, covers the area bordered by 4° 0′ W., 50° 0′ N., and the French coast. Its plankton is transitional between oceanic and neritic.

4. The Great West Bay Area, covering stations E. 20, E. 18 and E. 17, lies between 4° 0′ W. & 50° 0′ N., the English coast, and a line connecting Lyme Regis and Cape La Hague. Its fauna and flora resemble those of the last district, but are usually somewhat more neritic.

5. The Central Area contains stations E. 16, E. 11, E. 15, E. 14, E. 13 and E. 12. Its boundaries are the English and French coasts, 1° 0′ W., to a line connecting Lyme Regis and Cape La Hague. It is the home of most of the neritic species.

6. The Eastern Area comprises stations E. 21 and E. 22. It lies between the English and French coasts, and extends from 1° 0′ W. to the Straits of Dover. The plankton of this area is usually neritic, but not so exclusively so as that of the Central Area. No samples were taken in the Eastern Area in February.

DISTRIBUTION OF INDIVIDUAL SPECIES.

Definition of the Terms Oceanic and Neritic.

In discussing the distribution of the plankton it is not only necessary to distinguish between the two recognised groups of plankton-elements—the oceanic, the neritic—but also to ascertain whether or not the single species are present all the year round in the area under investigation. If they are found at all seasons, then it is necessary to ask, (1) When are they commonest ? and (2) Has each species a centre of distribution from which it spreads ? Should they not be found all the year round in the area under investigation, we must next find out whether or not their appearance in the area is periodic, and whether it is the same elsewhere.

In this paper, Haeckel's method of dividing the plankton into oceanic plankton and neritic plankton, and then into subdivisions of these two groups, has been used (*Planktonstudien*, Jena 1890, p. 22) ; more importance has been attached to the question of oceanic or neritic origin, especially in the case of neritic species, than to that of the general distribution in the north or south. It will be seen by comparing the lists of species taken on the four cruises that they are practically the same in each case. I regard almost all the species found in the Channel as belonging to the Channel itself, rather than as having been brought by currents from elsewhere.

The terms oceanic and neritic as used by Gran do not seem to me to agree with Haeckel's definitions of oceanic and neritic. It is evident that Haeckel did not intend oceanic and holoplanktonic, neritic and meroplanktonic to have the same meaning, but that he supposed it to be possible for an oceanic organism to be either holoplanktonic or meroplanktonic, and for a neritic one to be meroplanktonic or holoplanktonic.

Haeckel defines oceanic and neritic as follows (*Planktonstudien*, p. 22) :—

" Oceanisches Plankton ist dasjenige des offenen Weltmeeres, mit Ausschluss des schwimmenden Küstenbios."

" Das neritische Plankton umfasst die schwimmende Fauna und Flora der Küstenregionen, sowohl der Continente, als der Archipele und Inseln. Dasselbe ist in seiner Zusammensetzung von dem oceanischen Plankton wesentlich verschieden, und sowohl quantitativ als qualitativ reicher. Denn längs der Küsten entwickeln sich, zum Theil unter dem Schutze des Littoral-Bios, oder in genetischem Zusammenhang mit ihm, zahlreiche schwimmende Thier und Pflanzenformen, welche im offenen Ocean entweder überhaupt nicht vorkommen, oder doch rasch zu Grunde gehen ; wohl aber können die treibenden Organismen des letzteren durch Strömungen oder Stürme an die Küste getrieben werden und sich dann mit dem neritischen Plankton mischen. Schon aus diesem Grunde ist der Reichtum des neritischen Plankton an Gattungen und Arten viel grösser als derjenige des oceanischen. Die verwickelten und vielseitigen Beziehungen des letzteren zum ersteren, sowie die Beziehungen beider zum Benthos (sowohl littoralem als abyssalem) sind noch wenig untersucht und enthalten eine Fülle von interessanten Problemen."

From this extract it will be seen that Haeckel does not hesitate to suggest that oceanic plankton may have a connection with the benthos, and that oceanic plankton may become part of the neritic plankton if it is driven by storms or currents to the coasts and there mixes with the neritic plankton. His definition of holoplanktonic and meroplanktonic, however, makes these two groups dependent on their relation to the benthos (*Planktonstudien*, p. 25) ; it is as follows :—

" Während zahlreiche Organismen ihr ganzes Leben im Meere schwebend zubringen und ihren vollständigen Entwickelungskreis in demselben durchlaufen, ist das bei anderen nicht der Fall ; vielmehr bringen diese einen Thiel ihres Lebens im Benthos zu, entweder vagil oder sessil. Die erste Gruppe nennen wir holoplanktonisch, die zweite hingegen meroplanktonisch. Zu den holoplanktonischen Organismen welche gar keine Beziehung zum Benthos haben . . . gehören ein grosser Theil der Diatomeen und Oscillarien," etc.

"Die meroplanktonischen Organismen hingegen, welche nur einen Theil ihres Lebens im Meere schwimmend sich finden, den anderen Theil vagil oder sessil im Benthos zubringen (entweder littoral oder abyssal) sind durch folgende Gruppen vertreten," etc.

I next give Gran's definitions. (*Plankton des Norwegis-chen. Nordmeeres*, 1902, pp. 75-76).

"Als erstes Eintheilungsprincip möchte ich für die Plankton Organismen die Beziehung zur Küste wählen, zuerst also alle Arten mit Haeckel in neritische und oceanische eintheilen.

"Neritisch sind alle Arten, die in irgend einer Weise von der Küste d. h. vom Meeresboden der seichteren Küstenmeere abhängig sind; sie können z. B. Dauersporen oder Wintereier haben, die zu Boden sinken und vom Boden aus sich wieder entwickeln (neritische Diatomeen, Cladoceren, Tintinnen), oder sie können freischwebende Jugendformen von Bodenthieren sein (Echinodermen, Mollusken, Bryozoen, Anneliden, verschiedene höhere Crustaceen). Ferner können die erwachsenen Thiere dem Plankton gehören, während die Jugendstadien von einer festsitzenden Generation gebildet werden (Medusen), oder die erwachsenen Thiere können während der Paarung an der Oberfläche schwimmen, sonst aber und durch die ganze Entwicklung dem Benthos gehören (*Philomedes*). Endlich möchte ich die Larven der Dorsche und anderer Fische besonders nennen, die eine Zeit ihrer Jugend pelagisch leben, und in der Weise vom Boden abhängig sind, dass die Eier immer über den seichteren Küstenbänken gelaicht werden.

"Oceanisch sind dagegen alle Arten, die vom Meeresboden in ihren ganzen Lebenscyclus unabhängig sind, die also durch eine unbegrenzte Anzahl Generationen im freien Wasser ihr Leben fortsetzen können."

It will be seen that Gran's definitions of oceanic and neritic are, as Gran himself points out, very much the same as Haeckel's holoplanktonic and meroplanktonic. The definition of neritic can perhaps be said to be a combination of Haeckel's definitions of neritic and meroplanktonic, that of oceanic is however the same as Haeckel's holoplanktonic.

There is an objection to both Haeckel's and Gran's definitions of oceanic and neritic. Haeckel evidently does not consider that a plankton species must always belong to the same group, for he implies that it is quite possible for oceanic plankton to mix with neritic and thus enlarge the number of genera and species of the neritic plankton. Gran has, on the other hand, tried to separate them entirely by their relation to the bottom. The definition of the group neritic in the form in which it is given by Gran is not very satisfactory, because in a large number of cases the biology of the single species is not so well known as their distribution.

Haeckel's original definitions only want modifying in such a manner that the possibility of one and the same species belonging to both groups is excluded. I would suggest therefore that the two terms can be most usefully employed in the following sense :—

Neritic plankton includes all species whose centres of distribution lie in shallow (coastal) water the species becoming rarer and finally dying out as the open ocean is approached. Neritic plankton can under certain circumstances be carried out into the open ocean, but it cannot propagate indefinitely there and must die out unless it can reach shallow water again.

Oceanic plankton includes all species usually found in the open ocean, whether also found in abundance near the coast or not.

Almost all meroplanktonic organisms are neritic, and as far as is yet known almost all oceanic forms are also holoplanktonic. But there are probably also holoplanktonic neritic forms, for instance among the Copepoda, and also among the neritic diatoms, many species of which are not known to form resting-spores.

A comparison of the ranges of the single plankton-elements demonstrates the fact that the oceanic species invade the Channel from the west, more especially from the south-west, and become rarer as they advance up the Channel. Only a few of the oceanic species reach the central area, where the neritic species predominate.

The following brief sketches of the distribution in the Channel of some of the more important species of oceanic and neritic organisms may be of interest in this connection. I shall first treat the oceanic, and then the neritic species.

Distribution of Oceanic Species.

Chaetoceras peruvianum *Brightwell* (*Chart* 1) was restricted almost entirely to the South-Western and North-Western areas, and was found every time in samples from the outer Ushant station; it was usually rather rare, yet in November it was so common at the outer Ushant station as to form the bulk of the phytoplankton there.

Corethron hystrix *Hensen* (*Chart* 2 *) was chiefly found in the South-Western and North-Western areas, but also in the Channel Islands, Great West Bay, and even in the Central area. It was not, however, observed further east. It was almost always found at or near the surface.

Coscinodiscus radiatus *Ehbg.* was found on all four cruises in the South-Western, North-Western, Channel Islands, and Great West Bay areas. In August it was not seen in the Channel eastwards of 3° 23′ W., but in November it was very common in the Central and Eastern areas, forming the bulk of the phytoplankton together with *Coscinodiscus concinnus*, *C. oculus iridis* and *C. excentricus*.

Rhizosolenia alata *Brightwell* (*Chart* 3) was never absent from the South-Western area, where it also reached its maximum of abundance in summer and autumn. In February its range extended as far as the Central area, in November it was found in the North-Western, the Channel Islands, and the Great West Bay areas; its range was smallest in May. Auxospores were often found, especially in samples from the South-Western area in May and August, when the diatom was present in very large numbers.

Rhizosolenia robusta *Norman* was observed in all the areas except the Eastern. It was not seen in the Channel in August.

Rhizosolenia semispina *Hensen* was always present in the plankton of the South-Western and of the North-Western areas, reaching it maximum (greatest abundance) at the outer Ushant station in May. It was occasionally observed in all the other areas except the Eastern, being found as far east as St. Catharine's (mid-Channel) in February.

Ceratium bucephalum *Cleve* was observed in February, August, and November in the South-West area alone. It was never abundant, the greatest number was taken in November at the outer Ushant station. I follow Gran in using *C. bucephalum* Cl. as synonymous with *C. tripos* ε *arcuatum* var. *heterocampta* Jörg.

Ceratium fusus (*Ehbg.*) *Duj.* was very widely distributed over the whole of the Channel, and was found on each cruise in every area.

* A small dot has been omitted in the Chart at Station 19 in November.

In a series of samples taken 10 miles S.W. ¼ S. of the Eddystone (Station 1) on the 1st and 2nd of July, 1903, at intervals of two to three hours, some interesting observations were made concerning the rate of growth of this species, and the time when cell division takes place. Until 11 p.m. all the specimens observed had both horns fully developed and nearly equally long. At 12.55 a.m. one individual in every 160 had very recently divided; the others were still unchanged. At 3.30 a.m. 70% of the specimens present had one long and one short horn; in other words, about half the individuals present at 1 a.m. (53·8%) must have recently divided. After 7 a.m. no further new divisions were observed, and the new horns were larger than those seen in the previous sample. At 9.30 a.m. all specimens seen had both horns of equal growth. The rate of division for each cell would thus be once every two days under favourable circumstances. The 1st of July had been a hot day. It would be interesting to know if the cell-division of *C. fusus* always takes place at midnight, and how rapid the rate of growth is at other times of the year.

CERATIUM HEXACANTHUM *Gourret* (*Fig.* 1) was observed in the South-Western area alone, and only in February and November. The figure given by Gourret does not seem to me to be quite correct,

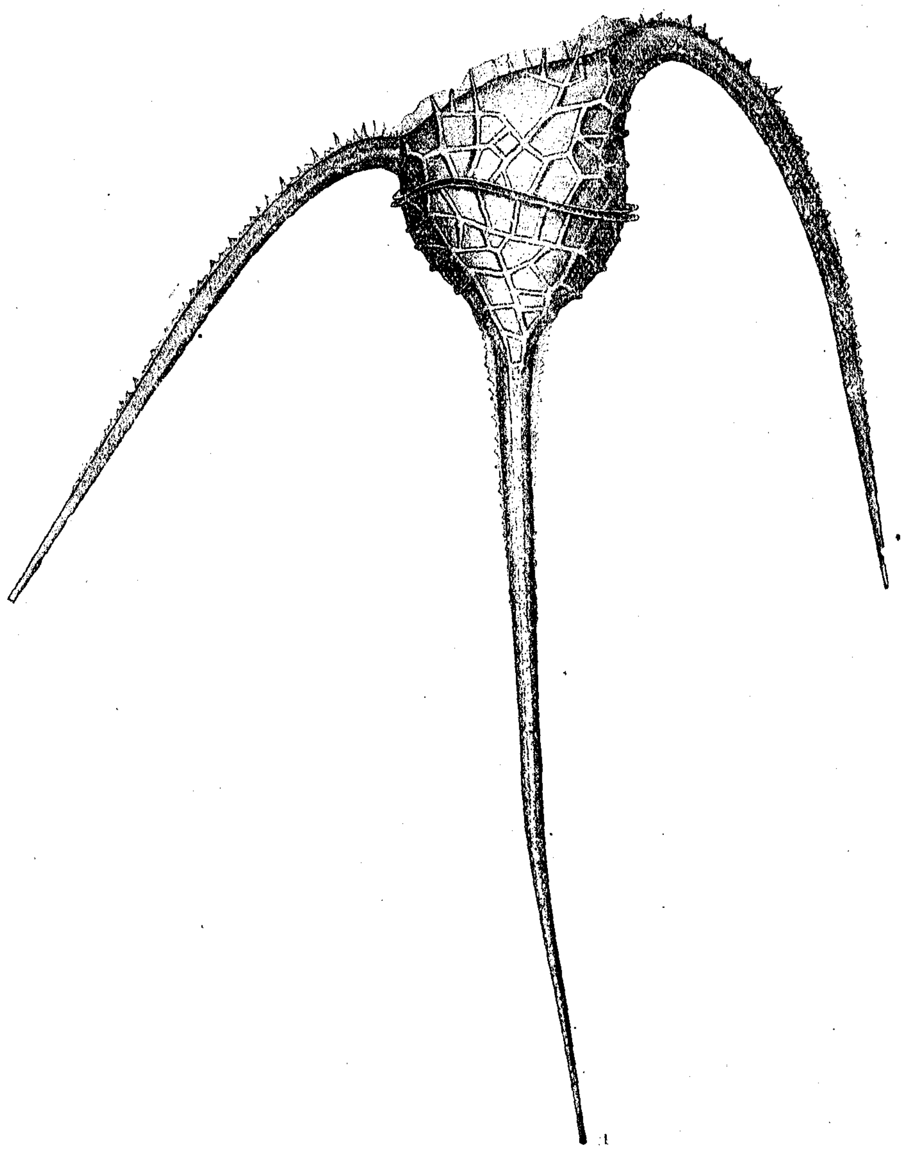

FIG. 1, *Ceratium hexacanthum* Gourret. × 380.

as the six small spines between the two antapical horns ought to be connected by membranes. The number of spines is also variable, as I have seen specimens with 5, 6 and 7 spines. These seem to be connected by at least three membranes. The reticulation is also very variable ; hardly any two specimens are quite alike in any respect, not even in the curvature of the horns. The antapical horns do not lie in the same plane. The figure given by Gourret also seems to show the specimen reversed in such a way that the left and right antapical horns are on the wrong sides. It was erroneously recorded by me in the February report (*Bulletin des Résultats acquis pendant les Courses Périodiques*) as *Ceratium inaequale.*

Ceratium longipes *Bailey Cleve* was observed on all four cruises in the South-Western, North-Western, and Great West Bay areas. There are two forms which I have noted under this name, probably only stages of growth of the same species, as intermediate forms are to be found. They are only distinguished by the length of the antapical horns as compared to the apical horn. One form has much longer antapical than apical horns, and its antapical horns are wavy, the other form has much shorter antapical horns than apical ones. The first form is confined entirely to the South-Western and North-Western areas.

Ceratium macroceras *Ehbg.* (*Chart* 4) was observed occasionally in all the areas except the Eastern, being commonest in the western parts of the Channel. It reached it maximum in November at the Outer Ushant station (Station 4), when it formed the bulk of the phytoplankton. There are also two forms of *C. macroceras* to be found in the Channel, similar to the two forms of *C. longipes*, and with a similar distribution.

Ceratium tripos (*O. F. Müll.*) *Vanhöffen* (*Chart* 4) was always present in the plankton of the South-Western, North-Western, Channel Islands, and Great West Bay areas. In February and May it was not found in large numbers, but became very common in August (Stations 2 and 7), and still more

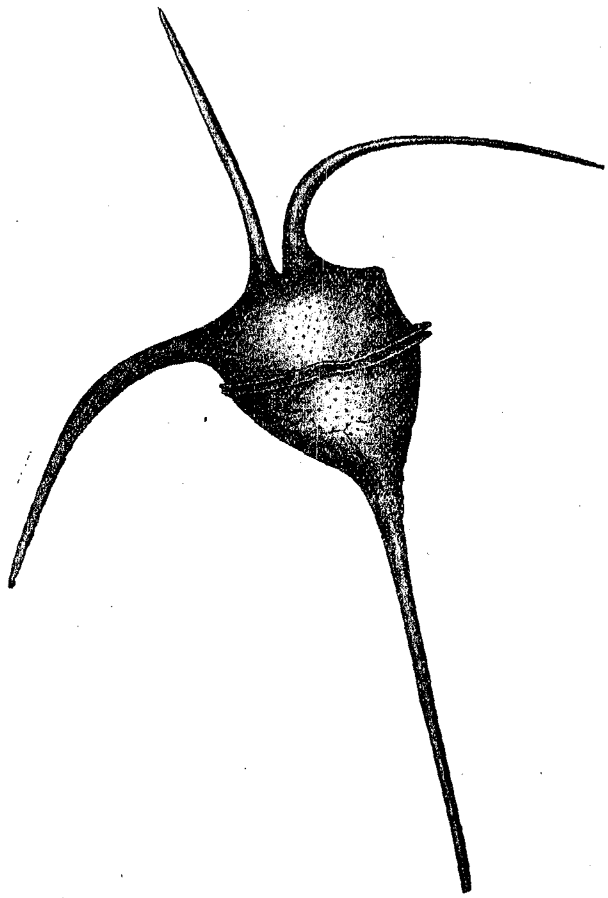

Fig. 2, *Ceratium tripos* (O. F. M. Müll.) Vanh. with 3 antapical horns. × 380.

so in November, when it formed the bulk of the plankton in the South-Western, the North-Western, the Channel Islands, and Great West Bay areas ; at the same time it appeared in small numbers in the Eastern area. On one occasion a single specimen of *C. tripos* with three antapical horns was observed. (Fig. 2.)

DINOPHYSIS TRIPOS *Gourret* (*Fig.* 3) (*Chart* 5) was found on all cruises at Station 2, and was restricted to the western portion of the Channel, being commonest in August. It was almost always

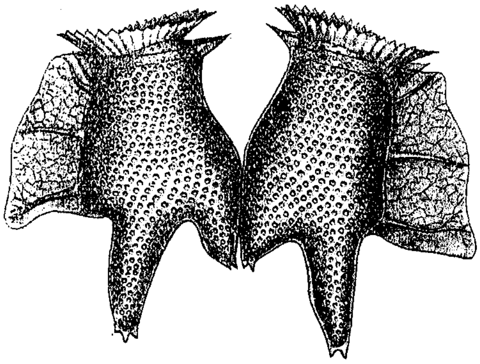

FIG. 3A, DINOPHYSIS TRIPOS *Gourret*. × 380.

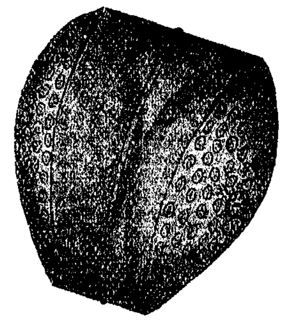

FIG. 3B, COSCINODISCUS GRANI, n. sp. × 380.

found in couples, attached together along the knee-shaped projections opposite the lateral wing membrane. It has been recorded by me in the *Bulletin* as *D. homunculus* var., and is so regarded by Stein (*Organisms*, Abt. 3, Taf. 21, Figs. 3 & 4).

DIPLOPSALIS LENTICULA *Bergh* was found at all seasons in the South-Western and North-Western areas, and occasionally in all the others ; it was however always commonest in the west. It reached its maximum in August.

PERIDINIUM DEPRESSUM *Bailey* (*Chart* 6) was the commonest species of *Peridinium* in the Channel in 1903. It was very often associated with *Ceratium tripos* (O. F. Müll.) Vanh., but it occasionally occurred at places where *C. tripos* was not observed. It was found on all the cruises in the North-Western and the South-Western areas, where it was commonest in August ; it went as far as Cape Barfleur and Great West Bay, but was not observed further to the east.

PERIDINIUM OCEANICUM (*Vanhöffen*) *Jörgensen* (*Chart* 6) was found chiefly in the South-Western area, where it was observed at some of the stations on each cruise. It only occurred in company of *P. depressum*, but was always rarer than it. Its range therefore resembles that of *P. depressum.*

HALOSPHAERA VIRIDIS *Schmitz* was also always commonest in the North-Western and South-Western areas, but was found in November as far east as Station 21 (the most westerly station of the Eastern area). It reached its maximum in November at Station 5. At Plymouth it was observed all the year round, excepting in June and July.

TOMOPTERIS HELGOLANDICA *Greef* (*Chart* 7) was never missing in the plankton of the South-Western area, and was frequently found in the Channel Islands and North-Western areas. It was found on one cruise even in the Central and Eastern areas. Usually only a few were taken at any station. The largest number observed in one haul was 156 from Station 5 in August, at 110 metres depth (14 metres above the bottom).

The hourly migrations of this animal were observed on July 1st and 2nd at Station 1.

During the hottest part of the day the bulk of the *Tomopteris* was found near the bottom at 70 metres, only very few being at 30 metres. Shortly before sunset single specimens were found at 10 metres and 35 metres, the majority being still at the bottom. At 10 p.m. they had reached the surface, being in all layers from the bottom upwards. They remained at the surface till 12.55 a.m. At 3.50 a.m. they had left the top-layers and retired to 10 metres and lower ; by 7 a.m. they had sunk still deeper, not being found above 30 metres. By mid-day on July 2nd most of them were again at 70 metres.

ANOMALOCERA PATTERSONI *R. Temp.* belongs chiefly to the South-Western area, having been observed there on all cruises except in February. It was also found at times in the North-Western and

Channel Islands areas, and on one occasion in the Eastern area. Its distribution in the Channel would therefore tend to prove that Gran is right in assuming that it is an oceanic form, although Cleve regards it as neritic. *A. Pattersoni* is usually found at the surface, very rarely descending to 10 metres. In August, however, a few specimens, whose good state of preservation would make it seem improbable that they were dead bodies which had sunk so far before they were caught, were found in a sample from 110 metres depth at Station 5. Wolfenden also mentions having taken one at 400 fathoms. (*Copepoda of the North Atlantic Sea and Faroe Channel*, Journal of the Marine Biological Association, Vol. VII., No. 1, p. 140.)

Calanus finmarchicus *Gunn.* (*Chart* 8) was found at all the stations. It was, however, always commoner in the western parts of the Channel than the eastern. It was commonest in November, when it predominated at Station 5. Most of the specimens of *Calanus finmarchicus* found in the Channel are the same as *Calanus helgolandicus* (Claus) of Sars. I agree with Wolfenden in considering that the differences between the two forms are not constant enough to justify their separation into two species (Wolfenden, *Notes on the Copepoda of the North Atlantic Sea and the Faroe Channel*, Journal of the Marine Biological Association, Vol. VII., No. 1, 1904, pp. 126 and 127).

Candacia pectinata *Brady* was always present in the plankton of the South-Western, the North-Western and the Channel Islands areas, and occasionally also in the Great West Bay and Central areas. It was usually taken together with *Centropages typicus* and *Metridia lucens.* Sars records this species as *Candacia armata* Boeck (in *Crustacea of Norway*, *Calanoidea*, p. 135). *Candacia pectinata* occurs at all depths in the Channel, from 150 metres to the surface, and is usually commoner in the lower layers.

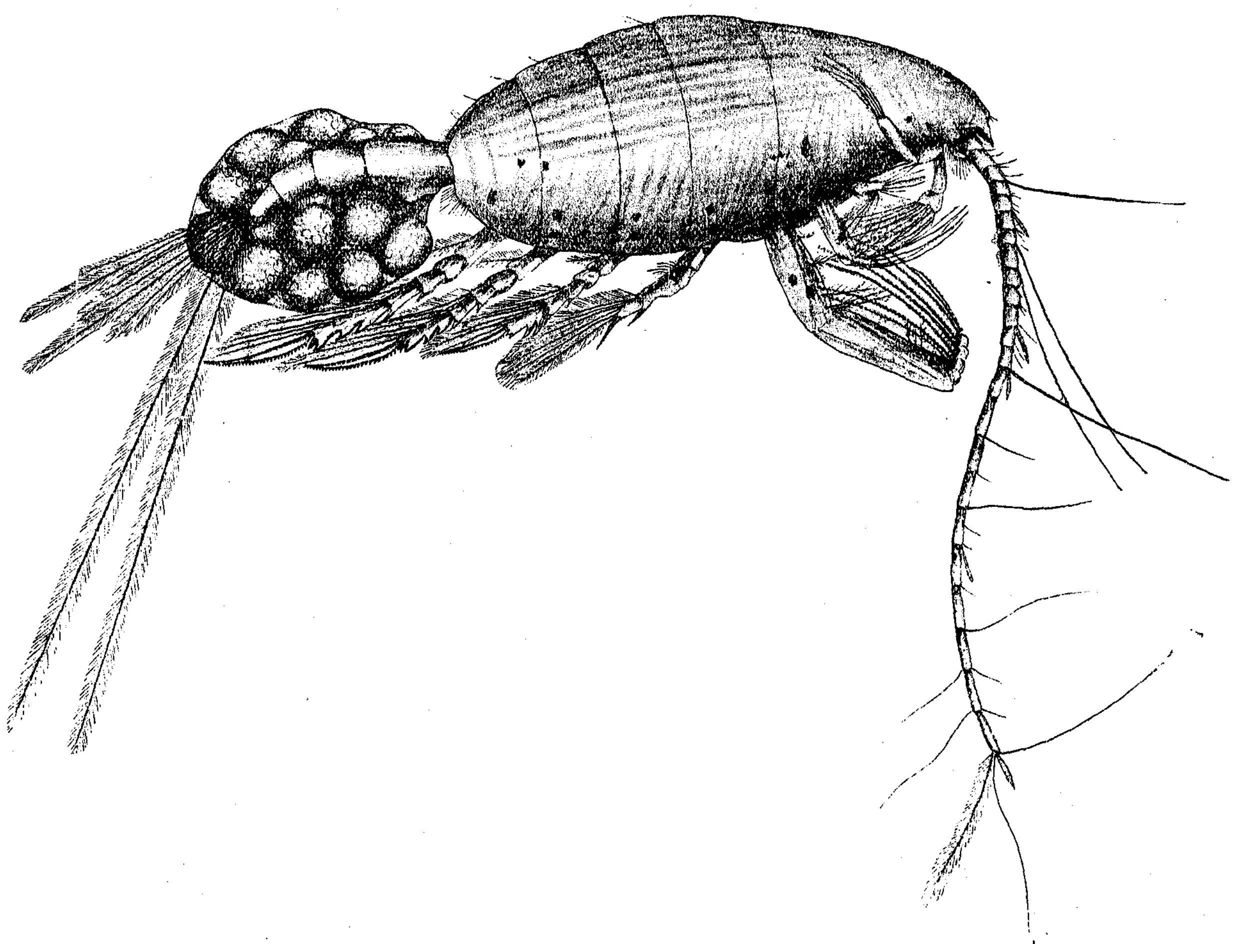

Fig. 4, Euchaeta hebes, *Giesbr.*, ♀ with eggs. × 30.

Centropages typicus *Kröyer* (*Chart* 9) was never absent from the plankton of the South-Western, the North-Western, the Great West Bay, and the Channel Islands areas. It was occasionally taken further East. Its range overlaps that of *Centropages hamatus*, which is chiefly found in the Central area. A line connecting Portland Bill and Alderney can be roughly said to be the boundary of the respective ranges of these two species in the Channel, *C. typicus* being found more to the west, *C. hamatus* more to the east of that line.

Corycaeus anglicus *Lubb.* was found to be distributed in nearly the same manner as *Centropages typicus*, being commoner in the western than the eastern portions of the Channel. This would point to its being oceanic and not neritic, as Cleve suggests.

Euchaeta hebes *Giesbr.* (*Figs.* 4, 5, 6, 7) (*Chart* 10) was always found in samples from the South-Western area, and occasionally in the North-Western area, appearing in the Bristol Channel, off Mount's Bay,

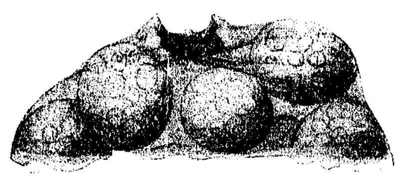

Fig. 5, Euchaeta hebes, *Giesbr.* Attachment of egg-cocoon to female. × 66.

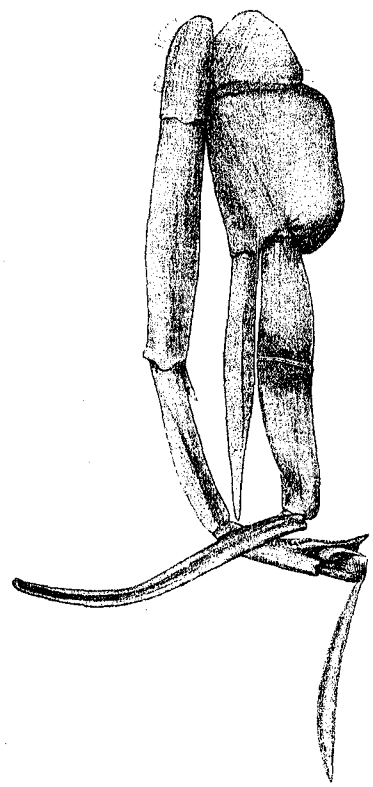

Fig. 6, Euchaeta hebes, *Giesbr.* 5th feet of male with spermatophore. × 66.

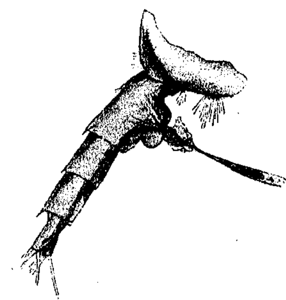

Fig. 7, Euchaeta hebes, *Giesbr.* Abdomen of female with spermatophore attached to the genital segment. × 30.

and off the Eddystone in November. It never went further east than 3° 37′ W. Its breeding season appears to be from August to November. During this time females were taken with spermatophores or with eggs attached to the projecting portions of their genital segments. Males were also observed carrying spermatophores upon their left fifth leg. Very few immature specimens were observed in August and November. In February most of the specimens taken were young stages, with only three pairs of thoracic legs. In May there were still very few adults, no males being observed. The males could not be distinguished before August, and were always rarer than the females. The exopodites of the fifth pair of legs of the males are both three jointed (*see Fig.* 6), the second articulation being less developed than the other two. I have not been able to find any records of *Euchaeta hebes* other than those given by Giesbrecht, who found his specimens in the Straits of Gibraltar and the Western Mediterranean. "Systematik und Faunistik der Pelagischen Copepoden des Golfes von Neapel," 1892, p. 246; "Copepoda, Gymnoplea" in "Das Thierreich," 1898, p. 39.

Metridia lucens *Boeck* (*Chart* 11) was always to be found in the South-Western and North-Western areas, occasionally in the Channel Islands area, once in the Central and once in the Great West

Bay areas. It is usually taken in company with *Centropages typicus*. During the daytime it is usually found in deep water, but it is almost always at the surface at night.

OITHONA PLUMIFERA *Baird* (*Chart* 12) was never missing in the South-Western area, although its appearance was not constant at any of the stations. It was also observed in the North-Western area. Its distribution somewhat resembles that of *Euchaeta hebes* Giesbr.

OITHONA SIMILIS *Giesbr.* (*Chart* 12) was found in the South-Western, the North-Western, the Channel Islands and the Great West Bay areas. It was only very rarely found in the Central area, and never in the Eastern area. Its range to the eastward overlaps that of *Oithona nana*, which is the *Oithona* found in the Central and Eastern areas, and which is found as far westwards as Station 5, where on two occasions single specimens were observed at 60 and 150 metres. Van Breemen ("Ueber das Vorkommen von *Oithona nana* Giesbr. in the North Sea," pp. 9 and 10) notes that *Oithona similis* does not occur off the Coast of Holland, but that the *Oithona* found there is *O. nana*. *O. similis* occurs again in the open sea in the North Sea.

PSEUDOCALANUS ELONGATUS *Boeck* (*Chart* 8) was found abundantly at all the stations. It was however only at stations in the two Western and the Channel Islands areas that it ever became so very common as to predominate in the plankton. It is also considered oceanic by Gran.

RHINCALANUS NASUTUS *Giesbr.* was observed at Station 5 in the South-Western area in August and November; it was present in very small numbers on both occasions.

DISTRIBUTION OF NERITIC SPECIES.

ASTERIONELLA GLACIALIS *Cleve*, was only found in the Central, the Great West Bay and the Channel Islands areas. In the first two it was taken on all the cruises, but was only occasionally observed in the last.

BACILLARIA PARADOXA (*Gmel.*) *Grun* was found in all parts of the Channel. It was never absent at any station in the Central and Great West Bay areas, except Station 11 in May, 14 and 20 in August, and Station 20 in November; it was frequently observed at all the stations of the Channel Islands area, but appeared only occasionally in the South-Western and North-Western areas.

BELLEROCHIA MALLEUS (*Brightwell*) *V. Heurck* was observed in February, August and November in the Central area. In February it was also recorded from the inner Ushant station; it has also been taken at Stations 10 and 21 in November.

BIDDULPHIA MOBILIENSIS *Bail.* was found in all the areas on each cruise. It was rarest in the South-Western area, and commonest in the Channel Islands, Great West Bay, and Central areas. It reached its maximum of abundance in February, when its range was also largest; during the summer it became rarer, and its range was smallest in August. In November it again became abundant, spreading nearly as far as in February.

CHAETOCERAS DANICUM *Cleve* (*Chart* 1) was seen in February, May, and November in the North-Western, the Great West Bay, the Channel Islands, and the Central areas. It was most often observed off Portland Bill, and was commonest in November. It is very euryhaline, being found in water of 35·49 salinity (Station 19 in February), and 34·93 (Station 12 in November).

CHAETOCERAS DIDYMUM (*Ehbg.*) *Cleve* was confined to the Channel Islands, the Great West Bay, the Central, and the Eastern areas. It was commonest in the Central area, and was taken regularly off Portland. It only appeared occasionally in the Channel Islands and Eastern areas.

COSCINODISCUS GRANI *Gough*, n. sp. (Fig. 38, p. 335), was found chiefly in February and May and again in November. It was not observed in August. Although it was commonest in the inner parts of the Channel it was seen in all the areas. This is a distinct species allied to *C. concinnus* whose range is nearly the same, but it can be distinguished from that species by its girdle-bands, which are broader on one side than on the other, thus giving the diatom a wedge-shaped appearance when seen from the side, and there are no intermediary bands as in *C. concinnus*. The girdle-bands of *C. concinnus* have parallel edges. The convexity of the valves of *C. Grani* seems not to be highest in the centre of the valve, but somewhat towards the side nearest the broadest portion of the girdle-valve. In the "Bulletin des Résultats acquis dans les Courses Périodiques" it has been recorded by me as *Coscinodiscus* nov. spec.

DITYLUM BRIGHTWELLI *West.* (*Chart* 2 *) was always present in the plankton taken on the cruises in the Central and Great West Bay areas. It was observed occasionally in all the other areas, being rarest in the South-Western and North-Western areas, where it was only seen in February (off Eddystone in May). It reached its maximum in November at Station 8.

GUINARDIA FLACCIDA *Pérag.* (*Chart* 2 *) has nearly the same range as *Ditylum Brightwelli*. In the South-Western area it was only observed twice, at Station 2 in August and at Station 5 in November. It was commoner in the North-Western area, being observed off Plymouth at all times of the year, except during January, March, and October. It occurred frequently in the Channel Island area, and was almost always present in samples from the Great West Bay and Central areas. It was not quite so common in the Eastern area. Its maximum was in May at Station 17.

RHIZOSOLENIA SETIGERA *Brightwell* was taken occasionally in all parts of the Channel; it was very rarely absent from any of the stations in the Central area, and was always common between Portland and St. Catharine's. Its maximum was in August, when it formed the bulk of the phytoplankton off Cape Barfleur (Station 12).

RHIZOSOLENIA SHRUBSOLEI *Cleve* was never absent from the plankton taken at the southern stations of the Central area, occurring occasionally in all other parts of the Channel. It was commonest in May off Cape La Hague and Cape Barfleur, where it formed together with *Rh. Stolterfothi* the bulk of the phytoplankton.

RHIZOSOLENIA STOLTERFOTHI *Pérag.* (*Chart* 3) was almost always found together with *Rhizosolenia Shrubsolei*, but was somewhat rarer in the western parts of the Channel. Its maximum was in May, when it formed dense masses at Stations 10, 11, and 12. It was often found, apparently in a flourishing condition, inside *Noctiluca miliaris*.

STREPTOTHECA TAMESIS *Cleve* was found in the plankton taken on each cruise in the Central and Great West Bay areas, and very often in the Channel Islands area. It was only seen occasionally in the North-Western, the South-Western, and Eastern areas. Where found it was always fairly abundant.

PHAEOCYSTIS GLOBOSA *Scherfel.* (*Chart* 5) was found in very dense masses in May in the Great West Bay area, off Eddystone and at Station 19. It was also seen in small numbers off Mount's Bay and St. Catharine's. *Ph. globosa* belongs to the periodic plankton; it has been recorded for the Channel off Plymouth by Garstang, in April and May, 1894 (Journal of the Marine Biological Association, 1893–95, Vol. III., p. 232), and by Cleve in 1899 ("Plankton of the North Sea, the English Channel, and the Skagerak in 1899." Stockholm, 1900. p. 7). This species was recorded by me in the Plankton-report for May as *Phaeocystis Poucheti* (Har.) Lagerheim, it having been determined from badly preserved material only. It was previously recorded from here as *Phaeocystis Poucheti* by Cleve, whose authority I followed.

NOCTILUCA MILIARIS, *Suriray* (*Chart* 6) was observed at Stations 18, 10, 16, 11, 12, 13, 14, being commonest at Station 12 in May.

TINTINNOPSIS CAMPANULA (*Ehbg.*) *Daday*, (*Chart* 7) was observed chiefly in the Central, the Great West Bay and the Eastern Areas, being taken on each occasion off St. Catharine's.

CENTROPAGES HAMATUS *Lillj.* (*Chart* 9) was seen in all sets of samples from St. Catharine's; it was commonest in the Eastern, the Central, and Great West Bay, and Channel Islands areas, but was also found on one occasion in the South-Western area (Station 2). (See also remarks on *Centropages typicus.*)

* In Chart 2 some of the signs indicating the abundance of these species are accidentally omitted. *Ditylum* was abundant in February at Stations 1, 2, 3, 8, 9, 10, and rare at Station 6. *Guinardia* was not observed in November at Station 22.

Euterpe acutifrons *Dana* (*Chart* 10) was found in all the areas, but was entirely absent from the outer Ushant station (Station 4) and from Station 5. It was commonest in the Central, the Channel Islands, and the Great West Bay areas, and was never absent from Stations 8, 10, 16, and 19. It is very common in Plymouth Sound.

Oithona nana *Giesbr.* (*Chart* 12) was found occasionally in all the areas, but was commonest in the Great West Bay, the Channel Islands, the Central, and the Eastern areas. In the last it is the only *Oithona* found. In November it was abundant off Ushant, Station 3. (*See* also remarks on *O. similis.*)

Parapontella brevicornis *Lubb.* (*Chart* 11) was only observed in the Channel Islands, the Great West Bay, the Central, and the Eastern areas. It was not observed in material taken on the February cruise; and was commonest in August. It was very rarely seen in November.

Temora longicornis *Müller* (*Chart* 8) was obtained at least once at every station, but still it can count as a decidedly neritic form; it was only at stations in the Central and Great West Bay areas that it was found on each cruise. Its maximum was in May, when it formed the bulk of the zooplankton at many stations, and it was found everywhere in the Channel. In winter it was somewhat rare and almost restricted to the Great West Bay and Central areas.

PROPORTION OF OCEANIC TO NERITIC SPECIES AT THE DIFFERENT STATIONS.

Method of Arriving at Proportions.

Now that the distribution of the principal oceanic and neritic species has been discussed, it will be of interest to study to what extent the composition of the plankton at each station is determined by the influence of the oceanic water, and to what extent by the more permanent local conditions, such as proximity to the shore, depth, and clearness of the water. This can best be done by calculating for each season the percentage of oceanic species present at each station and entering the result on a chart.

In working out the percentages of the oceanic and neritic species, I have not made any allowance for the relative abundance of the individuals of the species concerned. The number of individuals will depend on the rate of growth, the number of species on other factors.

In the same water the number of individuals of, say, any two species may one day be the same, next day be as one to two, next day as one to four. For example, *Ceratium fusus* can increase at the rate of 50 per cent. per diem, another species perhaps only at the rate of 20 per cent. Given a volume of water with 100 Ceratiums and 100 of the other species, on the first day they will be as 100 to 100, on the second day as 150 to 120, on the third day as 225 to 144, on the fourth day as 338 to 173; or in other words, on the fourth day *Ceratium* will be nearly twice as common as the other species. Although, therefore, the numerical composition of the plankton has altered, there need, nevertheless, in such a case have been no change whatever in the source from which the water and its plankton have been derived.

On Table 1 all species present at any station are marked by + (*oceanic*) × (*neritic*) or ı (*uncertain whether oceanic or neritic*), without reference to the relative abundance. It will appear from the table which species are assigned to the oceanic and which to the neritic series; I follow Gran and Cleve in all cases excepting where they differ between themselves; in such cases, which are few, I have judged by the distribution in the Channel, and sometimes decided to follow the one, sometimes the other.

I have purposely omitted all larvae from the lists; of course, the larvae of the sedentary animals might all be counted as neritic, but then there would still remain a large number of larvae which could not be placed under either group. Besides this, it does not seem to me to be possible to compare them with the other plankton organisms. I have also not attempted to class the species of the Coelenterata or of the Schizopoda as oceanic or neritic.

In Table A the percentage of oceanic forms present in the plankton taken on the four cruises at each station is recorded. For the sake of comparison the salinities of the water at the surface have also been given.

TABLE A.

TABLE SHOWING THE PERCENTAGE OF OCEANIC SPECIES AT THE STATIONS, AND THE SALINITIES AT THE SURFACE.

Area.	Station.	February.		May.		August.		November.		Remarks.
		Percentage of Oceanic Forms.	S. °/oo at Surface.	Percentage of Oceanic Forms.	S. °/oo at Surface.	Percentage of Oceanic Forms.	S. °/oo at Surface.	Percentage of Oceanic Forms.	S. °/oo at Surface.	
South-Western Area.	E 4	70	35·41	70	35·55 (at 5 m.)	80	35·25	80	35·41	
	5	65	35·39	65	35·30	65	35·14	80	35·22	The percentages are stated to the nearest multiple of 5.
	3	60	35·52	70	35·53	70	35·31	75	35·46	
	2	65	35·44	55	35·42	65	35·46	70	35·34	
North-Western Area.	6	60	35·41	60	35·25	—	—	65	35·24	No samples taken in August.
	7	55	35·41	50	35·44	65	35·37	70	35·34	
	1	55	35·35	60	35·44	80	35·32	70	35·34	
Channel Islands Area.	8	50	35·41	45	35·37	70	35·48	45	35·43	
	19	55	35·49	55	35·49	60	35·36	60	35·44	
	9	40	35·45	55	35·32	55	35·43	50	35·44	
	10	40	35·46	40	35·30	50	35·35	40	35·44	
Great West Bay Area.	20	40	35·25	45	35·30	45	35·35	50	35·29	
	18	40	35·26	35	35·27	45	35·32	50	35 32	
	17	45	35·42	50	35·34	45	35·35	45	35·39	
Central Area ...	16	35	35·15	30	35·07	20	35·25	45	35·12	
	11	35	35·48	35	35·37	35	35·26	45	35·43	
	15	25	35·39	30	35·06	30	35·24	40	35·14	
	14	35	35·23	15	34·81	25	34·89	30	34·77	
	13	30	35·23	30	35·07	20	35·17	30	35·29	
	12	35	35·28	30	34·94	25	34·97	30	34·93	
Eastern Area ...	21	—	—	(40,*	35·32	20	35·21	45	35·43	No samples taken in February.
	22	—	—	(60)*	35·42	30	35·20	45	35·36 (at 5 m.)	*These figures depend on too few species.

COMPARISON OF PERCENTAGES AND SALINITIES.

It will be seen from this table that the percentage of oceanic forms does not always change in the same way as the salinities. A higher salinity does not necessarily mean a higher percentage of oceanic forms, and a fall in the salinity does not necessitate an increase of the neritic elements in the plankton.

On the other hand, the plankton changes from very oceanic to very neritic from west to east. The highest percentage of oceanic forms is usually found at Station 4, and the lowest at Stations 13 or 14 (*see Charts* 13 to 16). In November there seems to be a small rise in the Eastern area, due to a fall in the number of neritic species; the figures for the Eastern area in May must be considered untrustworthy, as they rest on too few species (10 and 13 only).

On the whole, the percentage of oceanic forms in the South-Western and North-Western areas rose from February to November. In the Channel Islands area they rose from February to August, and fell again in November. In November a slight rise also seems to have taken place in the Great West Bay area, and at the most westerly stations of the Central area.

The rise in the proportion of oceanic forms in August and November must be attributed to the great increase of Peridinidae during those months.

That the rising and falling of the proportions is not alone due to a decrease in the number of oceanic organisms and an increase of neritic forms, will be seen on the following table:—

TABLE B.

TABLE SHOWING THE ACTUAL NUMBER OF OCEANIC AND NERITIC SPECIES OBSERVED AT EACH STATION, AND THE PERCENTAGE OF OCEANIC FORMS STATED TO THE NEAREST MULTIPLE OF 5.

Area.	Station.	February.			May.			August.			November.			Remarks
		Oceanic.	Neritic.	Oceanic %.	Oceanic.	Neritic.	Oceanic %.	Oceanic.	Neritic.	Oceanic %.	Oceanic.	Neritic.	Oceanic %.	
South-Western Area.	E 4	18	7	70	26	10	70	29	7	80	36	8	80	
	5	21	12	65	33	16	65	27	15	65	29	7	80	
	3	22	16	60	23	9	70	29	12	70	28	9	75	
	2	27	15	65	33	29	55	32	16	65	29	11	70	
North-Western Area.	6	19	12	60	17	12	60	—	—	—	27	16	65	No samples taken in August.
	7	20	15	55	18	19	50	33	19	65	26	12	70	
	1	19	16	55	36	26	60	21	6	80	28	13	70	
Channel Islands Area.	8	26	25	50	24	28	45	19	9	70	12	15	45	
	19	23	20	55	24	18	55	16	11	60	28	19	60	
	9	15	22	40	19	15	55	14	11	55	24	22	50	
	10	13	19	40	17	23	40	13	14	50	16	26	40	
Great West Bay Area.	20	21	30	40	26	29	45	19	22	45	19	19	50	
	18	24	36	40	25	49	35	19	24	45	24	26	50	
	17	23	26	45	24	22	50	13	17	45	18	22	45	
Central Area.	16	19	34	35	20	43	30	7	25	20	19	25	45	
	11	13	22	35	9	17	35	13	25	35	18	20	45	
	15	10	28	25	11	23	30	9	19	30	13	19	40	
	14	13	24	35	6	41	15	5	17	25	9	23	30	
	13	12	25	30	5	13	30	9	41	20	19	39	30	
	12	15	28	35	14	31	30	13	36	25	12	27	30	
Eastern Area.	21	—	—	—	4	6	40	8	28	20	16	18	45	No samples taken in February.
	22	—	—	—	8	5	60	10	21	30	16	19	45	

Fluctuations in the Number of Species, and their Influence on the Proportions.

It will be seen from Table B. that the changes in the proportion of oceanic and neritic species are sometimes due to a reduction in the number of oceanic without any increase in the number of neritic species ; or else to an increase of neritic species without any reduction in the number of oceanic ones, or, lastly, to a decrease of oceanic species together with an increase of neritic species, or *vice versâ*. Oceanic and neritic species can also both be reduced in numbers or increased without altering the proportions.

It is interesting to note that the number of oceanic species is not always largest at the outermost stations, but that there are often more oceanic species at stations well inside the mouth of the Channel (Land's End to Ushant line) than outside.

In connection with this, it is interesting to note that surface salinity charts for 1903 show that outside the western entrance to the Channel, about the longitude of the Scilly Isles, the water is always of lower salinity than further east, owing to a flow of comparatively fresh water in a southerly direction from the Irish Sea.

The neritic species are hardly more regular in their increase in numbers from west to east than the oceanic ones in their decrease ; even here the absolute number of neritic species is often very little less at the outer stations than at the inner ones ; for example, compare Stations 5 and 14 in August. Yet in spite of this apparent irregularity in the increase and decrease in the number of oceanic and neritic species from east to west, the proportion of oceanic to neritic species always falls from west to east.

It is further interesting to note that the proportion of oceanic and neritic species of diatoms or of Peridinidae at any station is not always similar to the proportion of all oceanic and neritic species at the same station. The proportion of oceanic and neritic diatoms at each station is usually lower than the general proportion, whilst that of the oceanic and neritic Peridinidae is almost always higher, because of the large number of oceanic species as compared to the two neritic ones. The animal organisms also vary in proportion in a different manner to the two groups mentioned.

I have attempted to base my proportions on as many different kinds of plankton species as possible, in the belief that better results are to be obtained by doing so than by considering only a portion, as the proportions obtained by different groups can be said to correct each other. The conditions causing these variations in the proportions seem to be very complex and difficult to grasp.

Influence of Sand and Mud in the Water.

It is worth noting that at almost all stations, where the neritic elements in the plankton were preponderant, there was sand, and in some cases mud also suspended in the water at the surface. The sand was always found in the samples from the Central, the Channel Islands, and the Great West Bay areas, excepting at Station 8 in August, 19 in May and November, and 18 and 20 in May (*see Charts* 13–16).

The stations where appreciable quantities of sand were taken all lie within or near the 35 fathom line. According to Hunt (*Evidence of the Skerries Shoal on the Wearing of fine Sands by Waves.* Transactions of the Devonshire Association for the Advancement of Science, Literature, and Art, 1887, Vol. XIX., p. 11 of reprint) the action of the waves is felt to about 40 fathoms.

CHANGES IN THE PLANKTON.

Changes due to the Positions of the Stations in the English Channel.

The conditions governing the character of the plankton are in some respects simpler in the Channel than elsewhere. The western end alone is in communication with the ocean, and all changes in the water carrying the plankton must come from there (or from the Straits of Dover). Although the plankton at our most westerly stations is no longer purely oceanic, the proportion of oceanic species is always highest there. The depth at the most westerly stations is only about 170 metres. Proceeding from west to east the water becomes shallower, and the coasts approach each other, thus favouring the development of a neritic plankton ; at the same time the water becomes more and more filled with suspended sand and mud.

It is to be expected that the character of the plankton will only change from oceanic to neritic if water containing oceanic plankton flows or lies for a sufficient length of time above a shallow bottom. A quick flowing current of ocean water would carry its oceanic plankton much further up Channel than a slow flowing current could do, since it probably takes some time for one series to replace the other. I agree with Gran that neritic plankton must be in some way dependent on the bottom, inasmuch as it appears always to originate over a shallow bottom. From its place of origin it may of course drift a long distance, and the stronger the current the further that drift will be.

If there were no currents whatever in the Channel, or if the currents were perfectly constant and very slow, we should expect that the proportion of oceanic to neritic species at each station would always remain the same: so that at the eastern stations we should always find neritic plankton, and at the western ones always oceanic. As it is the general results agree fairly closely with the condition just described excepting at a few stations, where changes occur.

Seasonal Changes in the Plankton.

The seasonal changes in the plankton were not very marked. As is shown by Table A and Charts 13–16, its oceanic or neritic character at the various stations did not undergo much alteration.

Within the biological groups, however, certain changes did take place. In February the phytoplankton consisted chiefly of diatoms, the various species of *Coscinodiscus* and of *Biddulphia* being especially common, alike in the oceanic and neritic waters, and *Streptotheca tamesis* and *Bacillaria paradoxa* in the neritic.

In May *Coscinodiscus* had become rarer, and no longer made the bulk of the plankton. In its place *Rhizosolenia* had cropped up—oceanic species like *Rh. alata*, *semispina*, and *robusta* in the west, neritic ones like *Rh. Shrubsolei*, *Stolterfothi*, and *setigera* in the east, and with these last *Guinardia flaccida*. It is interesting that the seasonal changes should occur chiefly in the same genera in the oceanic and neritic plankton. The different species of *Chaetoceras* had also begun to take a more prominent part in the composition of the plankton than they did in February, especially *Ch. decipiens*, which predominated off Mount's Bay, and was common on the whole of the English coast of the Channel. *Phaeocystis globosa* appeared also in May in dense masses at Stations 1, 19, 20, 18, and 17, and in smaller quantity at 7 and 14. The number of individuals must have been enormous, as it was equally common from the surface to the bottom. The flagellates clogged the meshes of the coarsest nets used, and large masses of them were visible in water samples taken with a bucket. Samples with *Phaeocystis* emitted a peculiar smell. Among the *Phaeocystis*, *Lauderia*, *Asterionella* and *Thalassiosira* were common. The *Peridinidae* were also beginning to become commoner than they were in February.

Long before August *Phaeocystis* had disappeared entirely, and in August *Chaetoceras decipiens* was no longer so common. The *Rhizosolenia* were still the most abundant diatoms, *Rh. alata* at the outer stations, *Rh. setigera* and in less degree *Rh. Stolterfothi* at the inner ones. *Guinardia flaccida* was again common, also in the inner part of the Channel, and *Chaetoceras didymum* was playing an important part in the Central area. *Ceratium tripos* and *fusus* had become very abundant in the west and had progressed up-Channel as far as Stations 14 and 15, getting rarer as they went east, accompanied part of the way by *Peridinium depressum*.

In November the *Peridinidae* were very much as in August, but *Ceratium tripos* had penetrated right through to Station 22. *Biddulphia mobiliensis* was again becoming very common in the inner parts of the Channel, as also the various species of *Coscinodiscus*. *Chaetoceras decipiens* had recovered from its minimum and was again abundant. In the Great West Bay *Chaetoceras danicum* was numerous, being in larger numbers than were observed at any other time of the year. In the west *Chaetoceras peruvianum* had become the most important diatom. *Guinardia flaccida* was still common in the Central area, and with it *Streptotheca tamesis* and *Bacillaria paradoxa*. The *Rhizosolenia* were rarer, only *Rh. alata* at the western stations being of any importance ; the neritic ones were present, but in very small numbers.

The copepods did not show any great seasonal changes, excepting that the single species were represented by a smaller number of individuals in February than during the rest of the year.

In Table 2 a record is given of samples of plankton taken off Plymouth at intervals of about ten days throughout the year. Owing to the varied conditions which are found close to shore, and to the fact that the samples were taken at different distances from the land, the information which they yield as to seasonal changes is not sufficiently reliable to render a detailed discussion profitable.

Table 4 gives records of plankton taken at Station 1 on May 2nd, 11th, and 14th.

Hourly Changes in the Plankton.

The changes in the distribution of the plankton during a single day were studied from a set of samples taken with a vertical net and with the horizontal closing net from noon July 1st to noon July 2nd. The samples were taken every 2 hours till midnight, and then every 3 hours. The horizontal closing net can only clearly demonstrate any vertical movement of a plankton organism, when the bulk of the individuals rises or sinks without leaving stragglers behind, which unfortunately seldom happens. It does happen, however, in the case of *Euchilota pilosella* (Forbes), *Obelia* sp., and *Tomopteris helgolandica* (Grey), which all three come to the surface only at night.

Euchilota pilosella was only observed during the day time at 30 metres ; at sunset it had disappeared from the 30-metre level and had not yet appeared at the 10 or 1-metre level. By 10 p.m. it was at the surface, where it remained until 1 a.m. It was not observed again until 10 a.m., when it was taken at 30 metres once more.

Obelia sp. was taken at mid-day, July 1st, chiefly at 70 metres (1 example at 10 metres) ; at 4 p.m. it was observed at 30 metres and 70 metres ; by 6.30 p.m. it had arrived at 10 metres, some remaining at 30 metres and 70 metres. At 8 p.m. it was swimming in all layers from the surface to the bottom. At 11 p.m. none were seen at 70 metres, and it was only at 30 metres, 10 metres, and surface. It was still at the surface at 1 a.m., but retired to 10 metres and lower by 3 a.m. From 6 a.m. onwards it was only observed at 30 metres or under, with the exception of a few that were at 10 metres at mid-day.

Specimens of *Tomopteris helgolandica* were observed at 70 metres and 30 metres at 2 p.m. and 4 p.m. By 6 p.m. they had risen to 10 metres; they had not changed their position at 8 p.m. At 10 p.m. they were swimming in all layers from the surface to the bottom. At 1 a.m. they were still at the surface; after 3 a.m. they were not observed at the surface any more, being at 10 metres and 30 metres at 3 a.m., at 30 metres and 70 metres from 6 a.m. to 10 a.m., and at 70 metres with stragglers at 10 metres by mid-day.

It is more difficult to state how the other species were distributed during the day. Most of them seem to have avoided the surface from mid-day until 4 p.m. on July 1st, as the sun was shining. *Calanus finmarchicus* (Gunn.) seems, however, to be influenced by light in just the reverse manner to the other copepods. During the hottest part of the day the surface water swarmed with *Calanus*; after sunset it dispersed through all layers. It did not collect at the surface again next day, probably owing to the difference in the weather, as the sky was overcast and a strong wind was blowing. The vertical distribution of the most important organisms will be seen on Table 3B.

Table 3A recording the vertical hauls will show that the composition of the plankton did not alter very much during the 24 hours.

It may here be mentioned that I have seen no evidence in any of the samples taken last year of plankton organisms occurring in small shoals, but the plankton seems to be very evenly distributed in the water.

Remarks on Cleve's Paper on Plymouth Plankton in 1899.

In Cleve's paper on the *Plankton of the North Sea, English Channel and Skagerak in* 1899 (Svensk. Vet. Akad. Hand. Bd. 34, No. 2, *Stockholm* 1900, *pp.* 7 *to* 9), there is a summary of the changes in plankton taken at Plymouth in 1899. In this paper Cleve states, for a number of forms, where he thinks that they have come from.

I cannot agree with his conclusions in most cases, especially when the origin of neritic species is concerned. For instance, he says of *Biddulphia mobiliensis*, *Halosphaera viridis*, *Coscinodiscus excentricus* and *C. concinnus*, that they "probably derive from the Northern Coasts of the British Isles and from Scotland [*sic*]."

It does not seem to me, however, to be necessary to suppose that they have been brought from such a long distance.

Biddulphia mobiliensis was observed on all four cruises in 1903; each time at seven of the nineteen stations worked, it was present at each season of the year, and it was taken frequently at many other stations. At Plymouth, it was observed right through the year, except in June and August. We can therefore, I think, fairly claim that *B. mobiliensis* is an indigenous species.

Halosphaera viridis also was observed on each cruise at five stations as well as less frequently at many others. Off Plymouth it was taken all the year round excepting in June and July, when it had either disappeared temporarily from the plankton, or was present in the form of unrecognisable spores.

Coscinodiscus concinnus was observed in the Channel during three out of the four cruises, but *C. excentricus* was observed on all the cruises at eight of the stations, as well as occasionally at many others. In 1903 it was taken off Plymouth all the year round except in June and July. It will be seen by this that it is by no means necessary to suppose that *Biddulphia mobiliensis*, *Halosphaera viridis*, *Coscinodiscus excentricus* and *Coscinodiscus concinnus* need be carried down from the Northern Coasts of the British Islands by a current, but that it is much simpler to suppose that they develop in the Channel itself or in the Western mouth of the Channel.

Phaeocystis appeared approximately at the same time in 1903 as in 1899. This flagellate also I take to be a native of the Channel itself, and think that it is highly improbable that it should have been brought down by a flow of arctic or boreal water. Cleve mentions *Pseudocalanus elongatus*, *Temora longicornis*, *Peridinium ovatum*, *P. pellucidum* (=*pallidum* ?), *Asterionella japonica* (=*glacialis*), *Chaetoceras debile* and *C. furcellatum*, *Leptocylindrus danicus*, *Sceletonema costatum*, *Thalassiosira gravida* and *T. Nordenskiöldi* as accompanying it. Of these forms, several are stationary in the Channel, among others *Pseudocalanus elongatus*, which was found each time at eighteen out of the nineteen stations which were worked on all four cruises, and off Plymouth all the year round in 1903. *Temora longicornis* was also found at all four seasons at the same five stations and occasionally at many others. Off Plymouth it was not observed in the beginning of January, 1903, nor in December, 1903. *Asterionella glacialis* was also found at two of the stations on each cruise, both these stations lying to the East of Plymouth. In my opinion it is much simpler to suppose that these forms at least had developed in the Channel, rather than that an arctic current had come so far south.

Cleve further states that the *Phaeocystis* in 1899 drove away or killed several forms, such as *Corycaeus anglicus*, *Euterpe acutifrons*, *Chaetoceras curvisetum* and *Ch. didymum*, *Evadne Nordmanni*, *Paracalanus parvus*, *Parapontella brevicornis*, *Chaetoceras Schütti* and *Ditylum Brightwelli*. My tables for Station 1, May, 1903 (Table 4), will show that of these, *Corycaeus anglicus*, *Euterpe acutifrons*, *Paracalanus parvus*, *Evadne Nordmanni*, *Chaetoceras curvisetum* and *Ditylum Brightwelli* were all found in 1903 among the dense masses of *Phaeocystis*.* He further states "these southern forms cannot thus be assumed to have come in 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." Of these forms many can again be proved to be permanent in the Channel, so for example *Corycaeus anglicus*, *Euterpe acutifrons*, *Chaetoceras curvisetum*, *didymum*, *Paracalanus parvus* and *Ditylum Brightwelli*, and could just as well have originated at the mouth of or in the Channel itself.

For the period between May 24th and July 19th Cleve says: "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 Period II.

" Among such we note—

" *Acartia Clausi*,	*Chaetoceros densus*,
" *Centropages typicus*,	*Guinardia flaccida*,
" *Oithona similis*,	*Rhizosolenia Shrubsolei*,
" *Paracalanus parvus*,	

" and besides the following new ones: *Isias clavipes*, *Ceratium fusus* and *Rhizosolenia Stolterfothi*.

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

* When examining material filled with *Phaeocystis*, it will be found both convenient and necessary to filter away the *Phaeocystis* in a filter-bag of finest bolting-silk before commencing to look through the sample.

I do not exactly know what Cleve means by the coast banks of the temperate Atlantic; but for the neritic species an origin from the west is not necessary, they are just as likely to have developed on the spot.

Guinardia flaccida was found off Plymouth in 1903 in February, April, May, June, July, August, September, November, and December, and, besides appearing very often at many of the stations, it was seen at four of the stations on each cruise. *Rhizosolenia Shrubsolei* was seen at Station 12 on each cruise, besides being very often found elsewhere on each cruise; off Plymouth it was taken in 1903 in April, May, June, and September. It can be fairly claimed as a native of the Channel. *Rh. Stolterfothi* was also seen at Plymouth in 1903 from April to September, and was taken on each cruise at Station 16, besides being found occasionally at many other stations. *Ceratium fusus* was in 1903 seen at Plymouth in February, May, June, July, August, September, and November. In the rest of the Channel it was found each time at five of the stations, besides being found very commonly elsewhere. I consider it to be native in the mouth of the Channel. *Acartia Clausi* was taken each time at nine of the stations, and very often at all the others. In 1903 it was absent from the Plymouth plankton in March alone. *Centropages typicus* was never absent in 1903 at six of the stations. Off Plymouth it was seen in January, February, April, May, June, July, August, September, October, and November. It also can be claimed as a native of the mouth of the Channel and of the neighbouring waters of the Atlantic. *Oithona similis* was also found on each cruise at eleven of the stations, besides being often found at many others. Off Plymouth in 1903 it was only in December that the species was not observed.

Paracalanus parvus was not observed off Plymouth in June only in 1903. In the rest of the Channel it was taken on each cruise at 15 of the stations, besides being taken very often at the other stations. For *Chaetoceras densum* and *Isias clavipes* I have not at present enough facts to go upon.

"From July to August, 1899, Cleve found as characteristic species *Rhizosolenia gracillima* (= *Rh. alata*). In its company arrived a number of southern neritic forms, among which some continued during the next period.

Such forms were :—

Corycaeus anglicus.
Euterpe acutifrons.
Cyttarocylis denticulatus.
Tintinnopsis campanula.
Chaetoceras curvisetus.
Ch. didymus.
Ch. Schütti.
Ditylum Brightwelli.
Rhizosolenia corpulenta."

Of these species I have shown that many belong to the Channel and do not want any further bringing there by currents or otherwise. Of the others, *Chaetoceras Schütti* was observed at various stations on each cruise, often on three cruises at the same stations. I consider *Rhizosolenia corpulenta*, however, to be nothing else than the auxospore of *Rhizosolenia alata*, of which *Rh. gracillima* is also only an attenuated form.

After August 24th Cleve again supposes a boreal flow to account for the reappearance of *Asterionella glacialis*, *Chaetoceras debile*, and *Sceletonema costatum*. The first two I have already shown to be native to the Channel. The last was only rarely taken in 1903, and I have not yet enough data concerning it. *Streptotheca tamesis* also appeared in 1899 along with these forms. In 1903 *Streptotheca* was taken on all four cruises at five of the stations, and very often at many more.

From September 10th to December 28th, 1889, a number of boreal forms again appeared, which, according to Cleve, "had probably been swept down from the northern British coasts; they were :—

"Boreal forms—

"*Fritillaria borealis.*	*Chaetoceras decipiens.*
"*Oncaea minuta.*	*Coscinodiscus concinnus.*
"*Peridinium depressum.*	„ *oculus iridis.*
" „ *ovatum.*	*Thalassiosira gravida.*

"Non-arctic forms—

"*Halosphaera viridis.*	*Guinardia flaccida.*
"*Biddulphia mobiliensis.*	*Lauderia annulata* (=*borealis*).
"*Eucampia zodiacus.*	*Stephanopyxis turgida.*"

Fritillaria seems everywhere to belong to the periodic plankton (*vide* Lohmann, *Appendicularien der Plankton Expedition*); its sudden appearance or disappearance need not necessarily be connected with circulation of the water. *Peridinium depressum* was found in 1903 each time at three of the stations, besides being often found at others. Off Plymouth it was seen in February, May, July, August, September, and November, 1903. As to *P. ovatum*, it was seen on each cruise at some station or other, and I consider it also to belong to the regular flora of the Channel. I have already shown that *Chaetoceras decipiens* is a native, and that *Coscinodiscus concinnus* is very often seen. *Coscinodiscus oculus iridis* seems to be a winter form in the Channel. Off Plymouth in 1903 it was seen from January to March and from September to December. On the cruises it was also commonest in February and November, but specimens were still observed in May and August. *Thalassiosira gravida* was taken on all four cruises in the Great West Bay, and often elsewhere. *Halosphaera viridis*, *Guinardia flaccida*, and *Biddulphia mobiliensis* I have already shown to be at home in the Channel. *Eucampia zodiacus* only appeared very rarely in 1903, so that my information is not sufficient to justify my making any definite statements about it. I have no data concerning *Stephanopyxis*.

I believe that I have shown by this review of Cleve's paper on the Plankton of Plymouth that the most satisfactory hypothesis to explain the phenomena observed is that the plankton organisms found in the Channel, and especially the neritic species, are essentially native to the Channel itself, and that it is not necessary to suppose that they are conveyed there by currents, either from the south or from the north.

The Methods and Instruments.

The plankton was taken in 1903 with the following nets :—

(1) Vertical net.
(2) Horizontal closing net.
(3, 4, 5, 6) Ordinary tow nets.

The vertical net is constructed after the pattern recommended by Hensen and Apstein; its dimensions are :—

Diameter of opening	25 cm.
„ top of filtering bag	50 cm.
„ end „	10 cm.
The length of the net is	80 cm.

The net used in February and May was made of bolting silk with 57 holes per 1 cm., the average length of a hole being 0·0091 cm. and the average breadth 0·00725 cm.; in August this was replaced by Swiss bolting-silk No. 20 with 70 holes per 1 cm., the average length of a hole being 0·00787 cm. and the average breadth 0·00677 cm.

In February the vertical net was let down until the lead-weight attached to it touched the bottom; it was then drawn up. Since February it was only let down to within 2 metres of the depth obtained by sounding.

The vertical net was always thoroughly washed before removing the material by letting it down several times into the water until the lower half of the net was immersed and then drawing it out again. The material taken was then filtered down to a smaller bulk in a small conical bag, made of silk of the same mesh as the net, and stored in wide-mouthed jars with screw-down covers. The jars were first half filled with water taken from the vertical net itself, the rest of the material being added by turning the filter-bag inside out and rinsing it thoroughly in the jar. The material was then preserved by adding enough strong formaline to make a 5 per cent. solution. The net was again washed out thoroughly so as to be clean and ready for use at the next station. The samples were then labelled, the same entry being made in the note-book and on the label. On the label were written:—Station, Net, Sample No., Depth, Time, Date, Remarks. In addition to these, entries were made in the note-book of the condition of the sea, the nature and depth of the bottom, and the name of the person responsible for taking and preserving the samples.

The closing net used was a Garstang horizontal closing net.* This is let down closed to the required depth. It is opened by a messenger, and after a given time (5 minutes in February, 10 minutes in May, August, and November) closed by a second messenger and then hauled up. The ship must be moving during the haul. When on board again the material in it was washed down into the end of the net by pouring a couple of buckets of water over the outside of the net. The cod-end of the net bag, to which no tin was attached, was then untied, turned inside out, and the material on it rinsed into a jar full of filtered water. The material was preserved and labelled in the same way as that taken by the vertical net. Some material was probably lost each time, but as the net was not expected to work quantitatively, this is not of great importance. After each haul the net was washed out by pouring water through it. The closing-net bag was made of silk with 38 holes per 1 cm., the average length of the holes being 0·0159 cm. and the average breadth 0·0157 cm.

The material taken by the tow-nets was treated in the same way as that taken by the vertical net, being first filtered down to a smaller bulk, then preserved and labelled. The material taken by the three coarser nets was preserved together in August and November. The tow-nets were made of silk with (*a*) nine holes per 1 cm., the average diameter being 0·09 cm., (*b*) with 18 holes per 1 cm., the average length of a hole being 0·056 cm., and the average breadth being 0·036 cm., (*c*) with 38 and (*d*) with 57 holes per 1 cm.; in August and November the silk with 57 per cm. was replaced by Swiss bolting-silk No. 20 with 70 holes per 1 cm.

* For a brief description of this net, see First Report of the Committee on the Plankton and Physical Conditions of the English Channel.—*British Assoc. Report for* 1899, *pp.* 445, 446.

The material taken on the cruises was examined at the Laboratory at Plymouth. It was first examined under low powers (24 × and 70 ×) in a flat cell (without cover-glass) with lines ruled on the glass as a guide to prevent any portion of the sample from being overlooked. The smaller diatoms were identified under a cover-glass with higher powers (330 × , &c.). Wherever possible the whole sample was looked through ; only in the case of very bulky samples was part alone examined.

The pipettes used to lift the material out of the bottles on to the cell were cleaned very carefully between every two samples.

The quantity in cubic centimetres of the samples was not measured owing to the great inaccuracy caused by the presence of sand and of organic *débris* in most of the samples. The samples were rebottled after examination with as little loss as possible. In the case of samples taken with coarse nets, but full of *Phaeocystis*, the *Phaeocystis* was removed before examination by washing in a very fine filter-bag (57 meshes to 1 cm.). It was thus possible to give a more complete list of species.

The full lists of the species recorded at each station were published quarterly in the "Bulletin des Résultats acquis pendant les Courses Périodiques publié par le Bureau du Conseil avec l'Assistance de M. Knudsen, Chargé du Service Hydrographique. Année 1902–1903 No. 4, Année No. 1—No. 2. Conseil Permanent International pour L'Exploration de la Mer. Copenhague." Table I. has been compiled chiefly from these lists.

The *Schizopoda* and *Amphipoda* were identified by the Rev. Dr. A. M. Norman, the *Coelenterata* mostly by Mr. E. T. Browne, and the *Foraminifera*, which chiefly belonged to bottom or arenaceous species, by Mr. R. H. Worth, to each of whom I here wish to express my best thanks, as also to Dr. E. J. Allen, who has been of great aid to me in writing this paper. I here also wish to express my thanks especially to Dr. H. H. Gran for the great help I received from him whilst attending the course on Planktology at Bergen in January and February, 1903, and to Mrs. L. E. Sexton for the drawings reproduced in Figures 1 to 7.

TABLE 1.

PLANKTON OF THE

SHOWING THE DISTRIBUTION OF EACH SPECIES IN FEBRUARY, MAY, AUGUST, AND NOVEMBER. The Signs without reference to relative abundance.

Plankton, 1903.	Area	South-Western Area.																North-Western Area.												Channel								
	Station	IV.				V.				III.				II.				VI.				VII.				I.				VIII.				XIX.				
	Month	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	
DIATOMACEAE.	Oceanic or Neritic.																																					
Actinocyclus Ehrenbergi, Ralfs...	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Actinoptychus undulatus, Ehb.	N.	..	..	..	..	×	..	..	..	×	..	..	..	×	×	..	..	×	×	..	×	..	..	..	..	×	..	..	..	..	×	..	..	×	..	..	..	2
Asterionella glacialis, Castr.	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	3
Bacillaria paradoxa, (Gmel.) Grun.	N.	..	..	..	..	..	..	..	..	..	..	..	..	×	×	..	..	..	..	..	..	×	..	..	..	×	..	..	..	×	×	..	×	×	..	..	..	4
Bellerochia malleus, (Brtw.) V. Heurck	N.	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Biddulphia alternans, (Bail.), V. Heurck	N.	..	..	..	..	×	×	..	..	×	..	..	..	×	..	..	..	×	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	×	..	..	×	6
— favus, (Ehbg) V. Heurck	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
— granulata, Roper	N.	×	..	..	..	×	×	×	×	×	..	..	..	..	..	×	..	×	..	..	..	×	..	..	×	..	×	..	..	..	..	..	..	×	..	..	..	8
— mobiliensis, Bail.	N.	×	×	..	..	×	×	×	×	×	..	..	..	×	×	..	..	×	×	..	..	×	×	×	×	×	×	..	..	×	×	..	×	×	×	..	×	9
— pulchella, Gray	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
Cerataulina Bergoni, Perag.	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	×	×	..	..	..	..	×	..	..	×	×	..	×	..	..	..	..	..	..	..	..	×	×	11
Chaetoceras atlanticum, Cleve	O.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	+	..	..	..	..	..	..	..	12
— boreale, Bail.	O.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	+	+	..	+	..	..	..	..	+	..	+	13
— breve, Schütt	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	14
— constrictum, Gran	N.	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15
— contortum, Schütt.	N.	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
— convolutum, Castr.	O.	..	+	..	+	+	..	..	..	+	..	..	..	+	+	..	..	+	..	..	..	+	..	..	..	..	+	..	..	+	..	..	..	..	+	..	..	17
— crinitum, Schütt	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
— criophilum, Castr.	O.	+	+	..	+	+	..	..	..	..	..	..	..	..	+	..	..	+	..	..	+	..	+	..	..	..	+	..	..	..	+	..	..	..	..	..	..	19
— curvisetum, Cleve	N.	..	×	..	×	..	×	..	..	..	..	..	..	..	×	..	..	..	..	..	×	..	×	..	..	×	×	..	..	..	×	..	×	×	×	..	..	20
— danicum, Cleve	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	×	21
— debile, Cleve	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	×	×	..	..	..	×	..	..	..	×	..	..	..	×	..	..	22
— decipiens, Cleve	N.	..	..	..	×	..	..	×	..	×	..	×	×	×	×	×	..	×	..	..	×	..	×	×	×	×	×	..	×	×	×	..	×	×	×	..	×	23
— densum, Cleve	O.	+	..	..	..	..	..	..	..	+	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	24
— diadema, (Ehbg.) Gran	N.	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
— didymum, (Ehbg.) Cleve	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	×	26
— laciniosum, Schütt	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	×	..	..	..	..	..	..	27
— peruvianum, Btw.	O.	+	+	+	+	..	+	+	+	+	..	..	+	+	..	..	..	+	..	..	..	+	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	28
— Schütti, Cleve	N.	..	..	..	×	..	..	..	×	..	..	..	..	..	×	..	×	..	..	..	×	..	..	..	×	×	..	..	..	..	..	..	..	..	..	..	×	29
— scolopendra, Cleve	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
— sociale, Lauder	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31
— teres, Cleve	N.	..	×	..	..	..	×	×	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	×	..	..	..	×	..	..	..	..	..	..	32
— Weissflogi, Schüt	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	33
— Wighami, Btw.	N.	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	34
— Willei, Gran	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	35
Corethron hystrix, Hensen	O.	..	+	+	+	+	..	..	+	+	..	+	+	..	+	..	+	+	+	..	..	+	..	+	..	..	..	..	+	+	+	..	..	+	..	..	+	36
Coscinodiscus concinnus, W. Sm.	N.	..	..	..	..	×	..	..	..	×	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	×	..	..	..	×	×	..	..	×	×	..	..	37
— Grani Gough	N.	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	×	..	..	..	×	..	..	×	..	..	..	..	38
— excentricus, Ehbg.	N.	×	×	×	..	×	×	×	..	×	..	×	..	×	×	..	×	×	×	..	×	×	×	..	×	×	..	×	×	×	×	×	..	×	×	×	×	39
— oculus iridis, Ehbg.	O.	+	..	..	..	+	..	..	..	+	..	..	+	+	..	..	+	+	+	..	..	+	..	..	+	+	..	..	..	..	+	..	+	+	..	..	..	40
— radiatus, Ehbg.	O.	+	..	+	..	+	+	..	..	+	+	+	+	+	+	+	+	+	+	..	+	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	41

TABLE 1.

ENGLISH CHANNEL IN 1903.

+ (Oceanic), × (Neritic), | (uncertain whether Neritic or Oceanic), denote the presence of the Species
All Larvae are omitted on this Table.

	Islands Area.								Great West Bay Area.												Central Area.																												Eastern Area.							
	IX.				X.				XX.				XVIII.				XVII.				XVI.				XI.				XV.				XIV.				XIII.				XII.				XXI.				XXII.			
	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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3	×	..	..	..	..	×	..	..	×	×	×	×	×	×	..	×	..	×	..	..	×	×	..	×	..	..	×	..	..	×	..	..	..	×	..	..	..	×	×	×	×	×	×	×	..	..	..	..	..	..	..	..
4	×	..	..	×	×	..	×	×	×	×	..	..	×	×	×	×	×	×	×	×	×	×	×	×	×	..	×	×	×	×	×	×	×	×	..	×	×	×	×	×	×	×	×	×	..	..	×	×	..	..	×	×
5	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	×	×	..	..	×	×	..	×	×	×	..	×	×	..	..	×	×	..	..	..	×	..	..	..	..
6	×	..	..	..	..	..	..	×	×	..	..	..	×	..	..	×	×	..	..	×	×	..	..	×	×	..	..	×	×	..	..	..	..	..	..	×	..	..	..	×	..	..	..	×	..	..	..	×	..	..	..	×
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..
8	×	..	×	..	..	..	..	..	×	..	..	..	..	×	..	..	×	..	×	..	×	..	..	..	..	..	..	..	..	..	..	..	..	×	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	×	..	..	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	..	×	×	×	..	×	×	×	..	×	×	×	..	×	×	×	×	×	..	×	..	×	..	×	×	×
10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	×	..	..	..	..	..	..	..	..	..	..	..
11	..	×	..	×	..	×	..	..	×	×	×	..	..	×	..	..	..	×	..	..	..	×	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	×	..	..	×	..	..	..	..	..	×
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	?	..	..	..	..	..	..	..	..	..	..	..
13	..	..	..	+	+	..	+	+	+	+	..	..	..	+	+	..	+	+	..	..	..	+	+	+	+	..	+	+	..	..	+	+	+	..	..	+	+	..	+	+	+	+	+	+	..	..	+	+	..	..	..	+
14	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	×	..	..	..	..	..	×	×	..	..	..	×	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	×	×	×	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	×	..	..	..	..	..	..	..	..	..	×	..
16	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	..	+	..	+	..	+	..	..	+	..	..	..	+	+	..	..	+	+	..	..	..	?	..	..	+	..	..	..	..	+	..	..	..	+	..	..	+	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	..	×	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..
19	..	..	..	..	+	..	..	..	..	+	..	..	..	+	..	..	..	+	..	..	+	+	..	..	+	..	..	..	..	+	..	..	..	+	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..
20	..	..	..	×	..	×	..	×	×	×	×	×	×	×	..	..	×	..	..	..	..	×	×	..	..	..	..	×	..	..	×	..	..	×	×	..	..	..	×	×	..	×	..	×	..	..	×	..	..	..	..	..
21	..	..	..	×	..	..	..	..	×	..	..	×	×	×	..	×	×	..	..	×	×	×	..	×	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	×	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	×	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	..	×	..	..	..	..	..	..	×	..	..	..	..	×	..	..	×	×	×	..	..	..	..	..	..	..	×
23	×	..	..	×	×	..	..	×	×	×	×	..	×	×	..	×	×	×	..	×	×	×	×	×	×	..	..	×	..	×	×	×	×	×	..	..	..	..	×	×	×	×	×	..	..	..	×	×	..	..	×	..
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	×	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	×	..	..	..	..	..	..	..	×	×	..	..	..	..	..	..	..	..	..
26	..	..	..	×	..	..	..	..	×	..	..	..	×	×	..	×	..	..	..	×	×	×	×	×	..	..	×	..	..	..	×	..	..	×	×	..	×	..	×	×	×	..	×	..	..	..	×	..	..	..	..	..
27	..	..	..	..	..	..	×	..	..	×	×	..	..	×	..	..	..	..	..	..	..	×	×	..	..	..	×	..	..	..	..	..	..	×	×	..	..	..	×	..	..	×	×	..	..	..	×	..	..	..	..	..
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	..	..	..	×	×	..	..	×	×	..	..	..	×	×	..	×	×	..	..	×	×	..	..	..	..	..	..	×	×	..	..	×	..	..	..	..	×	..	×	×	..	..	..	×	..	..	×	..	..	..	..	..
30	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	×	..	..	..	..	..	..	..	..	..	..
31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
32	..	..	..	..	..	×	..	..	×	..	..	..	×	×	..	..	×	..	..	..	×	×	..	..	..	..	..	..	×	..	..	..	..	×	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..
33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
34	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	×	..	..	..	..	..	..	..	..	..	..
35	..	..	..	..	..	..	..	..	..	..	×	×	×	×	..	×	..	..	×	×	×	×	..	×	×	..	..	..	..	..	..	×	..	×	..	..	..	..	×	×	..	..	..	..	..	..	×	×	..	..	..	..
36	+	..	..	..	..	..	..	..	+	+	..	..	+	+	..	..	+	+	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..
37	×	..	..	..	×	..	..	×	×	×	..	..	×	×	..	..	×	..	..	..	×	..	..	..	×	..	×	..	×	..	..	..	×	..	×	..	×	..	×	..	×	..	×	..	..	..	..	..	..	..	..	..
38	×	..	..	×	×	..	..	×	×	..	..	..	×	×	..	×	×	×	..	..	×	..	..	×	×	..	..	×	×	×	..	×	×	×	..	×	×	..	..	×	×	..	..	×	..	..	..	×	..	..	..	×
39	×	×	..	×	×	×	..	×	×	×	..	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	..	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	..	..	×	×	..	×	×	×
40	..	..	..	+	..	..	..	..	+	..	+	+	+	+	..	+	+	..	+	..	+	..	..	+	..	..	..	..	+	..	..	+	+	..	..	+	..	..	..	+	+	..	..	+	..	..	..	+	..	..	..	+
41	+	+	..	+	+	+	..	+	+	+	+	+	+	+	..	+	+	+	..	+	+	+	..	+	+	+	..	+	+	+	..	+	+	+	..	+	+	+	..	+	+	+	..	+	..	..	..	+	..	..	..	+

TABLE 1—*continued.*

Plankton, 1903.	Area	South-Western Area.																North-Western Area.												Channel								
	Station	IV.				V.				III.				II.				VI.				VII.				I.				VIII				XIX.				
	Month	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	
DIATOMACEAE—*cont.*	Oceanic or Neritic.																																					
Coscinosira polychorda, Gran	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	1
Ditylum Brightwellii, West	N.	..	..	..	..	..	..	..	..	×	..	..	..	×	..	..	..	×	..	..	..	..	..	..	..	×	×	..	..	×	×	..	×	×	..	..	×	2
Eucampia zodiacus, Ehbg.	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Eupodiscus argus, Ehbg.	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Fragillaria oceanica, Gran	O.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	5
Guinardia flaccida, Perag.	N.	..	..	..	..	..	..	..	×	..	..	..	..	..	..	×	..	..	..	..	×	..	..	×	×	×	×	..	×	..	..	×	×	..	..	×	..	6
Hyalodiscus stelliger, Bail.	N.	..	×	×	..	×	..	×	×	×	×	×	..	..	×	×	×	×	×	..	×	×	×	×	×	..	×	×	×	..	×	×	..	×	×	×	×	7
Lauderia borealis, Gran	N.	..	..	..	..	..	×	..	..	..	..	..	×	..	×	..	..	..	×	..	×	..	×	×	×	..	×	..	×	×	×	..	×	..	×	..	×	8
Leptocylindrus danicus, Cleve	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	9
Melosira Borreri, Grev.	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
Navicula Vanhöffeni, Gran	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
Nitzschia seriata, Cleve	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	×	..	..	×	×	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	12
Paralia sulcata, (Ehb.) Cleve	N.	×	..	..	..	×	×	×	×	×	×	×	×	×	×	×	×	×	..	..	×	×	×	×	..	×	×	×	×	×	×	×	..	×	..	..	×	13
Pleurosigma, sp.	N	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14
Rhizosolenia alata, Brtw.	O.	..	+	+	+	+	+	+	+	..	+	+	+	..	+	+	+	..	..	..	+	..	..	+	+	..	+	+	+	+	..	..	+	+	+	..	+	15
— robusta, Brtw.	O.	..	..	..	..	..	+	..	..	+	..	..	+	+	..	..	..	..	..	..	..	..	+	..	..	..	+	..	..	+	+	..	..	..	+	..	..	16
— semispina, Hensen	O.	+	+	..	+	+	+	+	..	+	+	..	..	..	+	..	..	..	+	..	+	..	+	+	..	+	+	..	..	+	+	..	..	..	+	..	..	17
— setigera, Brtw.	N.	×	..	×	×	×	..	×	..	×	..	×	×	×	..	×	..	..	..	..	..	..	..	..	..	..	..	×	..	×	..	..	..	..	..	..	..	18
— Shrubsolei, Cleve	N.	..	..	..	×	..	..	..	..	..	×	×	..	×	×	..	..	..	..	..	×	×	×	×	..	..	×	..	..	×	×	..	..	×	×	..	×	19
— Stolterfothi, Perag.	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	×	..	..	..	..	..	..	×	..	..	×	..	..	×	×	..	..	×	×	×	..	20
— styliformis, Brtw.	O.	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	+	..	..	..	..	..	..	21
Sceletonema costatum, (Grev.) Cleve	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22
Streptotheca tamesis, (Shr.) Cleve	N.	..	..	..	..	..	..	..	..	..	×	..	..	×	×	..	..	..	×	..	..	×	×	..	..	..	×	..	..	×	×	..	×	×	×	..	..	23
Thalassiosira gelatinosa, Hensen	N.	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	24
— gravida Cleve	N.	..	..	..	..	..	..	..	..	×	..	..	..	×	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	×	..	..	..	..	..	..	..	25
— Nordenskiöldi, Cleve	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	26
Thalassiothrix curvata, Castr.	N.	..	..	..	..	..	×	×	..	..	..	..	..	..	×	..	..	..	×	..	..	×	..	..	×	..	×	..	×	..	×	..	×	..	..	..	..	27
— Frauenfeldi, Green	N.	×	×	..	×	×	×	×	..	×	..	×	×	×	×	×	×	×	×	..	..	×	×	×	×	×	×	..	×	×	×	..	..	×	..	..	×	28
PERIDINIALES.																																						
Ceratium bucephalum, Cleve	O.	..	..	+	+	..	..	+	+	..	..	..	+	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
— furca, Clap. & Lachm.	O.	..	..	..	..	..	..	..	+	..	+	+	..	..	+	+	..	..	..	..	..	+	..	+	+	..	..	..	+	..	+	..	..	..	..	+	..	30
— fusus, (Ehbg.) Duj.	O.	..	..	+	+	+	+	+	+	..	+	+	..	+	+	+	+	..	+	..	+	..	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	31
— gibberum, Gourret	O.	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
— hexacantha, Gourret	O.	..	..	..	..	..	..	..	..	+	..	..	+	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33
— horridum, Cleve	O.	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	+	..	..	+	..	..	..	34
— lineatum, (Ehbg.) Cleve	O.	..	..	..	..	..	..	+	..	..	..	..	..	..	+	+	..	..	..	..	..	..	..	+	..	..	+	..	+	+	..	..	..	..	..	..	..	35
— longipes, (Bail.) Cleve	O.	..	..	..	+	..	+	+	+	..	..	..	+	+	+	+	+	..	..	..	..	..	+	+	+	+	×	+	+	..	+	..	..	+	..	+	+	36
— macroceras, Ehbg	O.	..	..	+	+	..	..	+	+	..	..	..	+	..	..	+	+	..	..	..	+	..	..	+	+	..	..	..	..	+	..	..	..	..	..	..	..	37
— tripos, (O. F. Müll.) Vanh.	O.	+	..	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	..	..	+	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	38
— sp.	?	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	39
Dinophysis acuminata, Clap. & Lach.	?	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	40
— acuta, Ehbg.	O.	..	..	..	..	..	..	+	..	..	..	+	..	..	..	+	..	..	..	..	..	..	..	+	..	..	..	+	..	..	..	..	..	..	..	..	..	41
— norvegica, Clap. & Lach.	O.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
— rotundata, Clap. & Lach.	O.	..	+	..	..	..	+	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43
— tripos, Gourret	O.	..	..	..	..	..	..	..	+	+	+	..	..	+	+	+	+	..	..	..	..	..	..	+	+	..	+	+	..	..	..	..	..	..	..	..	..	44

TABLE 1—*continued.*

	Island Areas.								Great West Bay Area.												Central Area.																								Eastern Area.						
	IX.				X.				XX.				XVIII.				XVII.				XVI.				XI.				XV.				XIV.				XIII.				XII.				XXI.				XXII.		
	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.
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3	..	..	..	..	..	..	..	..	..	×	..	..	×	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..
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5	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	..	..	×	×	..	×	×	×	×	×	×	×	×	×	×	..	..	×	×	×	×	×	×	..	×	×	×	×	×	×	×	×	×	×	×	..	×	..	×	×	×	×	×	×	..	..	×	..	..	..	..
7	..	×	×	×	..	×	..	×	×	×	..	×	×	×	×	×	×	×	×	×	×	×	×	..	..	×	×	..	×	×	×	×	×	..	..	×	×	..	×	×	×	×	×	..	..	..	×	..	..	..	×
8	×	..	..	×	×	..	..	×	×	×	..	×	×	×	..	..	×	..	..	×	×	×	..	..	×	..	..	×	×	..	..	..	..	×	..	×	..	..	..	×	×	..	..	..	..	..	..	×	..	..	..
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..
10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	×	..	..	..	×	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	×	..	..	..	×	..	..	..	..
13	×	×	..	..	×	×	×	×	×	×	..	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	..	..	×	×	×	×	×	×	×	×	×	×	×	×	..	..	×	×	..	×	×
14	..	..	..	..	..	×	..	..	..	×	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	×	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..
15	..	..	..	+	..	..	..	+	..	..	..	..	+	..	..	+	+	..	..	+	..	+	..	+	..	..	+	+	..	..	..	+	+	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	+	..	..	+	..	+	..	..	+	+	..	..	+	+	..	..	+	+	..	..	+	..	..	..	..	..	..	..	..	+	..	..	+	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	+	..	..	..	..	..	..	..	..	+	+	..	+	+	..	..	..	+	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..
18	×	..	..	..	..	..	×	..	×	×	×	..	×	×	×	×	..	..	×	×	×	×	×	×	×	..	×	×	×	×	×	×	×	×	×	×	×	..	×	×	×	×	×	×	..	..	×	..	..	..	×
19	..	×	..	×	×	×	..	×	..	×	..	..	×	×	×	..	×	×	..	×	×	×	..	..	×	×	..	..	×	..	..	..	×	×	..	..	..	..	×	×	×	×	×	×	..	..	×	..	..	..	..
20	..	×	..	..	..	×	..	×	×	×	×	..	×	×	×	..	..	×	..	×	×	×	×	×	..	×	×	×	..	..	..	..	..	..	..	..	..	..	×	×	..	×	×	×	..	×	×	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	×	..	..	..	×	×	..	..	..	..	..	..	×	×	..	..	..	..	..	..	×	×	..	×	×	×	..	×	×	×	..	×	×	..	..	..	..	..	..	..	..	..	..
23	×	×	..	×	×	×	..	×	..	×	×	×	×	×	×	×	×	×	..	×	×	×	..	×	×	×	×	×	×	×	×	×	×	×	..	×	×	×	×	×	×	×	×	×	..	..	..	×	..	..	..
24	..	..	..	..	..	..	..	..	×	..	..	..	×	×	..	..	×	..	..	..	×	..	..	..	×	..	..	..	×	..	..	..	×	×	..	..	×	..	..	×	×	..	..	×	..	..	..	..	..	..	..
25	..	..	..	..	..	..	..	..	..	×	..	×	×	×	×	×	..	..	..	..	..	×	..	×	..	..	..	..	×	×	..	..	..	×	..	×	×	..	..	×	×	..	×	×	..	..	..	..	..	..	×
26	×	..	..	..	×	..	..	..	×	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
27	×	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	×	..	×	..	×	..	..	..	..	..	×	..	..	..	..	..	×	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..
28	×	..	..	×	×	..	..	×	×	×	..	×	×	×	×	×	×	×	..	×	×	×	×	..	×	×	×	..	×	×	..	..	..	×	..	..	×	..	×	×	×	×	..	..	..	..	..	..	..	..	..
29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
30	..	..	..	..	..	..	+	..	..	..	+	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
31	..	+	+	+	+	+	+	..	+	+	+	+	+	..	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	..	+	+	+	..	..	+	..	..	..	+	..	+	+	+	..	..	+	+	..	..	..
32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
34	..	+	..	..	..	+	..	..	+	..	..	..	+	+	..	..	+	..	..	..	+	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	+	..	..	..	+	..
35	..	+	..	+	..	..	..	+	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..
36	..	..	..	+	..	..	..	..	+	+	+	+	+	+	+	+	+	+	+	+	+	..	..	+	..	..	..	+	+	..	+	+	+	..	..	..	+	..	..	+	..	..	..	..	..	..	+	+	..	..	+
37	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
38	..	..	..	+	..	..	..	+	+	..	+	+	+	..	+	+	+	+	+	+	+	..	+	+	..	..	..	+	..	..	+	+	..	..	+	..	..	..	..	+	..	..	..	+	..	..	..	+	..	..	..
39	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
40	..	..	'	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
41	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
42	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	+	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

TABLE 1—*continued.*

Plankton, 1903.	Area	South-Western Area.																North-Western Area.												Channel								
	Station	IV.				V.				III.				II.				VI.				VII.				I.				VIII.				XIX.				
	Month	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	
	Oceanic or Neritic.																																					
PERIDINIALES—*cont.*																																						
Diplopsalis lenticula, Bergh	O.	..	..	+	..	..	..	+	+	+	+	+	..	..	+	+	+	..	..	..	..	..	..	+	+	..	+	+	+	..	..	..	+	..	+	+	+	1
Gonyaulax spinifera, (Cl. & L.) Dies.	N.	..	..	..	..	..	×	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	2
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Peridinium conicum, Gran	O.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	+	..	..	..	..	..	..	+	..	..	..	4
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— depressum, Bail.	O.	..	..	+	+	+	+	+	+	..	..	+	..	+	..	+	+	..	..	..	+	..	..	+	+	+	+	+	+	..	..	+	..	..	+	..	+	6
— divergens, Ehbg.	O.	..	..	..	+	..	..	..	..	..	..	..	+	..	..	+	+	..	..	..	+	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	+	7
— globulus, Stein	O.	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	8
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— ovatum, (Pouch.) Schütt	O.	..	+	..	..	..	..	..	..	..	+	..	..	..	+	..	..	..	+	..	..	..	..	..	..	..	+	..	..	..	+	+	..	..	..	..	..	10
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— pentagonum, Gran	O.	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
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CHLOROPHYCEAE.																																						
Halosphaera viridis, Schmitz	O.	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	..	+	16
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* Mostly identified by Mr. E. T. Browne.

TABLE 1—*continued.*

	Islands Area.								Great West Bay Area.												Central Area.																												Eastern Area					
	IX.				X.				XX.				XVIII.				XVII.				XVI.				XI.				XV.				XIV.				XIII.				XII.				XXI.				X[illegible]	
	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.
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Plankton, 1903.	Oceanic or Neritic.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	
Area		South-Western Area.																North-Western Area.												Channel								
Station		IV.				V.				III.				II.				VI.				VII.				I.				VIII.				XIX.				
COELENTERATA—*cont.*																																						
Amphinema sp.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Corymorpha nutans, Sars	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Cupulita Sarsi, Haeckel	..	..	..	ǀ	..	..	..	?	..	..	..	ǀ	..	..	..	ǀ	ǀ	..	..	..	ǀ	..	..	ǀ	ǀ	..	..	..	ǀ	..	..	..	..	..	..	..	ǀ	3
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TABLE 1—*continued.*

Plankton, 1903.	Area	South-Western Area.																North-Western Area.												Channel								
	Station	IV.				V.				III.				II.				VI.				VII.				I.				VIII.				XIX.				
	Month	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	
COPEPODA—*cont.*	Oceanic or Neritic.																																					
›nstrilla, sp.	N.	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
thona nana, Giesbr.	N.	..	..	..	..	..	..	×	×	..	..	..	×	..	..	..	×	..	..	..	..	..	..	..	..	..	..	..	×	..	×	×	..	..	..	×	..	2
— plumifera, Baird	O.	+	+	..	+	+	+	..	..	..	+	..	..	..	+	+	..	..	+	..	+	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	3
— similis, Claus	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	4
ıcaea conifera, Giesbr.	O.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
— mediterranea, Claus	O.	+	+	+	+	..	+	..	+	+	+	+	+	+	+	..	+	+	..	..	+	+	+	+	..	+	+	..	+	+	+	+	..	..	+	+	+	6
— venusta, Giesbr.	O.	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	7
ıracalanus parvus, Claus	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	8
ırapontella brevicornis, Lubb.	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	..	..	..	..	..	×	..	..	..	..	..	9
›eudocalanus elongatus, Boeck	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10
ıincalanus nasutus, Giesbr.	O.	..	..	+	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
›mora longicornis, O. F. Müll.	N.	..	×	..	..	..	×	..	..	×	×	×	..	..	×	×	×	..	×	..	×	..	×	×	×	×	×	..	..	..	×	×	×	×	×	×	..	12
CRUSTACEA CETERA.*																																						
vadne Nordmanni, Loven	N.	..	..	..	×	..	..	..	..	..	..	..	..	..	×	×	..	..	..	..	..	..	..	×	..	..	×	..	..	..	..	..	..	..	..	..	..	13
›don intermedius, Lillj.	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	×	×	..	..	..	..	..	..	..	×	..	..	×	..	..	..	..	..	..	..	×	..	..	14
— Leuckarti, Sars	N.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	×	..	..	15
ıthemisto compressa, Goes	O.	..	+	+	+	..	+	+	+	..	+	+	+	..	..	+	+	+	..	..	+	..	..	..	+	..	..	..	+	+	..	+	..	..	..	..	+	16
yperia galba, Mont.	O.	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17
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ırydice inermis, Hansen	..	..	..	ı	..	..	..	ı	..	..	..	..	ı	..	..	ı	ı	..	..	..	..	..	..	..	..	..	..	..	..	..	..	ı	..	..	..	..	..	19
— truncata, Norman	..	..	..	..	ı	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	ı	20
hnopus spinicornis Boeck	..	..	..	..	..	..	..	..	..	ı	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	ı	21
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— norvegica, G. O. Sars	..	..	..	..	ı	..	..	..	..	..	..	..	ı	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31
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ikopleura dioica, Fol	N.	×	×	×	×	×	×	×	..	×	×	..	..	×	×	..	×	..	×	..	×	..	×	×	..	×	×	×	×	×	×	×	×	×	×	×	×	33
ılpa mucronata, Forsk.	O.	..	..	+	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	34
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* Mostly identified by the Rev. Dr. A. M. Norman.

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	Island Area.								Great West Bay Area.												Central Area.																								Eastern Area.							
	IX.				X.				XX.				XVIII.				XVII.				XVI.				XI.				XV.				XIV.				XIII.				XII.				XXI.				XXII.			
	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.	February.	May.	August.	November.
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11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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TABLE 2.

PLANKTON TAKEN OFF

The Signs used are: rr, very rare; r, rare;

Plankton, 1903.	Month	January.						February.			March.			April.			
	Date	16th.	20th.	21st.	22nd.	24th.	29th.	5th.	5th.	18th.	12th.	23rd.	31st.	5th.	21st.	30th.	
	True Bearings	¼ mile N.E., Breakwater.	2 miles S.E., Breakwater.	1¼ miles S.W., Breakwater.	1¼ miles S.W., Breakwater.	¼ mile N.E., Breakwater.	¼ mile N.E., Breakwater.	10 miles S.W. ½ S., Eddystone.	¼ mile N.E., Breakwater.	1¼ miles S.W., Breakwater.	Off Eddystone.	2 miles S., Breakwater.	Off Eddystone.	5 miles S., Breakwater.	Off Eddystone.	Off Eddystone.	
	Taken Inside or Outside Breakwater.	Inside.	Outside.	Outside.	Outside.	Inside.	Inside.	Outside.	Inside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	
DIATOMACEAE.																	
Actinoptychus undulatus, Ehbg.		..	..	..	..	..	..	+	..	rr	..	rr	+	..	..	..	1
Asterionella glacialis, Castr.		..	..	..	..	..	..	..	..	..	..	..	+	..	..	+	2
Bacillaria paradoxa, (Gmel.) Grun.		c	+	+	..	c	..	..	c	c	..	..	+	..	..	r	3
Bellerochia malleus (Btw) V. Heurck		..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	4
Biddulphia alternans, (Bail.) V. Heurck		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
— favus, (Ehbg.) V. Heurck		..	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	6
— granulata, Roper		..	rr	r	..	+	..	..	+	r	..	..	..	..	r	..	7
— mobiliensis, Bail.		c	+	+	..	+	..	c	c	c	+	..	+	+	..	r	8
Cerataulina Bergoni, Perag.		..	..	..	..	..	..	..	..	..	..	..	..	..	..	r	9
Chaetoceras boreale, Bail.		..	..	..	..	..	..	..	..	..	..	..	..	..	+	rr	10
— breve, Schütt		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
— constrictum, Gran		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
— convolutum, Castr.		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
— curvisetum, Cleve		..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	14
— danicum, Cleve		..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	15
— decipiens, Cleve		r	..	r	..	..	..	+	..	r	..	..	..	+	+	..	16
— laciniosum. Schütt		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17
— Schütti, Cleve		r	..	r	..	..	..	+	..	r	..	..	..	..	..	..	18
— Scolopendra, Cleve		..	..	..	..	..	..	..	..	..	..	..	..	..	..	r	19
— teres, Cleve		..	..	..	..	..	..	r	..	..	..	..	..	..	..	rr	20
— Willei, Gran		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21
Corethron hystrix, Hensen		..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	22
Coscinodiscus concinnus, W. Sm.		..	..	..	..	..	..	+	c	c	..	..	..	..	..	..	23
— Grani, Gough		..	..	..	..	..	..	c	..	..	..	..	..	..	..	..	24
— excentricus, Ehbg.		r	..	..	..	..	..	c	..	rr	..	r	+	+	..	..	25
— oculus iridis, Ehbg.		c	c	+	..	c	..	c	c	c	..	+	..	..	..	..	26
— radiatus, Ehbg.		+	..	..	..	r	..	+	r	r	+	+	..	r	..	..	27
Coscinosira polychorda, Gran		..	..	..	..	..	..	..	..	..	..	..	c	..	..	..	28
Ditylum Brightwelli, Ehbg.		..	..	..	..	..	..	+	..	..	+	..	..	..	..	..	29
Eucampia zodiacus, Ehbg.		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
Eupodiscus argus, Ehbg		..	..	..	..	..	..	..	..	..	..	..	..	..	..	r	31
Guinardia flaccida, Castr.		..	..	..	..	..	..	rr	..	rr	..	..	..	rr	..	+	32
Hyalodiscus stelliger, Bail.		..	..	..	..	..	..	..	..	..	+	+	..	+	..	..	33
Isthmia sp.		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	34
Lauderia borealis, Gran		..	..	..	..	..	..	..	..	..	..	..	+	..	c	+	35
Leptocylindrus danicus, Cleve		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36
Melosira sp.		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
Paralia sulcata (Ehbg.) Cleve		+	..	r	..	r	..	r	..	r	r	..	..	..	..	..	38
Rhizosolenia alata, Btw.		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	39

TABLE 2.

PLYMOUTH IN 1903.

+, abundant ; c, common ; cc, very common.

	May.				June.			July.			August.			September.			October.			November.				December.		
	2nd.	11th.	14th.	20th.	4th.	15th.	22nd.	1st.	15th.	20th.	8th.	12th.	19th.	8th.	14th.	23rd.	1st.	21st.	23rd.	3rd.	4th.	18th.	25th.	2nd.	15th.	21st.
	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	Off Eddystone.	2 miles S.E., Breakwater.	Rame, N.W. by N.; Breakwater, N. ¾ E.	1½ miles S., Breakwater.	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	¼ mile N.E., Breakwater.	10 miles S.W. ¼ S., Eddystone.	2 miles S., Breakwater.	Off Eddystone.	Off Rame Head.	Off Eddystone.	3 miles S., Breakwater.	1½ miles S., Breakwater.	¼ mile N.E., Breakwater.	¼ mile N.E., Breakwater.	10 miles S.W. ¼ S., Eddystone.	¼ mile N.E., Breakwater.	⅔ mile N.E., Breakwater.	⅔ mile N.E., Breakwater.	⅔ mile N.E., Breakwater.	⅔ mile N.E., Breakwater.	⅔ mile N.E., Breakwater.
	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Inside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Inside.	Inside.	Outside.	Inside.	Inside.	Inside.	Inside.	Inside.	Inside.
1	..	r	rr	..	..	..	..	rr	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..
2	..	..	..	cc	..	..	..	..	..	r	..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	r	..	..	..	..	..	..	r	..	..	..
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	..	..	..	..	..	..	..	..	..	..	..	..	r	..	..	..	r	..	..	..	..	..	..	..	..	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	rr	..	..	..	..	..	..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..
8	+	rr	rr	..	..	..	..	rr	..	..	..	..	..	..	r	+	c	..	..	..	r	+	+	..	..	r
9	rr	..	+	+	+	r	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	c	c	+	r	r	..	..	r	..	..	..	+	+	+	+	c	c	+	+	..	..	..	+	+	..	..
11	+	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..
13	+	r	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	c	c	c	r	..	..	..	..	..	r	..	..	..	..	..	..	r	..	..	..	r	..	..	..	..	..
15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	+	r	r	..	..	..	..	..	..	..	..	..	..	r	+	c	..	..	..	c	..	..	..	..	..	..
17	..	rr	..	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..
18	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	r	r	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	r	..	r	..	c	c	..	c	c	+	+	..	..
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	..	+	..	..	..	..	..	..	rr	..	+	..	..	r	..	r	..	..	..	r	..	c	..	r	r	r
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	+	+	..	+	c	c	c	..	r
27	+	..	rr	..	..	..	..	r	..	..	+	..	..	..	..	+	..	..	..	r	..	+	r	+	+	
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	rr	..	..	..	..	..	..	..	..	..	..	r	..	..	..	r	c	..	...	..	..	..	..	..	..	..
30	..	..	r	..	..	..	..	r	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
32	r	r	+	+	c	+	+	c	c	+	..	..	r	+	c	c	..	..	..	+	c	c	+	...	+	..
33	+	r	..	+	+	..	..	rr	..	r	+	r	+	+	c	c	..	..	..	+	+	+	r	+	+	+
34	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..
35	+	+	+	..	..	..	..	..	..	..	..	..	..	..	..	r	..	..	..	+	r	+	..	r	..	..
36	..	..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	r	+
38	r	rr	rr	..	..	..	..	r	..	..	+	..	+	..	..	..	..	..	..	r	r	+	+	r	+	r
39	+	+	+	..	..	..	..	r	r	..	+	..	..	..	c	c	..	+	..	c	r	+	..	..	..	..

TABLE 2—*continued.*

Plankton, 1903.																
Month	January.						February.			March.			April.			
Date	16th.	20th.	21st.	22nd.	24th.	29th.	5th.	5th.	18th.	12th.	23rd.	31st.	5th.	21st.	30th.	
True Bearings	¼ mile N.E., Breakwater.	2 miles S.E., Breakwater.	1¼ miles S.W., Breakwater.	1¼ miles S.W., Breakwater	¼ mile N.E., Breakwater.	¼ mile N.E., Breakwater.	10 miles S.W. ¼ S. Eddystone	¼ mile N.E., Breakwater.	1¼ miles S.W., Breakwater.	Off Eddystone.	2 miles S., Breakwater.	Off Eddystone.	5 miles S., Breakwater.	Off Eddystone.	Off Eddystone.	
Taken Inside or Outside Breakwater.	Inside.	Outside.	Outside.	Outside.	Inside.	Inside.	Outside.	Inside.	Outside.	Outside.	Outside	Outside.	Outside.	Outside.	Outside.	
DIATOMACEAE—*cont.*																
Rhizosolenia delicatula, Cleve	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
— robusta, Btw.	r	..	r	..	rr	..	..	..	r	..	..	..	..	..	..	2
— semispina, Hensen	..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	3
— setigera, Btw.	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	+	4
— Shrubsolei, Cleve	..	..	..	..	..	..	..	..	..	..	..	..	..	r	r	5
— Stolterfothi, Perag.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
— styliformis, Btw.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
Skeletonema costatum, (Grev.) Cleve	..	..	..	..	..	..	..	..	..	..	rr	c	..	..	..	8
Streptotheca tamesis, (Shr.) Cleve	..	..	..	..	..	..	..	..	..	rr	+	+	..	r	rr	9
Thalassiosira gravida, Cleve	..	..	..	..	..	..	..	..	..	..	..	..	+	..	+	10
Thalassiothrix curvata, Castr.	..	..	..	..	..	..	..	..	..	+	..	c	+	..	..	11
— Frauenfeldi, Gran	..	..	..	..	..	..	r	..	..	r	..	c	+	..	..	12
PERIDINIALES.																
Ceratium furca, Clap. & Lachm.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
— fusus, (Ehb.) Duj.	..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	14
— horridum, Cleve	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15
Ceratium lineatum, (Ehb.) Cleve	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
— longipes (Bail.) Cleve	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	17
— macroceras, Ehbg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
— tripos, (O. F. Müller) Vanh.	rr	r	..	..	..	..	r	..	rr	..	..	..	..	..	..	19
Dinophysis acuta, Ehbg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20
— acuminata, Clap. & Lachm.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21
— norvegica, Clap. & Lachm.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22
— ovum, Schütt	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23
— rotundata, Clap. & Lachm.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
— tripos, Gourret	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
Diplopsalis lenticula, Bergh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26
Gonyaulax spinifera, (Clap. & Lachm.) Dies.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	27
Peridinium conicum, Gran	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
— depressum, Bail.	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	29
— divergens, Ehbg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
— globulus, Stein	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31
— oceanicum, (Vanh.) Jörg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	rr	32
— ovatum, (Pouch.) Schütt	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33
— pallidum, Östf.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	rr	34
— pentagonum, Gran	..	..	..	..	..	..	..	..	..	..	..	..	r	..	..	35
— Steini, Jörg.	..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	36
Prorocentrum micans, Ehbg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	rr	37
CHLOROPHYCEAE.																
Halosphaera viridis, Schmitz	+	..	..	..	+	..	+	r	..	+	..	..	..	c	+	38
Trochiscia Clevei, Lemm.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	39
FLAGELLATES.																
Phaeocystis globosa, Scherffel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	cc	40

TABLE 2—*continued.*

	May.				June.			July.			August.			September.			October.			November.				December.		
	2nd.	11th.	14th.	20th.	4th.	15th.	22nd.	1st.	15th.	20th.	8th.	12th.	19th.	8th.	14th.	23rd.	1st.	21st.	23rd.	3rd.	4th.	18th.	25th.	2nd.	15th.	21st.
	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	Off Eddystone.	2 miles S.E., Breakwater.	Rame, N.W. by N.; Breakwater, N. ½ E.	1½ miles S., Breakwater.	10 miles S.W. ½ S., Eddystone.	10 miles S.W. ½ S., Eddystone.	¼ mile N.E., Breakwater.	10 miles S.W. ½ S., Eddystone.	2 miles S., Breakwater.	Off Eddystone.	Off Rame Head.	Off Eddystone.	3 miles S., Breakwater.	1½ miles S., Breakwater.	¼ mile N.E., Breakwater.	¼ mile N.E., Breakwater.	10 miles S.W. ½ S., Eddystone.	¼ mile N.E., Breakwater.	¾ mile N.E., Breakwater.	¾ mile N.E., Breakwater.	¾ mile N.E., Breakwater.	¾ mile N.E., Breakwater.	¾ mile N.E., Breakwater.
	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Inside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Inside.	Inside	Outside.	Inside.	Inside.	Inside.	Inside.	Inside.	Inside.
1	r	r	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	c	c	c	..	..	..	..	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	+	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..	..	..	..	+	..	..	..	+	+	c	..	..	..	..	..	..	..	..	..
5	+	c	c	r	c	c	c	..	..	..	..	..	..	..	+	r	..	..	..	..	..	..	..	..	..	..
6	r	r	r	r	c	..	..	+	+	r	..	..	r	..	+	c	..	..	..	..	..	..	..	..	..	..
7	r	+	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	..	..	..	..	..	..	..	..	..	..	..	+	..	..	+	+	..	..	..	..	..	r	r	..	..	..
9	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	+	c	..	..	..	..	..	..	..	..	r
10	+	r	rr	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	r	..	rr	..	..	..	..	..	..	..	..	..	..	..	..	r	..	..	..	c	..	..	..	..	..	..
12	r	..	..	..	..	..	..	..	..	..	..	..	..	..	c	..	..	..	..	c	..	..	r	..	..	..
13	..	rr	..	..	..	..	..	+	r	..	..	..	..	..	..	..	..	..	..	r	..	..	..	..	..	..
14	+	c	+	..	..	r	r	c	c	c	+	+	+	..	c	+	..	..	..	r	..	..	..	..	..	..
15	..	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	rr	..	rr	..	..	..	..	+	..	..	..	..	..	..	r	..	..	..	..	r	..	..	..	..	..	..
17	r	r	+	..	rr	..	..	+	r	r	+	..	r	+	c	+	..	+	..	r	..	..	..	..	..	..
18	..	r	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	+	+	r	..	..	..	..	r	r	..	+	..	..	rr	+	r	..	+	+	cc	+	+	r	..	r	..
20	..	r	rr	..	..	..	..	..	..	..	+	..	..	..	c	..	r	..	..	..	..	..	..	..	..	..
21	..	r	rr	..	..	..	rr	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	..	+	r	..	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	rr	r	rr	..	..	..	..	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24	..	rr	..	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	rr	rr	rr	..	..	..	..	r	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
26	rr	..	rr	..	..	..	..	..	..	..	+	..	..	..	..	r	..	..	..	r	..	..	..	..	..	..
27	r	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
28	+	c	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	+	c	c	..	..	..	..	c	+	c	+	+	+	..	+	r	..	+	r	+	+	..	..	..	..	..
30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	c	r	..	..	..	..	..	r	..	..	..	..
31	rr	rr	rr	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
32	r	..	..	..	..	..	..	..	..	..	+	rr	..	..	..	r	..	..	..	..	..	..	..	..	..	.
33	rr	..	..	..	..	..	..	r	r	+	..	..	..	..	r	..	..	..	..	..	..	r	..	..	..	.
34	c	c	c	rr	..	..	..	+	..	..	..	rr	..	..	..	r	r	..	..	r	+	+	+	..	..	.
35	..	rr	r	..	..	..	..	..	..	..	..	..	rr	..	r	r	r	..	..	..	r	..	..	..	..	1
36	r	r	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.
37	..	r	..	..	..	..	..	+	+	r	+	..	..	..	rr	rr	..	..	..	..	..	..	..	..	..	.
38	+	r	r	..	..	..	..	r	..	..	..	..	r	r	+	+	c	c	+	+	+	+	r	..	..	
39	r	r	r	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	
40	cc	cc	cc	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	

TABLE 2—*continued.*

Plankton, 1903.	January.						February.			March.			April.			
Month	January.						February.			March.			April.			
Date	16th.	20th.	21st.	22nd.	24th.	29th.	5th.	5th.	18th.	12th.	23rd.	31st.	5th.	21st.	30th.	
True Bearings	¼ mile N.E., Breakwater.	2 miles S.E., Breakwater.	1¼ miles S.W., Breakwater.	1¼ miles S.W., Breakwater.	¼ mile N.E., Breakwater.	¼ mile N.E., Breakwater.	10 miles S.W. ¼ S., Eddystone.	¼ mile N.E., Breakwater.	1¼ miles S.W., Breakwater.	Off Eddystone.	2 miles S., Breakwater.	Off Eddystone.	5 miles S., Breakwater.	Off Eddystone.	Off Eddystone.	
Taken Inside or Outside Breakwater.	Inside.	Outside.	Outside.	Outside.	Inside.	Inside.	Outside.	Inside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	
SILICOFLAGELLATES.																
Distephanus speculum, (Ehbg.) Haeckel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Dictyocha fibula, Ehbg.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
PROTOZOA.																
Cyttarocylis denticulata, (Ehbg.) Fol	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Noctiluca miliaris, Surir.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Tintinnopsis beroidea, Stein	..	..	..	..	+	..	..	..	..	r	..	..	rr	..	rr	5
— campanula, (Ehbg.) Dad.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
Acanthometron sp.	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	7
COELENTERATA.																
Corymorpha nutans, Sars	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
Cupulita sp.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
Euchilota pilosella, Forbes	..	..	..	..	..	..	..	..	..	rr	..	..	r	..	..	10
Hybocodon prolifer, Agassiz	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
Lizzia blondina, Forbes	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
Margellium octopunctatum, Sars	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
Obelia sp.	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	14
Phialidium cymbaloideum, Browne	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15
— temporarium, Browne	..	r	..	..	..	..	..	..	r	r	..	..	..	..	..	16
Saphenia mirabilis, Wright	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17
Sarsia gemmifera, Forbes	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
Pleurobrachia pileus, Modeer	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19
Arachnactis Bournei, Fowler	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20
Muggiaea atlantica, Cunningham	..	r	r	..	..	..	r	..	..	..	..	..	..	..	..	21
Ephyra	..	..	..	..	..	..	..	..	r	..	+	..	..	..	..	22
ECHINODERMATA.																
Auricularia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23
Bipinnaria	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
Echinopluteus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
Ophiopluteus	rr	rr	r	..	..	..	..	..	..	..	..	..	rr	rr	..	26
Spatangopluteus	..	..	..	..	..	..	..	..	..	..	..	..	..	r	..	27
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Pilidium	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
Planaria-larvae	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
Poecilochaetus-larvae	..	..	..	..	..	..	..	..	..	..	..	..	..	r	..	30
Polychaete-larvae	+	+	+	..	+	..	+	+	+	+	+	..	+	+	+	31
Sagitta bipunctata, Q. & G.	+	+	+	c	+	r	cc	c	c	+	..	..	..	..	+	32
Tomopteris helgolandica, Greef	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	33
Trochophora	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	34
BRYOZOA.																
Cyphonautes	+	+	+	..	..	..	r	+	+	+	..	..	rr	..	..	35

TABLE 2—*continued.*

	May.				June.			July.			August.			September.			October.			November.				December.		
	2nd.	11th.	14th.	20th.	4th.	15th.	22nd.	1st.	15th.	20th.	8th.	12th.	19th.	8th.	14th.	23rd.	1st.	21st.	23rd.	3rd.	4th.	18th.	25th.	2nd.	15th.	2[illegible]
	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	Off Eddystone.	2 miles S.E., Breakwater.	Rame, N.W. by N.; Breakwater, N. ½ E.	1½ miles S., Breakwater.	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	¼ mile N.E., Breakwater.	10 miles S.W. ¼ S., Eddystone.	2 miles S., Breakwater.	Off Eddystone.	Off Rame Head.	Off Eddystone.	3 miles S., Breakwater.	1½ miles S., Breakwater.	¼ mile N.E., Breakwater.	¼ mile N.E., Breakwater.	10 miles S.W. ¼ S., Eddystone.	¼ mile N.E., Breakwater.	⅔ mile N.E., Breakwater.	⅔ mile N.E., Breakwater.	⅔ mile N.E., Breakwater.	⅔ mile N.E., Breakwater.	[illegible]
	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Inside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Inside.	Inside.	Outside.	Inside.	Inside.	Inside.	Inside.	Inside.	[illegible]
1	rr	rr	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	
3	..	..	..	..	..	..	..	..	..	+	+	+	c	+	r	..	+	..	..	..	..	..	..	..	..	
4	..	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
5	..	rr	rr	..	..	..	..	..	..	..	..	+	r	..	..	r	..	..	..	..	..	?	?	..	..	
6	..	..	..	..	..	..	..	..	..	..	..	r	r	..	..	?	..	..	..	..	..	..	..	..	..	
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
8	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	
10	+	..	+	..	..	..	..	+	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
11	+	+	c	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
12	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
13	..	..	..	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
14	r	r	+	cc	cc	cc	c	+	+	c	..	+	r	c	..	..	..	+	..	rr	..	..	..	..	..	
15	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
16	r	..	+	cc	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	
17	..	..	+	..	..	..	..	..	..	+	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	
18	..	rr	..	..	..	..	..	c	+	..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	..	
19	..	r	r	..	..	..	c	r	..	+	..	..	..	..	..	..	..	..	..	r	..	..	..	..	..	
20	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	r	+	..	+	..	+	..	r	..	
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
23	..	..	..	..	..	..	..	r	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
24	r	r	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
25	..	..	..	..	..	..	..	rr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
26	r	r	r	..	..	..	..	..	rr	rr	..	..	rr	+	+	r	..	c	..	r	+	..	..	..	..	
27	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
28	r	..	r	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
29	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
30	+	r	+	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
31	r	+	+	c	+	..	..	r	r	..	..	r	c	+	..	r	c	+	+	r	+	+	r	r	r	
32	r	..	+	r	r	+	..	+	+	r	+	r	..	r	+	+	+	+	+	+	+	c	r	..	r	
33	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
34	r	+	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
35	r	..	..	+	..	..	..	..	..	..	..	+	+	+	+	+	+	+	+	..	+	..	..	r	..	

TABLE 2—*continued.*

Plankton, 1903. Month ..	January.						February.			March.			April.			
Date ..	16th.	20th.	21st.	22nd.	24th.	29th.	5th.	5th.	18th.	12th.	23rd.	31st.	5th.	21st.	30th.	
True Bearings ..	¼ mile N.E., Breakwater.	2 miles S.E., Breakwater.	1¼ miles S.W., Breakwater.	1¼ miles S.W., Breakwater.	¼ mile N.E., Breakwater.	¼ mile N.E., Breakwater.	10 miles S.W. ½ S., Eddystone.	¼ mile N.E., Breakwater.	1¼ miles S.W., Breakwater.	Off Eddystone.	2 miles S., Breakwater.	Off Eddystone.	5 miles S., Breakwater.	Off Eddystone.	Off Eddystone.	
Taken Inside or Outside Breakwater.	Inside.	Outside.	Outside.	Outside.	Inside.	Inside.	Outside.	Inside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	
COPEPODA.																
Acartia Clausi, Giesbr.	r	+	+	+	+	..	r	..	+	..	..	..	..	..	c	1
Alteutha bopyroides, Claus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Anomalocera Pattersoni, R. Temp.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Calanus finmarchicus, Gunn.	rr	..	+	+	..	rr	r	..	..	c	..	..	+	+	+	4
Candacia pectinata, Brady	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Centropages hamatus, Lillj.	..	..	..	..	..	..	..	..	..	..	..	..	r	r	r	6
— typicus, Kröyer	..	+	+	+	..	..	..	r	..	..	..	..	r	r	+	7
Corycaeus anglicus, Lubb.	c	c	c	c	+	..	+	r	+	..	..	..	..	r	..	8
Euchaeta hebes, Giesbr.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
Euterpe acutifrons, Dana	..	c	..	..	+	..	..	..	..	..	..	..	r	..	..	10
Isias clavipes, Boeck	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
Longipedia coronata, Claus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
Metridia lucens, Boeck	..	..	..	..	..	..	..	..	..	+	..	..	..	+	+	13
Microsetella atlantica, Brady and Rob.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14
Oithona nana, Giesbr.	..	..	r	..	+	..	..	..	..	..	..	..	..	..	..	15
— similis, Claus	+	c	+	..	c	..	c	+	c	r	c	..	..	cc	c	16
Oncaea mediterranea Claus	..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	17
— venusta Giesbr.	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	rr	18
Paracalanus parvus, Claus	c	..	+	+	+	..	r	r	..	c	c	..	c	c	c	19
Parapontella brevicornis, Lubb.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20
Pseudocalanus elongatus, Boeck	+	c	+	c	+	r	c	cc	c	c	cc	..	c	cc	cc	21
Temora longicornis, Müll.	..	..	..	..	+	..	..	..	+	r	+	..	r	+	c	22
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— Leuckarti, Sars	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
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Carididae-larvae	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	28
"Cypris stage"-larvae	..	..	..	..	..	..	..	..	..	..	..	..	..	..	rr	29
Megalopa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
Microniscus	r	..	+	..	..	..	..	..	+	..	..	..	..	..	..	31
Nauplius	+	+	c	..	+	+	c	+	+	+	c	..	c	..	c	32
Zoea of Porcellana	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33
— cetera	..	..	c	+	..	r	..	c	+	+	r	..	+	+	+	34
MOLLUSCA.																
Gasteropoda-larvae	+	..	+	..	c	..	c	+	..	+	+	..	..	..	..	35
Lamellibranchiata-larvae	+	..	c	+	..	..	c	+	..	+	+	..	..	..	+	36
TUNICATA.																
Fritillaria borealis Lohm.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
Oikopleura dioica Fol	+	+	r	+	+	..	..	..	+	+	+	..	+	+	c	38
Salpa mucronata, Forsk.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	39
VERTEBRATA.																
Teleostei-larvae	+	..	c	+	+	..	..	..	+	r	..	..	..	r	..	40
— ova	r	+	+	..	+	r	..	r	+	+	+	..	+	+	..	41

	May.				June.			July.			August.			September.			October.			November.				December.		
	2nd.	11th.	14th.	20th.	4th.	15th.	22nd.	1st.	15th.	20th.	8th.	12th.	19th.	8th.	14th.	23rd.	1st.	21st.	23rd.	3rd.	4th.	18th.	25th.	2nd.	15th.	21st.
	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	Off Eddystone.	2 miles S.E., Breakwater.	Rame, N.W. by N.; Breakwater, N. ¾ E.	1½ miles S., Breakwater.	10 miles S.W. ¼ S., Eddystone.	10 miles S.W. ¼ S., Eddystone.	¼ mile N.E., Breakwater.	10 miles S.W. ¼ S., Eddystone.	2 miles S., Breakwater.	Off Eddystone.	Off Rame Head.	Off Eddystone.	3 miles S., Breakwater.	1½ miles S., Breakwater.	¼ mile N.E., Breakwater.	¼ mile N.E., Breakwater.	10 miles S.W. ¼ S., Eddystone.	¼ mile N.E., Breakwater.	⅗ mile N.E., Breakwater.	⅗ mile N.E., Breakwater.	⅗ mile N.E., Breakwater.	⅗ mile N.E., Breakwater.	⅗ mile N.E., Breakwater.
	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Inside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Outside.	Inside.	Inside.	Outside.	Inside.	Inside.	Inside.	Inside.	Inside.	Inside.
1	+	r	+	c	c	+	..	c	c	c	..	+	+	c	c	c	c	+	+	r	+	c	+	r	r	..
2	..	..	..	..	..	..	..	rr	..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	..
3	c	+	+	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	..
4	+	+	+	+	+	+	c	+	+	r	+	+	..	+	c	..	..	+	..	+	..	..	..	..	..	..
5	..	..	rr	..	..	..	..	rr	..	..	+	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	..
6	..	..	..	..	..	..	..	r	r	r	..	..	..	rr	+	..	..	..	..	..	..	..	..	..	..	..
7	+	+	+	c	c	c	+	+	+	..	+	r	..	+	c	+	+	+	+	+	..	..	..	..	..	..
8	r	..	rr	..	rr	rr	rr	rr	..	r	..	r	r	r	..	c	c	c	+	+	c	c	c	c	c	r
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	..
10	r	..	+	..	..	..	..	r	..	r	..	..	+	..	..	+	c	c	c	..	c	c	c	c	+	..
11	..	..	..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	..
13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	r	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	..	..	..	..	..	..	..	..	..	..	..	+	c	+	..	c	+	c	c	r	c	+	+	r	..	r
16	c	c	c	c	c	c	c	c	cc	c	+	..	c	c	c	c	+	c	..	c	..	+	r	..	..	..
17	r	+	+	..	..	..	..	r	..	..	..	..	r	..	..	r	..	..	..	r	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..
19	+	+	c	..	..	..	..	+	+	..	+	r	c	c	c	+	c	c	+	r	+	+	+	..	r	..
20	..	..	..	c	c	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	c	c	c	c	c	c	c	c	cc	c	+	..	c	c	c	+	+	+	+	c	+	+	+	r	r	r
22	+	r	+	cc	cc	cc	cc	c	c	c	..	+	c	c	c	+	..	..	+	..	..	r	r	..	..	..
23	rr	rr	+	+	+	+	+	+	+	+	..	+	+	+	+	r	..	..	..	..	..	..	..	..	..	..
24	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	r	r	+	c	..	..	..	+	+	+	..	..	..	+	+	..	..	..	..	..	..	..	..	..	..	..
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..	..	..	..	rr	..	r	r	+	r	..	..	..	..	..	..	..	..	..
28	..	..	..	c	c	+	+	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	..	..	..	..	..	..	..	..	..	..	..	..	r	..	..	..	r	..	..	rr	..	..	..	..	..	..
30	..	+	+	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	r	..	..	..	..	..	..	r	..
32	c	c	c	c	c	+	+	c	c	+	+	c	c	c	c	c	c	c	c	c	c	c	c	+	+	..
33	..	..	..	..	..	..	..	..	..	r	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..
34	+	r	+	c	+	+	+	r	r	+	..	..	..	+	+	..	r	r	r	..	r	r	r	..	..	..
35	r	r	r	..	..	..	..	rr	r	..	..	..	+	..	..	r	..	+	r	r	+	..	r	..	..	..
36	+	r	r	..	..	..	..	r	c	..	..	+	+	+	+	+	+	+	+	+	+	r	r	r	r	..
37	+	+	+	..	..	..	..	rr	..	..	..	..	rr	..	..	..	..	..	..	..	..	..	..	..	..	.
38	c	c	+	..	r	r	r	+	+	r	..	r	+	+	+	+	+	..	+	+	+	+	r	r	..	.
39	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	rr	..	..	..	..	..	.
40	c	..	+	..	..	..	..	r	r	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.
41	c	..	r	r	..	..	..	r	..	..	..	+	..	r	r	..	..	..	..	..	..	..	..	..	..	.

TABLE 3A.

TABLE OF VERTICAL HAULS TAKEN AT STATION 1 ON JULY 1ST AND 2ND.

VERTICAL HAULS, ALL 70 M. – 0 M.

Signs used : rr, very rare ; r, rare ; +, abundant ; c, common ; cc, very common.

Plankton, 1903.	Time.									
	p.m.					a.m.				p.m.
	1.5	3.46	6.0	8.0	9.55	12.1	2.59	5.50	9.3	12.5
DIATOMACEAE.										
Actinoptychus undulatus, Ehbg.	...	...	...	rr	...	...	...	...	...	...
Biddulphia mobiliensis, Bail.	rr	...	...	...	...	...	...	...	...	...
Chaetoceras boreale, Bail.	...	...	...	...	...	...	...	...	...	r
— laciniosum, Schütt	...	...	...	...	...	...	...	...	...	rr
Coscinodiscus radiatus, Ehbg.	r	rr	...	...	...	r	r	...	r	rr
Eucampia zodiacus, Ehbg.	r	r	r	...	r	rr	...	...	...	...
Guinardia flaccida, (Castr.) Perag.	+	+	c	c	c	c	c	c	+	c
Hyalodiscus stelliger, Bail.	...	+	+	+	+	+	+	+	+	+
Leptocylindrus danicus, Cl.	.	...	...	...	rr	...	...	...	...	...
Paralia sulcata, (Ehbg.) Cl.	r	+	r	r	...	...	r	r	r	+
Rhizosolenia alata, Brightw.	rr	r	r	rr	r	r	r	r	r	+
— robusta, Norm.	...	rr	...	...	...	...	..	...	...	...
— Stolterfothi, Perag.	+	+	c	c	c	c	+	+	+	c
PERIDINIDAE.										
Ceratium furca, (Ehbg.) Duj.	+	c	r	r	r	+	r	+	r	+
— fusus, (Ehbg.) Duj.	c	c	c	c	c	c	c	c	c	c
— lineatum, (Ehbg.) Cl.	+	rr	r	...	r	r	+	r	...	r
— longipes, Bail.	+	rr	...	+	r	r	+	...	...	r
— tripos, (O. F. Müll.) Vanh.	r	r	r	+	...	rr	rr	+	...	+
Dinophysis acuminata, Clap. & Lachm.	r	+	...	...	r	r	r	+	r	+
— ovum, Schütt	rr	rr	...	r	r	...	r	...	r	...
— rotundata, Clap. & Lachm.	...	...	...	...	...	...	...	...	...	r
— tripos, Gourret	...	rr	rr	...	r	rr	...	r	...	rr
Peridinium depressum, Bail.	c	c	c	+	c	c	c	c	+	c
— globulus, Stein	r	r	...	r	+	r	r	r	r	r
— ovatum, Pouchet	r	r	+	+	...	+	+	+	r	+
— pallidum, Östf.	+	r	r	r	r	...	r	...	r	r
Prorocentrum micans, Ehbg.	r	+	+	r	+	r	r	r	+	+
CHLOROPHYCEAE.										
Halosphaera viridis, Schmitz	..	...	...	...	...	r	...	...	...	..
COELENTERATA.										
Euchilota pilosella, Forbes	...	r	...	...	...	r	r	...	...	...
Obelia sp.	r	r	+	+	r	r	r	r	...	r
Phialidium temporarium, Browne	r	r	...	..	r	...	...	...	...	...
Saphenia mirabilis, Wright	...	...	...	...	...	...	...	r	...	...
Sarsia gemmifera, Forbes	+	r	+	r	r	r	+	r	+	r
Pleurobrachia pileus, Modeer	r	r	r	r	r	r	+	r	r	r

TABLE 3A—*continued.*

Plankton, 1903.	Time.									
	p.m.					a.m.				p.m.
	1.5	3.46	6.0	8.0	9.55	12.1	2.59	5.50	9.3	12.5
ECHINODERMATA.										
Echinopluteus...	...	...	...	...	r	...	...	...	...	...
Ophiopluteus	...	...	...	...	...	...	...	...	...	rr
VERMES.										
Pilidium	r	...	...	...	r	rr	...	...	...	...
Polychaeta-larvae	r	...	...	...	r	...	r	...	r	...
Sagitta bipunctata, Quoy & Gaim.	+	r	+	+	+	+	+	+	r	r
Tomopteris helgolandica, Greef	+	r	r	r	..	+	+	r	...	r
CRUSTACEA.										
Acartia Clausi, Giesbr.	c	c	c	+	c	c	c	c	+	c
Calanus finmarchicus, Gunn.	+	+	+	r	+	r	+	+	r	r
Candacia pectinata, Brady	...	...	..	...	rr	...	rr	...	...	..
Centropages hamatus, Lillj.	...	...	r	...	r	r	r	...	r	r
— typicus, Kröyer	+	r	...	...	...	...	...	..	...	+
Corycaeus anglicus, Lubb.	rr	...	...	...	...	...	...	...	...	...
Euterpe acutifrons, Dana	r	...	rr	rr	r	...	...	r	r	...
Oithona similis, Claus	c	c	+	+	c	+	c	c	+	+
Oncaea mediterranea, Giesbr.	r	r	rr	...	r	rr	...	r	...	r
Paracalanus parvus, Claus	+	+	r	+	+	r	+	+	+	+
Pseudocalanus elongatus, Boeck	c	+	c	+	+	+	c	+	+	+
Temora longicornis, Müller	c	+	c	+	+	+	c	+	+	+
Evadne Nordmanni, Loven	+	rr	rr	r	r	r	c	c	r	+
Podon intermedius, Lillj.	+	+	+	+	+	+	+	r	r	r
Microniscus	...	...	r	...	r	...	...	...	...	...
Nauplius	c	c	c	+	c	c	c	c	+	c
Zoea	r	r	r	r	r	r	+	r	r	r
MOLLUSCA.										
Gasteropoda-larvae	..	...	...	r	r	r	r	r	...	r
Lamellibranchiata-larvae	r	...	...	rr	...	r	rr	...	...	r
TUNICATA.										
Fritillaria borealis, Lohm.	..	...	...	rr	...	...	...	...	...	...
Oikopleura dioica, Fol	+	+	+	+	c	c	c	c	+	+
VERTEBRATA.										
Teleostei-ova	...	...	...	...	r	r	r	r	...	rr
— larvae	...	r	rr	r	r	...	...	r	...	...

TABLE 3B.

TABLE SHOWING THE VERTICAL DISTRIBUTION OF THE PRINCIPAL

The signs used are : rr, very rare ; r, rare ;

Depth in metres of horizontal hauls.	1	10	30	70	1	10	30	70	1	10	30	70	1	10	30	70	
Plankton, 1903.	p.m.				p.m.				p.m.				p.m.				
Time	1.27	1.38	1.49	2.0	3.28	3.48	4.0	4.12	5.24	5.37	6.8	6.19	7.48	8.1	8.12	8.28	
PERIDINIDAE.																	
Ceratium fusus. (Ehb.) Duj.	..	+	+	r	..	cc	cc	+	+	c	+	r	r	+	r	r	1
Peridinium depressum, Bail.	..	..	r	r	..	c	+	+	..	+	r	rr	r	r	+	r	2
Prorocentrum micans, Ehbg.	..	r	..	..	r	+	+	..	+	..	..	..	+	r	r	r	3
COELENTERATA.																	
Euchilota pilosella, Forbes	..	..	+	..	..	..	c	..	..	..	rr	..	..	..	..	..	4
Obelia sp.	..	rr	..	+	..	..	r	r	..	r	r	r	rr	r	rr	rr	5
Phialidium temporarium, Browne	..	rr	+	r	..	..	..	r	..	r	..	..	r	..	..	..	6
Sarsia gemmifera, Forbes	..	r	c	rr	rr	..	+	r	rr	r	..	..	rr	+	..	..	7
Pleurobrachia pileus, Modeer	..	r	..	r	..	r	r	..	..	r	..	rr	..	..	..	r	8
VERMES.																	
Sagitta bipunctata, Q. & G.	r	+	+	r	r	+	+	c	r	+	r	r	+	r	r	+	9
Tomopteris helgolandica, Greef	..	..	r	r	..	..	+	c	..	rr	r	+	..	rr	rr	+	10
CRUSTACEA.																	
Acartia Clausi, Giesbr.	+	+	c	+	+	+	c	c	+	c	+	+	+	+	..	..	11
Calanus finmarchicus, Gunn.	c	+	r	..	c	r	+	..	c	+	..	rr	+	r	r	r	12
Euterpe acutifrons, Dana	..	..	..	+	..	..	rr	+	..	..	..	+	rr	..	..	+	13
Oithona similis, Claus	r	+	c	c	..	+	+	c	..	+	+	+	+	+	+	+	14
Paracalanus parvus, Claus	..	+	r	r	..	+	r	r	r	+	r	r	+	+	+	..	15
Pseudocalanus elongatus, Boeck	..	c	c	+	..	+	+	r	..	c	+	+	+	c	r	..	16
Temora longicornis, Müll.	..	+	+	r	r	+	c	r	..	c	+	+	+	+	+	+	17
Evadne Nordmanni, Lovén	+	+	..	..	c	rr	..	..	+	r	..	..	rr	..	..	..	18
Podon intermedius, Lillj.	r	..	c	+	..	r	c	..	r	+	+	r	r	+	+	..	19
Nauplius and Metanauplius	+	+	+	r	+	+	c	c	c	+	+	+	c	+	+	+	20
Zoea	..	..	r	..	c	r	r	c	r	r	r	r	..	rr	..	+	21
TUNICATA.																	
Oikopleura dioica, Fol	+	c	c	r	r	+	+	+	r	+	+	r	+	c	r	..	22
VERTEBRATA.																	
Teleostei-ova	r	r	..	..	+	r	rr	..	+	r	r	..	r	..	..	..	23

Plankton, 1903.	Time.										Depth in m.
	p.m.					a.m.				p.m.	
	1.0	3.0	5.0	8.0	10.0	12.0	3.0	6.0	9.0	12.0	
Euchilota pilosella, Forbes (re-arranged from the above table) ..	..	..	..	..	+	r	..	..	..	..	1
	..	..	..	..	..	..	..	..	..	..	10
	+	c	rr	..	..	..	..	..	+	..	30
	..	..	..	..	..	..	..	..	..	..	70
Obelia sp.	..	..	..	rr	r	r	..	..	..	..	1
	rr	..	r	r	r	..	r	..	..	r	10
	..	r	r	rr	+	r	r	+	+	+	30
	+	r	r	rr	..	r	rr	r	..	..	70

TABLE 3B.

PLANKTON ORGANISMS AT STATION 1 ON JULY 1ST AND 2ND.

+, abundant; c, common; cc, very common.

	1	10	30	70	1	10	30	70	1	10	30	70	1	10	30	70	1	10	30	70	1	10	30	70
	p.m.				a.m.				a.m.				a.m.				a.m.				p.m.			
	10.13	10.32	10.45	11.1	12.55	12.42	12.28	12.10	3.50	3.41	3.24	3.9	6.50	6.37	6.20	6.6	10.5	9.50	9.40	9.30	12.55	12.43	12.36	12,15
1	r	c	+	r	+	c	+	+	+	+	+	+	+	+	r	r	r	+	+	+	+	+	+	+
2	..	r	+	+	r	+	+	..	..	r	+	..	rr	r	r	..	..	..	r	r	r	+	+	r
3	+	r	r	..	r	r	..	..	r	r	..	..	r	r	..	r	..	+	r	..	..	r	..	..
4	+	..	..	..	r	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..
5	r	r	+	..	r	..	r	r	..	r	r	rr	..	..	+	r	..	..	+	..	..	r	+	..
6	..	r	r	r	r	r	r	r	..	r	r	..	..	..	rr	..	..	..	..	+	..	..	rr	..
7	r	r	+	r	+	+	+	+	+	+	r	..	r	+	..	..	+	c	..	..	r	+	r	..
8	..	r	r	+	..	r	+	..	..	r	r	..	..	r	..	..	..	r	r	..	..	r	r	..
9	+	+	+	c	..	r	+	c	r	+	r	r	r	+	+	c	r	+	+	c	r	+	+	c
10	r	+	+	+	r	..	r	..	..	+	r	..	..	..	rr	+	..	..	+	+	..	r	..	+
11	+	c	c	+	+	cc	+	+	+	c	r	r	+	c	r	r	+	+	r	r	r	+	r	..
12	+	c	+	+	rr	c	+	+	rr	r	+	rr	+	r	..	..	r	r	r	..	+	+	rr	..
13	rr	..	..	r	r	..	..	..	+	..	..	rr	..	..	..	r	..	..	..	+	..	..	..	+
14	+	+	+	+	+	+	+	+	+	+	+	+	r	r	+	c	+	+	+	c	+	+	+	c
15	+	c	..	..	+	+	c	c	+	r	r	r	+	+	+	+	+	c	+	+	..	+	+	..
16	r	c	c	+	+	+	c	c	+	c	+	r	+	c	+	r	+	c	c	..	r	c	c	..
17	+	+	c	+	+	c	c	+	+	c	c	r	+	+	+	r	+	+	c	+	r	+	c	+
18	r	..	r	..	+	+	..	r	+	..	..	..	+	+	rr	..	+	+	r	..	r	r	r	..
19	rr	+	c	+	r	+	+	..	..	+	r	r	rr	..	+	+	r	rr	+	+	..	r	r	..
20	+	+	c	+	+	+	+	+	+	+	r	r	c	c	+	+	c	c	c	+	c	+	+	+
21	..	r	r	..	..	..	r	..	r	r	r	r	..	..	..	..	..	r	..	c	..	..	+	c
22	+	+	+	+	+	+	+	+	+	+	r	r	+	+	r	c	c	c	c	c	+	+	c	+
23	r	r	r	+	r	+	+	r	r	+	r	r	r	..	r	r	r	r	r	+	r	r	r	r

Plankton, 1903.	Time.										Depth in m.
	p.m.					a.m.				p.m.	
	1.0	3.0	5.0	8.0	10.0	12.0	3 0	6.0	9.0	12.0	
Tomopteris helgolandica, Greef	..	..	..	..	r	r	..	..	..	..	1
	..	..	rr	rr	+	..	+	..	..	r	10
	r	+	r	rr	+	r	r	rr	+	..	30
	r	c	+	+	+	..	..	+	+	+	70
Calanus finmarchicus, Gunn.	c	c	c	+	+	rr	rr	+	r	+	1
	+	r	+	r	c	c	r	r	r	+	10
	r	+	..	r	+	+	+	..	r	rr	30
	..	..	rr	r	+	+	rr	..	..	..	70

TABLE 4.

PLANKTON TAKEN AT STATION 1 IN MAY, 1903.

Signs used : rr, very rare ; r, rare ; +, abundant ; c, common ; cc, very common.

Plankton, 1903	May 2nd. 10.56 a.m.—1.5 p.m. Vertical. 72 m.—0 m.	May 2nd. Horizontal. 0 m.	10 m.	35 m.	70 m.	May 11th. 7.40 p.m.—8.36 p.m. Vertical. 65 m.—0 m.	May 11th. Horizontal. 0 m.	10 m.	35 m.	65 m.	May 13th & 14th. 11.38 p.m.—1.1 a.m. Vertical. 70 m.—0 m.	May 13th & 14th. Horizontal. 0 m.	10 m.	35 m.	60 m.
DIATOMACEAE.															
Actinoptychus undulatus, Ehbg.	...	...	...	...	...	r	...	...	...	...	...	...	...	rr	...
Biddulphia granulata, Roper	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...
— mobiliensis, Bail.	+	...	r	+	...	rr	...	...	...	...	rr	...	...	rr	...
Cerataulina Bergoni, Perag.	...	...	rr	...	...	...	...	...	...	...	+	...	...	...	...
Chaetoceras boreale, Bail.	c	r	r	+	...	c	r	rr	...	...	+	+	r	+	+
— breve, Schütt	...	+	...	...	...	r	...	...	...	...	..	...	...	...	...
— convolutum, Castr.	+	c	c	c	rr	r	r	...	...	...	+	+	r	+	+
— criophilum, Castr.	+	c	r	r	...	r	...	...	...	...	c	...	...	...	...
— curvisetum, Cleve	c	c	...	...	...	c	r	...	...	...	c	+	...	...	...
— debile, Cleve	...	...	+	...	...	r	+	+	rr	rr	r	+	r	...	r
— decipiens, Cleve	+	+	+	+	...	rr	rr	...	...	...	...	...	...	r	...
— laciniosum, Schütt	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
— teres, Cleve	+	...	...	...	...	...	...	...	...	...	...	...	..	...	...
Coscinodiscus excentricus, Ehbg.	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...
— radiatus, Ehbg.	+	r	...	...	r	...	...	...	...	...	...	rr	...	rr	...
Ditylum Brightwelli, Ehbg.	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...
Eucampia zodiacus, Ehbg.	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
Guinardia flaccida, Castr.	r	...	...	...	...	r	rr	...	...	...	+	rr	...	...	...
Hyalodiscus stelliger, Bail.	+	...	...	...	...	r	rr	...	...	...	...	...	...	...	...
Lauderia borealis, Gran	+	c	+	...	...	+	+	...	...	...	+	+	c	+	+
Paralia sulcata, (Ehbg.) Cleve	r	+	rr	...	rr	rr	...	...	...	...	...	...	rr	r	r
Rhizosolenia alata, Btw.	+	+	rr	rr	...	...	+	r	...	...	...	...	+	...	...
— delicatula, Cleve	r	...	...	..	..	r	...	...	...	rr	...	...	...	...	...
— robusta, Btw....	c	c	c	c	rr	c	c	...	rr	r	c	c	c	+	r
— semispina, Hensen	+	r	c	+	r	...	...	...	...	...	...	...	c	+	r
— Shrubsolei, Cleve	+	r	+	r	...	c	r	...	...	...	c	+	...	...	...
— Stolterfothi, Perag.	r	r	r	...	...	...	...	...	...	rr	+	r	+	r	r
— styliformis, Btw.	...	r	...	...	...	...	+	...	...	...	...	+	...	...	...
Streptotheca tamesis, (Shr.) Cleve ...	+	+	r	+	...	r	rr	...	...	...	rr	...	...	...	...
Thalassiothrix curvata, Castr.	...	r	...	...	...	...	...	...	...	...	rr	...	...	...	...
— Frauenfeldi, Gran	r	+	+	...	...	...	...	...	...	...	...	...	...	...	...

TABLE 4—*continued.*

Plankton, 1903.	May 2nd.					May 11th.					May 14th.				
	Vertical. 72 m.–0 m.	Horizontal.				Vertical. 65 m.–0 m.	Horizontal.				Vertical. 70 m.–0 m.	Horizontal.			
		0 m.	10 m.	35 m.	70 m.		0 m.	10 m.	35 m.	65 m.		0 m.	10 m.	35 m.	60 m.
PERIDINIALES.															
Ceratium furca, Clap. & Lachm.	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
— fusus, (Ehbg.) Duj.	+	+	rr	...	...	c	c	...	r	...	+	...	+	r	...
— horridum, Cleve	...	...	...	..	...	...	rr	...	...	...	...	...	...	...	...
— lineatum, (Ehbg.) Cleve ...	...	...	rr	...	...	...	...	...	...	...	...	...	rr	...	...
— longipes, (Bail.) Cleve	...	r	r	...	...	r	rr	rr	...	...	+	...	rr	...	...
— macroceras, Ehbg.	...	...	...	...	...	r	...	...	...	...	...	...	rr	...	...
— tripos, (O. F. Müller) Vanh. ...	...	+	+	...	...	+	r	...	...	...	r	...	..	...	rr
Dinophysis acuminata, Clap. & Lachm. ...	...	..	...	...	...	...	+	rr	r	...	...	+	...	...	...
— acuta, Ehbg.	..	...	...	...	...	r	...	...	...	...	rr	...	...	...	...
— norvegica, Clap. & Lachm. ...	...	...	...	...	...	+	...	...	...	...	r	...	...	...	...
— ovum, Schütt	...	rr	...	...	...	r	r	...	...	...	...	rr	...	...	...
— rotundata, Clap. & Lachm. ...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
— tripos, Gourret	...	rr	...	...	...	rr	c	...	...	...	rr	rr	...	...	...
Diplopsalis lenticula, Bergh.	..	...	rr	...	...	...	...	...	...	...	rr	...	...	...	..
Gonyaulax spinifera, (Clap. & Lach.) Dies	...	r	...	...	...	rr ?	...	...	...	...	...	...	...	...	...
Peridinium conicum, Gran	+	+	...	...	...	c	+	...	...	...	..	+	...	...	...
— depressum, Bail.	r	+	c	...	...	c	c	r	rr	...	c	c	...	...	...
— globulus, Stein	...	rr	...	...	...	...	rr	..	...	...	rr	...	...	..	...
— oceanicum, (Vanh.) Jörg. ...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— ovatum, (Pouch.) Schütt ...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...
— pallidum, Ostf.	c	+	...	...	...	+	c	...	...	...	c	c	..	...	...
— pentagonum, Gran	...	...	...	...	...	...	...	r	rr	...	r	...	..	...	...
— Steini, Jörg.	...	rr	...	...	...	r		...	...	...	...	r	...	...	...
Prorocentrum micans, Ehbg.	...	...	...	..	...	...	r	...	...	...	...	...	...	...	...
CHLOROPHYCEAE.															
Halosphaera viridis, Schmitz	r	+	r	+	...	r		...	...	...	r	...	r	r	r
Trochiscia Clevei, Lemm.	...	r	...	...	...	...	r	...	...	...	...	r	...	...	...
FLAGELLATAE.															
Phaeocystis globosa, Scherffel	cc	cc	cc	cc	...	cc	cc	...	...	...	cc	cc	cc	cc	cc
SILICOFLAGELLATAE.															
Dictyocha speculum (Ehbg.) Haeckel ...	r	rr	...	...	..	rr	...	...	...	...	...	rr	...	...	...
PROTOZOA.															
Noctiluca miliaris, Surir.	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
Tintinnopsis beroidea, Stein	...	...	...	...	...	rr	rr	...	...	...	...	...	rr	...	...

TABLE 4—*continued.*

Plankton, 1903.	May 2nd.					May 11th.					May 14th.				
	Vertical. 72 m.—0 m.	Horizontal.				Vertical. 65 m.—0 m.	Horizontal.				Vertical. 70 m.—0 m.	Horizontal.			
		0 m.	10 m.	35 m.	70 m.		0 m.	10 m.	35 m.	65 m.		0 m.	10 m.	35 m.	60 m.
COELENTERATA.															
Corymorpha nutans, Sars	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...
Euchilota pilosella, Forbes	...	...	...	+	...	...	...	...	...	...	...	+	r	...	...
Hybocodon prolifer, Agassiz	r	...	...	c	rr	...	+	...	...	...	c	c	c	c	c
Lizzia blondina, Forbes	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...
Obelia sp.	r	r	...	+	...	...	r	...	...	...	r	+	+	...	r
Phialidium temporarium, E. T. Browne ...	..	r	...	...	...	...	...	...	...	...	+	...	+	...	..
Saphenia mirabilis, Wright	...	...	...	...	...	...	...	...	...	...	rr	+	r	...	+
Sarsia gemmifera, Forbes	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...
Pleurobrachia pileus, Modeer	...	...	...	...	...	...	r	...	...	...	...	r	r	...	...
ECHINODERMATA.															
Bipinnaria	...	r	...	rr	...	...	r	...	...	...	rr	r	r	...	...
Ophiopluteus	r	...	...	r	...	r	r	...	...	...	rr	r	r	...	...
Spatangopluteus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r
VERMES.															
Pilidium	r	...	...	...	...	...	...	...	...	...	...	r	...	...	...
Planaria-larvae	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Poecilochaetus-larvae	...	...	...	+	...	...	r	...	...	...	...	+	r	+	...
Polychaete-larvae	r	...	r	...	...	r	+	...	...	...	+	+	r	+	r
Sagitta bipunctata, Quoy. and Gaim. ...	...	...	r	+	...	...	...	...	...	...	...	c	+	+	+
Trochophora	r	...	r	r	...	...	+	...	...	...	...	r	r	...	...
BRYOZOA.															
Cyphonautes	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...
COPEPODA.															
Acartia Clausi, Giesbr.	+	c	+	r	...	...	r	...	...	...	r	+	r	...	...
Anomalocera Pattersoni, Temple	...	c	...	...	...	...	+	rr	...	...	...	+	r	...	...
Calanus finmarchicus, Gunn.	+	r	+	+	r	r	+	r	...	r	r	+	r	+	+
Candacia pectinata, Brady	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
Centropages typicus, Kröyer	...	+	+	+	...	+	c	+	...	...	+	+	r	...	rr
Corycaeus anglicus, Lubb.	...	r	...	...	...	...	...	...	...	...	...	...	...	...	rr
Euterpe acutifrons, Dana	r	...	...	...	...	...	...	...	...	...	..	...	...	+	+
Metridia lucens, Boeck	...	...	...	...	...	...	r	...	...	...	...	+	r	r	...
Oithona similis, Claus	c	c	c	c	r	c	c	+	r	+	c	c	...	c	c

TABLE 4—*continued.*

Plankton, 1903.	May 2nd.					May 11th.					May 14th.				
	Vertical. 72 m.—0 m.	Horizontal.				Vertical. 65 m.—0 m.	Horizontal.				Vertical. 70 m.—0 m.	Horizontal.			
		0 m.	10 m.	35 m.	70 m.		0 m.	10 m.	35 m.	65 m.		0 m.	10 m.	35 m.	60 m.
COPEPODA—*continued.*															
Oncaea mediterranea, Giesbr.	r	...	...	rr	...	+	rr	...	...	...	+	r	+	+	+
Paracalanus parvus, Claus	+	+	+	c	...	+	+	...	...	...	c	+	r	c	...
Pseudocalanus elongatus, Boeck	c	+	+	c		c	c	+	+	+	c	c	c	c	c
Temora longicornis, Müll.	...	...	+	r	+	...	r	...	r	r	+	c	+	r	rr
CRUSTACEA CETERA.															
Evadne Nordmanni, Loven....	...	rr	r	...	...	rr	r	...	...	...	+	c	+	...	...
Podon Leuckarti, Sars	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...
— intermedius, Lillj.	...	...	rr	rr	...	rr	rr	...	rr	...	+	c	+	+	+
Megalopa	...	...	...	...	...	...	+	...	...	...	...	+	...	r	...
Nauplius	c	+	c	c	...	c	c	c	r	+	c	c	c	+	+
Zoea	...	+	+	+	...	...	r	...	rr	...	...	+	...	r	r
MOLLUSCA.															
Gasteropoda-larvae	...	...	...	r	...	r	r	...	...	...	...	...	r	...	...
Lamellibranchiata-larvae	...	...	..	+	...	...	r	...	...	...	...	...	...	r	r
TUNICATA.															
Fritillaria borealis, Lohm.	...	+	+	+	...	...	+	...	...	...	...	+	r	r	...
Oikopleura dioica, Fol.	c	c	+	+	r	c	c	+	rr	r	+	+	c	+	+
VERTEBRATA.															
Teleostei-larvae	r	c	+	r	...	...	...	...	...	...	+	+	+	+	+
— eggs...	...	c	...	rr	...	...	...	...	...	...	...	...	...	r	...