REPORT

ON

THE PLANKTON OF THE ENGLISH CHANNEL IN 1906.

BY

W. BYGRAVE, B.A.

With Tables I.–VI., Table A., and Plates I. to III.

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I.—Introduction and Summary of Results.

During the year 1906 Plankton samples were taken on the four quarterly cruises in the same way as in previous years. Station E 15 off Anvil Point was abandoned, and a new station E 25 was added, the position of this station being 49° 46½′ N., 6° 34′ W.

The complete record of the Plankton taken on these cruises will be found in the Bulletin of the International Council.

In addition to the samples taken on the quarterly cruises, Plankton was taken at regular intervals throughout the year—weekly at Plymouth, and fortnightly at Bahama Bank, Cardigan Bay, Sevenstones, and Varne Light-ships. Fortnightly samples were also taken approximately half-way between Plymouth and the Channel Islands from the S.S. "Devonia" by means of a full-speed townet.

In August. 1906, an experiment was made at station E 17 in order to find whether the Plankton taken by means of a full-speed net differs from that taken at the same time and place by means of an ordinary townet made of the same silk as the full-speed net.

The townet was used in the ordinary way at the station, being towed horizontally at the surface for 10 minutes, and then the full-speed net was towed for one mile whilst the "Huxley" was steaming on a circular course round the station. On examination the composition of the two catches thus obtained was found to be practically identical, though the total volume of Plankton taken by the townet was slightly greater than that taken by the full-speed net.

The general results of the year's work agree very well with those of the three previous years. Thus the percentage of Oceanic species in the Plankton is greatest at the most westerly stations, diminishing fairly regularly as one passes eastwards, and rising again slightly in the Eastern area of the Channel. These percentages have been worked out in the same manner as in 1903–4–5 and are shown on Charts 1–4.

On comparing the salinity of the water with the number of Oceanic species occurring in the Plankton it is found that as a general rule an increase in the salinity is accompanied by a corresponding increase in the number of Oceanic species. This comparison has been made for a period of three years including all the stations in the English Channel, and will be found more fully explained on p. 247 and illustrated by Chart 5.

On studying the distribution of individual species an interesting fact is to be observed in the case of certain Oceanic forms such as *Rhizosolenia alata* and *Metridia lucens*. These forms are usually found only in the extreme west of the English Channel, and do not reach eastward beyond Portland. Although common in both the South-west and North-west, it is noticeable that when they are found well within the mouth of the channel, they keep to the northern shore and are consequently more abundant in the Great West Bay area than in the Channel Islands area. This is in agreement with the fact that Oceanic Water on entering the Channel always keeps nearer to the English than to the French coast, and moreover the general surface drift, which may have some influence on the way in which such forms enter the Channel, is from the South-west.

The Plankton taken in the summer of 1906 was characterised by the presence of vast swarms of Pteropods at certain of the western stations. This is of especial interest as these Pteropods have been identified by Professor Pelseneer as *Limacina lesueuri* (d'Orb), a tropical form usually found in warm water of high salinity.

II.—Changes in the Composition of the Plankton.

On studying the records of the Plankton taken in the English Channel area since 1903, it is found that well-marked changes occur during each year, certain of these bearing a close resemblance to one another in different years ; whilst on the other hand there are well-marked differences to be observed from year to year in the composition of the Plankton taken at the same place and at the same season of the year.

The causes which bring about these changes in the Plankton are, like the changes themselves, partly of an irregular nature, and also such as recur with considerable regularity each year. They include the life histories of the various Plankton animals and plants, and the changes in the environment of these organisms. This influence of the life histories on the changes in the Plankton must, from its nature, be the same from year to year, excepting in so far as it itself may be modified by changes in the external conditions.

As regards the seasonal changes in the composition of the Plankton, their comparative regularity indicates that they are chiefly due to the life histories of the animals and plants as affected by the change of season. The way in which these influences bring about changes in the Diatom Plankton is discussed more fully elsewhere (pp. 240–241).

Unfortunately little is known of the life history of many of the Plankton organisms, but in the case of certain groups of animals the influence of the change of season on the life history is very clearly shown. Thus the Cladocera always make their appearance in the spring, and during the summer play a very important part in the Plankton, disappearing again in the autumn when they form winter eggs, and are thus able to survive the cold season of the year. The Hydro-Medusae also, as a group, are decidedly summer forms, but owing to the different seasonal range of the various species their appearance and disappearance is not so sharply defined as that of the Cladocera. Amongst the Protophyta, *Phaeocystis globosa* has a well-defined period of abundance in the spring, and is usually entirely absent from the Plankton during the remainder of the year.

The changes in the environment of the Plankton organisms are partly regular ones which occur in the same sequence each year, and partly irregular ones due to varying causes. The regular changes are entirely dependent upon the seasonal climatic changes, and include the variations of temperature and intensity of light. These changes affect the composition of the Plankton indirectly by modifying the life histories of the animals and plants.

It is the irregular changes in the composition of the Plankton which are of the greatest interest, and whose study is most likely to be of service to Hydrography. As such changes must have a cause, it is necessary to consider the ways in which they may be brought about. The action of currents and the movements of large volumes of water from place to place must exert an important influence on the Plankton. Thus the composition of the Plankton at any place may be modified in this way firstly by the direct introduction of species brought by the new water, and also by the carrying away of indigenous forms. The latter is possibly not so very important as unless a very rapid change of water takes place, a sufficient number of the native forms will be left to preserve the composition of the Plankton at that place.

Within the area of the English Channel the rate of change of the water is not so very rapid that the character of the Plankton at any place can be very greatly changed by this means alone. In addition to this direct action, currents may modify the Plankton at any place in several more indirect ways.

For example, a change of water will usually mean a change in salinity, and possibly in temperature, thus altering the conditions under which the indigenous species are living.

The changes in the composition of the Plankton may be better understood if we consider the different elements of which the Plankton, found at any particular place, is composed. Then, by studying the causes which are chiefly instrumental in bringing about changes in each of these components, we shall be better able to understand the changes of the composition of the Plankton as a whole.

For this purpose we may roughly divide the Plankton elements at any station into two groups, namely :—

i. Periodic Plankton elements,
ii. Permanent Plankton elements.

The term "Permanent" as applied to any animal or plant occurring in the Plankton is perhaps open to criticism, but at many stations certain species are found to appear with such regularity that there is some justification for the use of this term.

Whenever a Plankton organism is constantly found at any particular place it naturally follows that this place is situated well within the area of distribution of this species. On

the other hand, however, a form may have its centre of distribution at a given place and yet, by reason of its life history, be decidedly periodic in its appearance in the Plankton.

It is obvious that no sharp line can be drawn between these two groups, as any particular form may be a permanent constituent of the Plankton in one part of the English Channel and yet be irregular in its appearance at another. Each of the above-mentioned groups of Plankton elements may be still further divided into Oceanic and Neritic forms. As regards the meaning of the terms Oceanic and Neritic, I agree with the definitions suggested by Gough (Report on the Plankton of the English Channel in 1903), namely, "Neritic Plankton includes all species whose centres of distribution lie in shallow (coastal) waters, 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 eventually die out unless it can reach shallow water again. Oceanic Plankton includes all species usually found in the ocean whether also found in abundance near the coast or not."

In the case of many Neritic species, the reason why they are confined to inshore waters is probably due chiefly to the increase in the depth of the water, and not so much to changes in the salinity. Thus in the case of the Diatoms, many of the Neritic forms are known to form resting spores when the conditions of life become unfavourable. These spores then sink to the bottom of the sea and there await a return of more favourable conditions. On the other hand, none of the Oceanic Diatoms are known to form such spores which would be useless in deep water, where they would sink down far out of reach of the sunlight which is essential for their germination.

In the case of the distribution of Oceanic species, the depth of the water has probably no such significance, though its influence may be felt in another way as suggested by Van Breemen, namely, that some Oceanic species are poisoned by substances present in the water, which have been dissolved out of the sea-bed.

The salinity of the water may have an important influence on the distribution of many Oceanic species, though some forms can endure very great changes in the salinity of the water. Thus *Pleurobrachia pileus* is to be found alike in the open ocean and in brackish estuarine waters. Consequently, the distribution of Oceanic species differs essentially from that of Neritic species, as the range of the former depends largely upon the power possessed by each individual of adapting itself to changes in the composition of the dissolved matter present in the water, whereas in the case of Neritic forms there is the definite factor of depth of water to be considered.

The group of Periodic Oceanic Plankton Elements includes all Oceanic forms which have their centre of distribution outside the area under investigation.

In the group may be placed such species as *Chaetoceras peruvianum*, *Rhizosolenia hebetata*, *Muggiaea atlantica*, *Euchaeta hebes*, and *Limacina retroversa*, forms which are usually only observed in the western part of the English Channel, and which occur with no regularity. The occurrence of these Periodic Oceanic forms in the English Channel is probably greatly influenced by purely Hydrographic causes, such as the Ocean Currents and the inflow of Atlantic water into the Channel, which directly affect the composition of the Plankton by the introduction of new species.

It is to such species therefore that one must look for information which will be of direct assistance in aiding and checking the results of the Hydrographic observations. As a rule these forms appear so rarely, and in such small numbers, that no information of any value can be obtained from a study of their distribution. Occasionally, however, a large shoal of some strange form suddenly makes its appearance and its movements can be clearly traced, thus giving a clue as to the movement of the influx of Oceanic water by which the species was introduced into the Channel.

In the central portion of the English Channel, the number of Periodic Oceanic Species is greater than in the extreme west, as many Oceanic forms which occur with great regularity at the western stations become sporadic in their appearance in the central area, whilst in the eastern part of the Channel the number of Oceanic species is very much reduced and consists chiefly of permanent Oceanic forms.

The group of Permanent Oceanic Plankton Elements is intended to include those forms such as *Pleurobrachia pileus*, which are found with considerable regularity even at the most Neritic stations. Other species belonging to this group are *Calanus finmarchicus*, *Pseudocalanus elongatus*, *Coscinodiscus radiatus*, *Oikopleura dioica*, and *Sagitta bipunctata*.

The group of Periodic Neritic Plankton Elements includes most of the Neritic species found in the English Channel. The periodicity of these Neritic forms is in many cases due to their life history, and in consequence many of them show distinct seasonal variations, as for example the Cladocera and Medusae.

The Neritic Diatoms also show, as a rule, decided periodic changes, the causes of which are discussed below. At some of the stations certain Neritic species are to be found throughout the year, these stations being always well within the area of the Channel (Central and Eastern areas) and near to the coast. Here the changes in the Hydrographic conditions take place more slowly than in the Western areas, thus favouring the growth of a more stable Plankton.

Possibly also the continuous abundance of food material in the water at such stations has an important influence on the growth of the Permanent Neritic Species. Amongst the chief species of this section of the Plankton are *Biddulphia mobiliensis*, *Tintinnopsis beroidea*, *Temora longicornis*, and *Centropages hamatus*.

By considering together these four groups of Plankton Elements we see that the greatest seasonal changes in the Plankton are to be expected in the central portion of the English Channel. Thus the permanent Oceanic and Neritic forms are most abundant in the extreme West and extreme East respectively, whereas the greatest number of periodic forms is to be found in the intermediate areas. In the Eastern areas the least changes are to be observed, whilst it is in the extreme West that the irregular changes are most likely to occur. Consequently it is in this region that the Plankton observations are most likely to be of value in their relation to the Hydrographic work.

III.—The chief Factors which cause the Periodicity of the Plankton Diatoms, and their Influence within the Area of the English Channel.

As pointed out by Gran,* it is apparently a general rule that along the coasts of the North-west of Europe the Plankton Diatoms form two well-defined maxima during the year, the first in March–April, and a second one in September–November. This regular periodicity is brought about by the combined influences of several factors, which from their nature are on the whole fairly constant from year to year. Of such factors probably the most important are the influences of light and temperature, the supply of food material in solution in the water, and the power possessed by certain marine bacteria of decomposing the nitrogen compounds, which form an important constituent of the food of most of the Protophyta.

In the winter, owing to the diminished intensity of the light, the conditions are not favourable for the development of the Diatoms, many of which are then present in the coastal regions in the resting stage as "dauersporen." During this period of rest the food material in the water is steadily accumulating, so that as soon as the conditions of light and temperature become favourable for the germination of the spores a rich Diatom-Plankton comes into existence. As a consequence of this, the supply of food material in the water rapidly becomes exhausted unless it can be constantly replenished, and the competition amongst the Diatoms becomes so severe that many forms are compelled to form spores and await a return of conditions favourable to their growth.

As many of the forms which first appear in the Plankton are northern forms, their disappearance is probably also largely due to the increase in the temperature of the water during the spring. As the maximum abundance of the Peridinidae occurs during the summer months, the Diatoms bave then to endure the competition of these Protophyta which require similar food to themselves. Also at this period of the year when the maximum temperature is reached, the denitrifying bacteria are most active, and they, by decomposing the nitrogen compounds present in the water, still further reduce the supply of food available for the Diatoms as the latter are unable to assimilate the free nitrogen.

Then in the autumn when the Peridinidae are less abundant and the activity of the denitrifying bacteria is diminished owing to the decrease of temperature, the supply of food material again commences to accumulate, and the Diatoms, which have been resting as spores, again appear in the Plankton, forming the second maximum which persists until the diminished intensity of the light causes most of the Diatoms to re-form spores, which lie dormant at the bottom of the sea until the time of the next spring maximum.

Within the area of the English Channel the influence of some of these factors is considerably modified, with the result that the maxima and minima are less sharply defined. For example, there is always sufficient light even through the winter to enable a fairly rich Diatom-Plankton to flourish, this Plankton consisting chiefly of forms such as *Coscinodiscus excentricus*, *radiatus*, and *Grani*, *Biddulphia mobiliensis* and species of Thalassiosira. Probably, however, the chief reason why the maxima and minima are not so sharply marked in the Plankton of the English Channel is that within this area there

* "Das Plankton des Norwegischen Nordmeeres." 1902.

is little possibility of the food supply of the Diatoms becoming exhausted. Thus the area comprises a long and comparatively narrow arm of the sea, no parts of which are very far from land. In consequence of this the water must contain a considerable amount of nitrogenous material resulting from the decomposition products of littoral organisms. Then again the numerous rivers which flow into the English Channel must add considerably to the amount of food-stuff in the water.

Another important fact in this connection is that, over most of the area investigated, the depth of water is so small that the action of the waves is felt at the bottom of the sea, as shown by the presence of sand and mud in the surface waters. In consequence of this the organic matter which is thrown off by the sea bottom is brought up to the surface waters where it can be used as food by the Diatoms. Again, the velocity of the change of water in the English Channel is much less than it would be along a coast directly exposed to the open ocean, and as the main drift of water passes eastwards along the centre of the Channel the water in the bays and along the coasts probably changes very slowly, thus enabling the holo-planktonic forms at any place to persist, and in this way increase the stability of the Plankton at that place.

As a consequence of all this it is found that many species of Diatoms are able to exist throughout the year at places favourable to their development. Thus many Neritic Diatoms are found at certain stations on every quarterly cruise. At those places where Plankton samples are taken at frequent regular intervals, such as at various lightships and at Plymouth, this fact is well shown. Thus at the Varne (and Cardigan Bay) light-stations several Neritic species are to be found at all seasons of the year, *e.g.*, *Rhizosolenia shrubsolei*, *Stroptotheca thamensis*, *Coscinodiscus radiatus*, *Paralia sulcata*.

At places near the open sea, such as Sevenstones, certain, Oceanic Diatoms, such as *Coscinodiscus radiatus* and *Rhizosolenia alata*, are found to be practically permanent forms.

No samples are taken at frequent intervals at any place in the extreme west of the English Channel and far from land, but from the records of the quarterly cruises there appears to be a decided falling off of the Diatoms during the summer. This is possibly due to the fact that in this portion of the Channel the depth of water is greater and the supply of food not so plentiful as further east.

Moreover, it is at the most westerly stations that the Peridinidae are found in the greatest numbers.

It is possible that within the area of the English Channel the temperature plays an important part in determining the character of the Diatom-Plankton. Thus, during the winter, the forms which are most abundant are those whose centre of distribution lies in a more northern latitude, as, for example, various species of Coscinodiscus and Thalassiosira, *Coscinosira polychorda*, *Skeletonema costatum*, *Thalassiothrix nitzschioides*. All of these are included by Cleve in his type of Tricho-Plankton, which is the Plankton characteristic of the Arctic waters.

During the summer the above forms are usually absent from the Plankton, or, if present, are found in very small numbers, and the forms which are then dominant have a more southerly distribution than above, *e.g.*, *Guinardia flaccida*, *Rhizosolenia shrubsolei*, *Rhizosolenia stolterfothii*. These species belong to Cleve's type of Didymus-Plankton, a Neritic type of Styli-Plankton, which is found along the west coasts of Africa and Europe as far north as the Faeroes.

In the extreme west of the Channel the dominant species are *Rhizosolenia alata* and *styliformis*. These forms belong to the type of Oceanic Styli-Plankton of the temperate waters of the Atlantic Ocean.

The second Diatom maximum, which occurs in the autumn, is brought about by the reappearance of many of the winter forms, which are found in the Plankton more or less regularly until the following spring.

IV.—Notes on the Distribution of certain Species.

In the following pages the distribution of some of the more important species occurring in the Plankton will be given in detail. The list is intended to be as far as possible representative of the different Plankton elements, in order that a comparison may be made of the changes shown by these elements during the same period.

The data here given are drawn from the records of the Plankton taken on the four quarterly cruises in 1906, and from Tables I to VI.

In order to facilitate the descriptions of the distribution of the various species as found on the quarterly cruises during 1906, the stations in the English Channel have been divided into the following areas, which are indicated by broken lines on Chart I :—

(1.) *North-west Area*	including	Stations	...	...	1, 6, 7, (25)*
(2.) *South-west Area*	,,	,,	...	...	2, 3, 4, 5
(3.) *Great west Bay Area*	,,	,,	...	...	16, 17, 18, 19, 20
(4.) *Channel Islands Area*	,,	,,	...	...	8, 9, 10
(5.) *Central Area*	,,	,,	...	...	11, 12, 13, 14
(6.) *Eastern Area*	,,	,,	...	...	21, 22, 24

Biddulphia mobiliensis (Bail) was found at Plymouth in 1906 from January to the end of March, occurring in large numbers. A few individuals were observed at intervals during the summer, and from September 7th Biddulphia was continuously present until the end of the year, being common during October, November, and December. At Varne in 1905 it was only absent from the Plankton during June and July, and in 1906 it was not observed on May 23rd, from June 21st to August 4th, and on August 21st. At Cardigan Bay in 1905 it was present throughout the year excepting on July 2nd. At Sevenstones in 1905 it was absent from June 3rd until September 30th, and in 1906 it was absent from May 10th until September 20th.

Biddulphia mobiliensis was observed on each quarterly cruise in 1906. In February it was present at every station, usually in considerable numbers. In May it was not observed in the north-west area, and was rare in the other areas. In August it was observed in small numbers in the Great West Bay, Central, and Eastern areas. In November it occurred in every area, being very abundant in the Great West Bay area.

Biddulphia mobiliensis is a Neritic Diatom and is an important element in the winter Plankton of the Channel.

At the more Neritic stations its period of vegetation is so long that Biddulphia is practically a perennial form at such stations. The records of the quarterly cruises show that its range of distribution extends much further west in winter than during the summer.

Chaetoceras danicum (Cleve) occurred at Plymouth in 1906 on January 1st, during March and April, on July 20th and 27th, and during October, November, and December. At Varne in 1905 it occurred only on October 28th, and in 1906 from July 21st to October 2nd, being common on August 4th. At Cardigan Bay in 1905 it occurred on February 7th, from March 7th to June 4th, on July 17th, August 15th, September 14th and 29th, and on November 12th. At Sevenstones in 1905 it occurred from January 7th to April 20th and from October 30th to December 27th. At Sevenstones in 1906 it was present from January 12th to April 10th, and on September 20th, October 3rd and December 17th.

In February, 1906, *Chaetoceras danicum* was abundant in the Great West Bay area, at E 2 and E 10. In May it was not observed at any station. In August it was abundant in the Great West Bay area, and rare at E 14 and in the eastern area. In November it was common in the Great West Bay area and also present in the North-west and Channel Islands areas.

Chaetoceras danicum is a Neritic species whose centre of distribution lies in the Great West Bay area. It is apparently a winter form in the western part of the Channel, but differs from the preceding species in being a summer form only in the more Neritic eastern portion of the Channel.

Coscinodiscus radiatus (Ehbg.) was generally present in the Plankton taken at Plymouth during 1906, being only absent during May and the first half of September. It was continuously present at Varne in 1905 until June 6th, and again from August 21st until the end of the year. In 1906 it was only absent on July 17th. At Cardigan Bay in 1905 it occurred in every sample. At Sevenstones in 1905 *Coscinodiscus* was absent from June 17th to August 3rd, and in 1906 it was not observed on May 23rd and from July 7th to August 22nd.

In February, 1906, *Coscinodiscus radiatus* occurred in every area, and was common in all areas but the two western ones. In May it was still present in every area but only in small numbers. In August it was absent from the North-west area and was generally rare wherever observed. In November it occurred in every area, being common in the Great West Bay, Central, and Channel Islands areas.

* Station E 25 $\left\{\begin{matrix}49^\circ\ 46\frac{1}{2}'\ \text{N.}\\ 6^\circ\ 34'\ \text{W.}\end{matrix}\right\}$ was worked as an extra station on the quarterly cruises in 1906, but is now one of the regular stations.

Coscinodiscus radiatus is remarkable in its distribution. It is an oceanic species and yet is almost continuously present even at the most neritic stations. Moreover, it is always more abundant in the Central and Eastern parts of the Channel than in the extreme West. Although practically a permanent Plankton element *Coscinodiscus* has a well-marked seasonal variation in abundance, being much more common from October until May, than during the summer.

Guinardia flaccida was observed at Plymouth in 1906 from the beginning of March to October 4th, being very abundant during the first half of June. At Varne in 1905 it occurred at irregular intervals until the end of June, and was then continuously present until the end of the year. During 1906 it was generally present at Varne, but in small numbers. At Cardigan Bay in 1905 *Guinardia* was only absent on January 6th and September 29th, and was very common during July and August. At Sevenstones in 1905 it was only found on July 4th, September 16th and September 30th. In 1906 it occurred at Sevenstones from the end of April to the beginning of October.

In February 1906 *Guinardia flaccida* was found in small numbers in the Eastern, Central, Channel Islands and Great West Bay areas, and also at E 2. In May it occurred in every area, and was common at all stations in the Great West Bay area. In August it was still found in each area, but was rare in the extreme west, being most abundant in the Channel Islands area and station E 12. In November it was not observed in the south-west and eastern areas, and was very rare excepting at station E 13.

Guinardia flaccida is one of the most important neritic summer forms of the Plankton of the Channel, occurring sometimes in great numbers. During the summer it spreads over the whole area of the Channel, including even the most oceanic stations, and thus differing from such neritic winter forms as *Biddulphia mobiliensis*, which retreat eastward during the summer. This spreading is well shown by the dates upon which it occurred at Sevenstones in 1905 and 1906.

Rhizosolenia alata (Btw.) was found at Plymouth in 1906 at intervals during January and February ; it was continuously present from March 17th until September 7th, and also occurred on November 20th and December 22nd. It was never seen at Varne during 1905 and 1906, nor at Cardigan Bay in 1905. At Sevenstones in 1905 it occurred in small numbers during January and February, and was continuously present from June 17th until the end of the year, being very abundant in July. In 1906 it was only absent at Sevenstones on November 19th, and was common from May until September.

Rhizosolenia alata was found in the Great West Bay, Channel Islands, and the two western areas on each cruise in 1906. In February it was common in the Great West Bay and at station E 1. In May it was common in the two western areas and at stations 18 and 20 in the Great West Bay area. A few individuals were also found at station E 21 in the eastern area. In August it was common at all stations in the north-west area. In November *Rhizosolenia* was not common at any station, its maximum abundance being at station E 5.

Rhizosolenia alata is an oceanic species which is very rarely found further east than Portland. In the west of the Channel it is generally present throughout the year, but forms a decided maximum during the summer. When found within the mouth of the Channel, *Rhizosolenia* is more abundant at the northern than at the southern stations.

Rhizosolenia semispina (Hensen) occurred at Plymouth in 1906 almost continuously from the middle of March until the end of September. At Varne it was only observed as very rare on May 23rd, 1906. At Cardigan Bay in 1905 it was present from July 2nd to November 12th, being common in July and August. At Sevenstones in 1905 it was observed at irregular intervals from April to October, and in 1906 was present from February 12th to July 7th, on August 6th, September 20th, and October 3rd, being very common during April and May. In February, 1906, *Rhizosolenia semispina* was present in small numbers at all stations near the coast in the western portion of the Channel. In May it was abundant in the North-West, South-West and Great West Bay areas. In August it was confined to the Great West Bay area, being common at station 18. In November it was common in the South-West area and in rare the Great West Bay area.

Rhizosolenia semispina is an oceanic species and does not penetrate further east than Portland. It attains its maximum abundance at the most oceanic stations in May, but at stations intermediate in character between oceanic and neritic, this maximum is not reached

until August, and at such stations moreover, *Rhizosolenia* has a longer period of vegetation. In 1906 its distribution was remarkable as it remained abundant in the Great West Bay area when it had disappeared from all the stations in the Western area.

Rhizosolenia stolterfothii (Perag.) was almost continuously present at Plymouth in 1906 from the end of March until the end of September, and was also observed during December. During the early part of July, *Rhizosolenia stolterfothii* and *Guinardia flaccida* formed the bulk of the Phytoplankton. In 1905, *Rhizosolenia stolterfothii* was observed in nearly every sample taken at the Varne, and in 1906 it was but little less regular in its appearances. At Cardigan Bay in 1905 it was observed on March 22nd, from June 18th to August 15th, and on December 12th. In 1905 it was only seen at Sevenstones during the latter part of September, and in 1906 was continuously present from April 26th until August 6th. In February, 1906, *Rhizosolenia stolterfothii* occurred in small numbers in the Eastern, Central, and Great West Bay areas. In May it was found in every area and was common at most stations excepting those in the South-West area. In August it was still present in every area but was generally less abundant, being common only in the Channel Islands area. In November it was present in small numbers in all areas but the South-West.

Rhizosolenia stolterfothii is a neritic species and an important element of the summer Plankton of the Channel. Its distribution is almost identical with that of *Guinardia flaccida*, also a neritic summer form, and what has been said of Guinardia will apply equally well to *Rhizosolenia stolterfothii*.

Ceratium tripos (O. F. Müll.) was found at Plymouth, in 1906, in small numbers, on March 29th, April 12th, May 4th, and almost continuously from August 4th until the end of December. At Varne it was not observed during 1905 and 1906. At Cardigan Bay in 1905 it was taken in very small numbers on February 21st, September 1st, and December 12th. At Sevenstones in 1905 it was present until the end of April, and from July 4th until the end of the year, being common during August. In 1906 it occurred at Sevenstones until April 10th, and from May 23rd to December 17th, being common during August and September.

In February, 1906, *Ceratium tripos* was present in small numbers at all stations west of Portland, and also at E 12. In May it had penetrated eastwards as far as station E 24, and was also present in the Great West Bay area and in the extreme west of the Channel. In August it was common at most stations west of Portland, and was also found south of station E 22. In November Ceratium was found in every area, being observed as far east as Dungeness.

Like most of the Peridinidae found in the English Channel, *Ceratium tripos* is an oceanic species which attains its maximum abundance in the summer. As was observed in 1903 (Gough, Report on the Plankton of the English Channel for 1903) this species shows a distinct eastward movement during the year.

Phaeocystis globosa (Scherffel) was observed at Plymouth in 1906 from March 22nd until June 8th, being very abundant during April and May. At Varne it was not observed during 1905, and in 1906 was present from May 9th until June 21st. At Cardigan Bay in 1905 it occurred from June 18th to July 17th. At Sevenstones in 1905 it was present on September 1st, and in 1906 from May 23rd to June 8th. *Phaeocystis globosa* was found in May in large quantities in the Great West Bay and Channel Islands areas, and was also present at stations E 2 and E 14.

Phaeocystis globosa is a neritic species which belongs to the periodic Plankton of the English Channel and Irish Sea. Its absence from certain areas during May is possibly due to the fact that its period of vegetation is comparatively short, and does not occur simultaneously in all parts of the Channel.

Nitzschia closterium and a smaller species of Nitzschia were frequently found associated with Phaeocystis.

Tintinnopsis beroidea (Stein) was observed in every Plankton sample taken at Plymouth in 1906, excepting on January 1st and April 5th. At Varne in 1905 it was present in every sample, and in 1906 was only absent on May 9th, June 21st and September 4th. At Cardigan Bay it was found throughout the year except on June 18th. At Sevenstones in 1905 it was present on April 6th, 20th, May 19th, August 3rd, and from September 1st to the end of the year. At Sevenstones in 1906 it occurred from January 12th to May 23rd, from September 20th to November 3rd, and on December 17th.

Tintinnopsis beroidea was found at every station on the February and November cruises. In May it was found in all areas excepting the Eastern and in August it was present in the Great West Bay, Central and Eastern areas.

Tintinnopsis beroidea is a neritic species which is a permanent constituent of the Plankton of all parts of the Channel excepting the extreme west where it was not observed in August. It is a winter form as shown by the changes in its abundance at different seasons, but it does not show such marked seasonal variations as many of the neritic diatoms.

Centropages hamatus (Lillj.) was observed at Plymouth in 1906 at irregular intervals from May to August. At Varne it occurred continuously throughout 1905 and 1906. At Cardigan Bay in 1905 it occurred on February 7th and 21st, and from March 22nd until the end of the year. At Sevenstones it was not seen at all during 1905 and 1906.

Centropages hamatus was observed on each of the quarterly cruises in 1906. In February it was confined to the Central and Eastern areas. In May it had become much more abundant, and was found in all areas but the South-West. In August it was common in the Eastern, Central, and Great West Bay areas. In November its distribution was similar to that in August, but *Centropages* was then less abundant.

Centropages hamatus is a neritic species, and is a permanent Plankton element in the Eastern area of the Channel. It is most abundant during the summer, and is then found much further west, though it is still most abundant in the Central and Eastern areas.

Centropages typicus (Kröyer) was present at Plymouth in 1906 at frequent intervals until the middle of June, occurring in small numbers. It was then continuously present until December 22nd, attaining its maximum abundance during September and October. At Varne in 1905 it was observed on March 5th, and was present in every sample from the end of April to the end of August. In 1906 it occurred at Varne on January 24th, August 4th and 21st, and October 20th. At Cardigan Bay in 1905 it was present from June 4th until the end of the year, excepting October 30th. At Sevenstones in 1905 it was only absent on February 21st, and was very common during August, September, and October. In 1906 it was generally present at Sevenstones, excepting on February 24th, March 12th, November 19th, and December 2nd, being most common from July until the end of October.

Centropages typicus was taken on each cruise in 1906. In February it was present in small numbers in the South-West, Great West Bay, and Channel Islands areas, and also fairly abundant at station E 1. In May it occurred in small numbers at all stations west of Portland, excepting E 2. In August it was found in all areas but the Eastern, being most common at stations between the Portland–Barfleur and Land's End–Ushant lines. In November it had the same distribution as in August, but was generally less abundant.

Centropages typicus is an oceanic species and a permanent Plankton element in the western half of the English Channel. Its distribution is interesting when compared with that of *Centropages hamatus*, a neritic species whose centre of distribution lies in the Eastern area of the Channel. *Centropages typicus* attains its maximum abundance during September and October, and it is worthy of note that it is generally more abundant at stations just within the mouth of the Channel than at the most westerly stations. The fact of its frequent occurrence at Varne, although it is not observed in the Eastern area of the Channel, may be accounted for by the fact that it is found at many of the stations in the southern part of the North Sea (Belgian area), including B 12,* which lies close to the Varne Bank.

Metridia lucens (Boeck) appeared at Plymouth in 1906 at irregular intervals from January until June. At Varne it was never observed during 1905 and 1906. At Cardigan Bay in 1905 it occurred only on December 12th.

At Sevenstones in 1905 it was present on January 23rd, March 23rd, and from October 30th to December 27th. At Sevenstones in 1906 it was only observed on March 12th, April 10th, October 20th, and November 3rd.

On each quarterly cruises in 1906 *Metridia lucens* was found in both the North-West and South-West areas. In February and May it also occurred in the Great West Bay area.

* B 12 is situated 51° 04′ N., 1° 21′ E.

Metridia lucens is one of the periodic elements of the Plankton of the western part of the Channel. It is an oceanic species whose range is very similar to that of *Rhizosolenia semispina*. Thus both these species are most commonly found in the North-West and South-West areas. When however they are observed further East they are both much more abundant in the Great West Bay area than in the Channel Islands area which adjoins it on the southern side. *Metridia* is irregular in its appearances during different years, but on the whole is most abundant in the spring.

Temora longicornis, (O. F. Müll.) was almost continuously present at Plymouth during 1906, the dates on which it was not observed being January 1st, 26th, February 12th, 16th and March 3rd. At Varne it occurred in every sample taken during 1905 and 1906. At Cardigan Bay in 1905 it was found from the beginning of the year until September 14th, and on October 14th and December 12th. At Sevenstones in 1905 it occurred on March 7th, September 1st, and from September 30th to December 27th. At Sevenstone in 1906 it was present from April 26th until the end of the year.

Temora longicornis was abundant in the Eastern and Central areas in February, 1906, and was also present in the Great West Bay and Channel Islands areas and at E 3. In May it was observed in every area, being rare in the extreme west, and abundant elsewhere. In August it was common in every area excepting the South-West. In November it was absent from the South-West area, and was generally less abundant than in August.

Temora longicornis is one of the most abundant Copepods found in the English Channel. It is a neritic species and appears to be a permanent constituent of the Plankton in all areas but the two western ones. During the summer it is very abundant, and its range of distribution then extends further west than in winter, thus resembling that of *Centropages hamatus*, also a neritic summer form.

Evadne Nordmanni (Lovén) was continuously present at Plymouth in 1906, from March 22nd until the end of September. It was not seen at Varne during 1905 and 1906, nor at Cardigan Bay in 1905. At Sevenstones in 1906 it occurred in small numbers on July 18th, August 3rd, and September 30th. In 1906 it was present at Sevenstones continuously from April 26th to October 3rd.

In February, 1906, *Evadne Nordmanni* was only observed in small numbers at station E 17 in the Great West Bay area. In May it was present in the North-West, Great West Bay and Channel Islands areas, being fairly common at station E 1, and abundant in a sample taken mid-way between stations E 1 and E 2. In August its distribution was very similar to that in May. In November *Evadne* was not observed at any station.

Evadne Nordmanni is one of the periodic neritic species of the Plankton of the English Channel. It is only present during the warmer part of the year and has a limited distribution whose centre lies near station E 1. *Evadne* was generally much less abundant in 1905 than in 1906. This may possibly have some connection with the fact that during the summer of 1905 a patch of high salinity water was present for a considerable time near station E 1.

Oikopleura dioica (Fol) was rarely absent from the Plankton taken at Plymouth during 1906. At Varne it was generally present throughout 1905 and 1906. At Cardigan Bay in 1905 it occurred from February 7th until September 1st, and during November and December. At Sevenstones in 1905 it was observed at intervals from February until July, and then almost continuously until the end of the year. At Sevenstones in 1906 it was present from February 24th until October 20th.

Oikopleura dioica was found in every area, on each of the quarterly cruises in 1906. In February it was most common in the Great West Bay and Channel Islands areas. In May it was most abundant at station E 8 and in the South-West area. In August it was generally more abundant than in May, and was common at stations E 1 and E 24. In November it was found in small numbers at almost every station.

Oikopleura dioica is an oceanic species which is found throughout the year even at many of the most neritic stations. It does not have any well-marked seasonal changes in abundance such as are shown by most of the Plankton organisms.

V.—The Distribution of Oceanic and Neritic Species in the English Channel during 1906.

The distribution of the Oceanic and Neritic species occurring in the Plankton taken on the four quarterly cruises during the year 1906, has been worked out in the same manner as for previous years. Charts 1–4 show the percentage of the number of Oceanic species to the total number of species found at each station, and also the total numbers of both Oceanic and Neritic species at each station. The results obtained in this way agree very well with those of previous years in showing that the greatest percentage of Oceanic species occurs at stations in the extreme west of the Channel, this percentage diminishing fairly regularly towards the east, and rising again in the eastern basin of the Channel. This change in the percentage of Oceanic species is possibly due in part to the decrease in the salinity of the water passing from west to east, but no direct connection can be traced between the changes in this percentage and the changes in salinity from station to station.

One exception to this statement is perhaps worthy of notice. Thus in February, 1906, a sample taken midway between stations E 12* and E 13 contained 50 per cent. of Oceanic species, whilst at stations 12 and 13 the percentages were respectively 35 and 20. This seems to have some significance, as the hydrographic observations showed that a narrow strip of water of high salinity (35·34 per thousand) was present midway between stations 12 and 13, whereas at the stations themselves the salinity was E. 12, 35·01 ; E. 13, 34·81 per thousand.

It will be observed that the percentages at any station vary during the year, but these variations may be brought about by the combined influence of many causes including others as well as hydrographic ones. Thus the seasonal variations shown by the Plankton diatoms will have the effect of disturbing these percentages, especially as most of the diatoms found in the English Channel are neritic species. For example the high percentage of Oceanic species usually found at the most westerly stations and especially in August, is largely due to the absence of neritic diatoms at these stations. Also the occurrence at many stations of neritic summer forms such as the Hydromedusae, and the Cladocera has the effect of modifying the percentage of Oceanic species.

An attempt to establish a direct connection between changes in the hydrographic conditions and the varying percentages of Oceanic species, by comparing the conditions at corresponding seasons of different years, has also proved fruitless. As the Oceanic species in general have much less clearly marked seasonal variations than the neritic species, it is probably a better plan to consider only the actual numbers of Oceanic forms and not percentages, as in this way the influence of the seasonal changes in the Neritic Plankton elements may be eliminated. On doing this it is found that the number of Oceanic species at any station generally increases as the salinity of the water at that station rises. If the average number of Oceanic species and the average salinity of the water per station be compared, it is found that the fluctuations of the two averages generally agree very well with one another. These averages have been calculated for all cruises during 1904, 1905, and 1906, and will be found plotted in Chart 5. The dotted line indicates the variations of the average salinity, at intervals of three months during the three years, and the continuous line indicates the corresponding variations in the average number of Oceanic species per station. In calculating these averages the salinities at each station worked have been added together, and the sum divided by the number of stations.

The same method was also adopted in calculating the average number of Oceanic species. As all the 22 stations were not worked on every cruise this method is not strictly accurate but the error thus introduced is very small and not likely to affect the general agreement of the curves, for out of 22 stations, only 2 were omitted in February, 1904, one in November, 1904, and 3 in November, 1906. The scale according to which the two curves are drawn is so arranged that each has approximately the same maximum variation.

It will be seen that the curves are in least agreement during the latter part of 1905, when the number of Oceanic species was lower in comparison with the salinity than at any other period of the three years. This may perhaps be explained as follows.† In the early part of 1905 there was an inflow into the Channel from the west of water of comparatively high salinity (35·5 per thousand). During the remainder of 1905 this

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* The positions of these stations are :—E 12, 49° 55′ N., 1° 09′ W.; E 13, 50° 20′ N., 1° 15 W.

† *See* Matthews' "Report on the Physical Conditions of the English Channel in 1904 and 1905."

water was present in the western part of the Channel as a large isolated patch, which was still of high saliinity (35·4 per thousand). In February this patch of water was disturbed by a fresh inflow of Atlantic water and was driven eastwards out of the Channel.

As Gough has suggested, when water of high salinity remains long over a shallow bottom, the number of Oceanic species present in this water will decrease, even though the salinity of the water may change very little. Consequently it seems not improbable that the unusual Hydrographic conditions were chiefly responsible for the high salinity and small number of Oceanic species during the latter part of 1905.

It may also be observed that the minima of both curves occur in August each year and that there is a decided rise between August and November. It is during this period of the year that the inflow of Atlantic water into the English Channel reaches its maximum, and also the surface drift from the South-west is then greatest, owing to the prevalent south-westerly autumnal gales.

It will be observed that as in previous years the number of Oceanic Species found at the most westerly stations is almost always less than at the stations just within the mouth of the Channel, and that the actual number of Oceanic species found at each station bears no constant relation to the salinity of the water. This agrees with what Ostenfeldt has pointed out, namely that many oceanic species seem to thrive best at places near to land. As in 1904 and 1905, the largest total number of species was usually found at stations where a considerable mixing of waters of different origin takes places, such stations being situated near Start Point, Ushant, and Land's End. Similarly the smallest number of species was always found in the Eastern and Central Areas, and also at the most westerly stations where such mixing is very slight.

VI.—Plankton taken at Plymouth in 1906, and at various Light-Stations in 1905 and 1906.

The Plankton taken at Plymouth during the year 1906 will be found recorded in Table I. The samples were taken under exactly the same conditions as during the two previous years, in order that the results of the three years may be comparable with one another. Tables II. to VI. contain the records of the fortnightly samples of Plankton taken at the Varne and Sevenstones Light-ships during 1905 and 1906, and at Cardigan Bay Light-ship in 1905. As these stations are situated well apart from one another, and as the conditions of life for the Plankton are likely to differ considerably at the various stations owing to their different geographical positions, a comparison of the Plankton taken at each place may be of interest.

The Varne Light-vessel is situated in the middle of the Straits of Dover and is far removed from the direct influence of Atlantic water. It lies in the path of the water passing out from the English Channel into the North Sea, and the water in its vicinity always contains large quantities of chalk in suspension.

Cardigan Bay Light-vessel lies in the middle of Cardigan Bay, and like the Varne, is well removed from any direct influence of Oceanic water.

Sevenstones Light-ship lies in close proximity to land (between the Scilly Islands and the mainland) but is much nearer to the open Atlantic than any of the other stations. The currents and tides run very strongly here, and there is probably a considerable mixing of Oceanic and inshore waters.

Plymouth may be regarded as intermediate in character between Sevenstones and the two other stations. It lies open to the south-west and is thus in the line of the prevalent surface drift from the south-west of the English Channel. Moreover, the water there probably contains a large amount of organic matter in solution.

On calculating the average percentage of Oceanic species at these stations we find that the numbers are :—Sevenstones, 55 per cent. ; Plymouth, 44 per cent. ; Cardigan Bay, 37 per cent. ; Varne, 36 per cent., thus agreeing with the relative proximity of the stations to the open sea.

If we consider the number of species present in the Plankton, we find that the number of Oceanic forms is always more constant than that of neritic forms, even at Sevenstones where the greatest variation of Oceanic species might be expected. Moreover, the variations in the number of Oceanic species are more irregular than those of the neritic species and show no seasonal periodicity, whereas the number of neritic species has in all cases a fairly distinct minimum in the summer, and a smaller one in the winter.

The greatest variation in the number of Oceanic species is found at Sevenstones, whilst the number is most constant at Varne, the order of the stations being—Sevenstones, Plymouth, Cardigan Bay, Varne.

The variation in the number of neritic species is practically equal at Sevenstones, Varne and Plymouth, but is considerably less at Cardigan Bay. The fact of this variation being so much greater at Varne than at Cardigan Bay is possibly due to the fact that there is a considerable flow of water through the Straits of Dover and that the entire Plankton may be continually being replaced, whereas at Cardigan Bay it is possible for the local forms to persist, and thus preserve the character of the Plankton.

The number of neritic species was never less than 22 in any sample taken at Cardigan Bay, whereas this minimum was 14 at Plymouth, 9 at Varne, and 5 at Sevenstones. The Plankton taken at Cardigan Bay was remarkable on account of the very few species of Hydromedusae found in it. The average volume of the Plankton was always much less at the Varne than at the other stations, being greatest at Plymouth, and at these three latter places the bulk of the Plankton was often very great owing to the presence of dense swarms of Copepods, a state of affairs which is very seldom met with at the eastern end of the English Channel (approximately equal at Cardigan Bay and Sevenstones).

VII.—The Occurrence of *Limacina retroversa* (Fleming) and *Limacina lesueuri* (d'Orb) in the English Channel during 1905 and 1906.

As recorded in the "Report on the Plankton of the English Channel in 1904 and 1905" (Gough), *Limacina retroversa* (Fleming) was first observed in the Channel in August, 1905, when it was present in large numbers in the South-West area, and more sparingly in the North-West and Great West Bay areas. In November, 1905, it was still abundant in the west and south-west of the Channel, and was rare in the Great West Bay and Channel Islands areas. In February, 1906, it was only observed in very small numbers at stations E 1 (50° 02′ N., 4° 22′ W.). In May, 1906, small numbers of Limacina were found at all stations west of Start Point, and a sample taken mid-way between stations E 4 (48° 27′ N., 6° 35′ W.) and E 5 (49° 06′ N., 6° 32′ W.) contained a considerable number of Spiralis larvae. In August, 1906, a considerable number of young Limacinae were present at every station in the North-West area, and at stations E 2 (49° 27′ N., 4° 42′ W.) and E 6 (50° 24′ N., 6° 05′ W.) enormous shoals of these young Pteropods were found in the surface waters. In November, 1906, Limacina was found at all stations west of Portland, usually in small numbers, but moderately numerous at station E 1.

The young Pteropods which appeared in such large numbers in August, 1906, were identified by me as *Limacina retroversa* (Flem.), but Professor Pelseneer is of the opinion that they belong to a different species, *Limacina lesueuri* (d'Orb), a form which has not been found north of the Bay of Biscay, whereas the Pteropods found from August, 1905, to February, 1906, are certainly *Limacina retroversa* (Flem.). In consequence of this it will be necessary to re-examine all the Pteropods found during 1906, from May until the end of the year, as possibly some of the individuals found during this part of the year may be remnants of the shoal which appeared in 1905. As there is not time for such examination before the publication of this report, it is my intention to deal with the distribution of the two species of Limacina, during the years 1905 and 1906, in a separate paper.

All that can be said at present is that a shoal of *Limacina retroversa* entered the English Channel in 1905, between May and August, and that its distribution in August appears to indicate that it came from the south-west, passing close to Ushant. After passing station E 2 it spread out on both sides, part going eastwards into the Great West Bay area, and the other branch rounding Land's End and entering the Bristol Channel. In November, 1905, the denser part of the shoal had moved further north, reaching station E I, the north-west branch had disappeared, and the eastern branch had extended into the Channel Islands area. In February, 1906, the shoal had almost entirely disappeared. In May the new shoal of *Limacina lesueuri* made its appearance, probably entering the Channel from the south-west. It was then carried northwards in a similar manner to the 1905 shoal of *Limacina retroversa* and spread out over the north-western part of the Channel. In November, 1906, the boundary of the shoal had spread out so as to include all stations west of Portland, but the number of individuals had very greatly decreased.

The records of the Plankton taken during 1905 and 1906 at Plymouth and at Sevenstones Lightship show clearly when the two shoals of Limacina reached these stations. At Plymouth, Limacina was first observed in 1905, at the beginning of September, and was continuously present until the end of the year. During the early part of 1906 no Pteropods were found at Plymouth, but at the end of June Limacina again appeared, and was continuously observed until the beginning of November. At Sevenstones in 1905, Limacina was present from the end of August until the end of October ; it was also observed in 1906 on May 10th, and from July 23rd until November 3rd.

VIII.—Notes on a Series of Plankton Samples taken in August, 1906.

In August, 1906, a series of Plankton samples were taken at 47° 48′ N., 7° 24·8′ W., and 48° 7′ N., 8° 13′ W. A list of the species occurring in these samples will be found in Table A, from which, however, all larval forms have been omitted. Of the 53 species present in this list only three are neritic forms namely *Coscinodiscus excentricus*, *Gonyaulax polygramma*, and *Trochiscia Clevei*, all the Metazoa being Oceanic forms.

Thus the percentage of Oceanic species is 94 as compared with 90 per cent. at station E 4 earlier in the same month (Chart 3).

The list of species is remarkable on account of the few species of diatoms, the only forms which occurred in any abundance being *Rhizosolenia alata* and *Rhizosolenia styliformis*. The Plankton contained several species which had not previously been found at any of the regular stations in the English Channel, namely *Collozum sp.*, *Tintinnus inquilinus*, *Aetidius armatus*, *Sagitta furcata*, *Cymbulia peronii*, *Dexiobranchea ciliata*.

On August 24th a single sample was taken at 47° 35·6′ N., 7° 30′ W., just on the edge of the La Chapelle Bank, by letting down a tow-net to a depth of 750 metres, and towing it horizontally at this depth for one mile. This sample has not yet been fully examined, but several interesting species have already been found in it, *e.g.* *Copepoda*, *Euchirella curticauda* (Giesbr), *Gaetanus longispinus* (Wolfenden), *Lucicutia atlantica* (Wolfenden). *Lucicutia flavicornis* (Claus), *Oncaea venusta* (Philippi), *Pleuromamma robusta* (Dahl).

Schizopoda, *Boreomysis arctica* (Kröyer), *Gnathophausia Zoaea* (Suhm), *Nematoscelis megalops* (G. O. Sars).

TABLE A.—August, 1906.

Species Number.	—	Aug. 23 47° 48′ N. 7° 24·8′ W.			Aug. 25 48° 7′ N. 8° 13′ W.		Species Number.	—	Aug. 23 47° 48′ N. 7° 24·8 W.			Aug. 25 48° 7′ N. 8° 13′ W.	
		247—Om.	Om.	Om.	Om.	Om.			247—Om.	Om.	Om.	Om.	Om.
	Diatomaceae.							**Copepoda.**					
1	Chaetoceras peruvianum	...	...	...	...	rr	24	Acartia Clausi	rr	...	...	rr	rr
2	Coscinodiscus excentricus	...	...	...	...	rr	25	Aetidius armatus	rr	...	...	...	...
3	Fragilaria oceanica	...	...	...	rr	...	26	Anomalocera Pattersoni	rr	...	rr	...	rr
4	Rhizosolenia alata	r	c	+	c	r	27	Calanus finmarchicus	cc	rr	+	...	rr
5	— semispina	...	...	...	rr	rr	28	Candacia pectinata	r	...	...	...	...
6	— styliformis	+	...	rr	...	r	29	Centropages typicus	+	r	+	+	cc
							30	Clausocalanus arcuicornis	rr	...	rr	rr	r
							31	Corycaeus anglicus	...	rr	...	...	...
	Peridiniales.						32	Ctenocalanus vanus	r	...	...	...	rr
							33	Euchaeta hebes	rr	...	...	...	...
7	Ceratium bucephalum	...	...	...	r	...	34	Metridia lucens	c	...	r	...	rr
8	— furca	...	rr	...	r	...	35	Microsetella atlantica	...	...	...	rr	...
9	— fusus	...	...	...	r	...	36	Monstrilla sp.	rr	...	...	...	...
10	— longipes	rr	...	rr	...		37	Oithona similis	rr	c	r	c	...
11	— macroceras	...	...	...	r	...	38	— plumifera	+	...	rr	rr	...
12	— tripos	...	+	rr	c	...	39	Oncaea mediterranea	rr	...	...	...	...
13	Dinophysis acuta	rr	rr	rr	rr	...	40	Paracalanus parvus	+	+	c	c	+
14	Diplopsalis lenticula	...	r	...	...	...	41	Pseudocalanus elongatus	cc	rr	+	c	c
15	Gonyaulaux polygramma	...	rr	...	...	...	42	Rhincalanus nasutus	r	...	...	...	...
16	Peridinium divergens	...	...	...	rr	...							
	Protophyta Cetera.							**Metazoa cetera.**					
17	Halosphaera viridis	rr	+	...	+	...	43	Beroe ovata	rr	...	..	...	...
18	Trochiscia Clevei	...	...	..	r	...	44	Sagitta bipunctata	c	...	r	...	...
							45	— furcata	rr	...	...	...	...
							46	Tomopteris helgolandica	rr	..	rr	...	...
	Protozoa.						47	Apherusa Clevei	rr	...	...	...	...
							48	Euthemisto gracilipes	+	...	...	...	...
19	Collozoum sp.	...	...	...	r	c	49	Nyctiphanes Couchi	rr	...	rr	...	...
20	Dictyocysta templum	...	...	...	r	...	50	Cymbulia Peronii	rr	...	rr	...	...
21	Lithomelissa sp.	...	rr	...	...	...	51	Dexiobranchea ciliata	+	...	...	..	...
22	Tintinnus acuminatus	...	...	...	rr	...	52	Limacina retroversa	r	r	rr	...	...
23	— inquilinus ?	...	...	...	r	...	53	Oikopleura dioica	...	rr	rr	rr	...

TABLE I.

West Channel, Plymouth, 1906.

	January.				February.				March.				April.				May.				
	1	4	10	26	2	12	16	24	3	17	22	29	5	12	20	27	4	9	17	25	
Diatomaceae.																					
Actinoptychus undulatus ...	r	r	r	r	r	r	r	rr	rr	r	rr	...	...	...	...	...	..	...	...	...	1
Asterionella japonica ...	rr	...	rr	...	...	rr	...	...	...	...	rr	rr	c	r	r	...	...	...	...	rr	2
Bacillaria paradoxa ...	+	+	c	c	r	+	+	+	+	r	rr	rr	...	...	...	...	...	..	...	...	3
Bellerochea malleus ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Biddulphia alternans ...	rr	rr	r	r	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
— granulata ...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	6
— mobiliensis	+	+	c	c	c	+	c	c	c	c	c	+	...	r	...	...	...	...	...	rr	7
Cerataulina Bergonii ...	...	...	...	...	...	...	...	...	...	...	...	rr	r	r	...	...	...	...	...	...	8
Chaetoceras boreale ...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	r	...	...	...	...	9
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71	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
72	...	...	...	...	rr	rr	...	...	r	rr	...	rr	r	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
73	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	rr	...	...	...	...	...
74	...	...	...	...	...	..	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
75	rr	...	rr	r	r	rr	r	rr	rr	...	...	...	...	...	rr	r	r	r	rr	+	rr	rr	r	r	rr	c	r	r	rr	r	rr
76	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
77	rr	r	+	+	r	r	r	+	rr	r	rr	r	rr	...	rr	rr	...	rr	...	...	...	rr	...	...	...	...	...	...	...	...	...

TABLE I—*continued.*

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	January.				February.				March.				April.				May.				
	1	4	10	26	2	12	16	24	3	17	22	29	5	12	20	27	4	9	17	25	
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— globulus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	2
— ovatum	...	...	...	...	...	...	...	...	...	...	rr	rr	r	rr	rr	...	rr	...	rr	...	3
— pallidum	...	...	...	...	...	...	...	...	...	rr	rr	rr	+	+	+	r	rr	r	rr	rr	4
— pentagonum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
— Steinii	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	r	...	rr	...	...	...	6
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Distephanus speculum	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	10
Halosphaera viridis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
Phaeocystis globosa	...	...	...	...	...	...	...	...	...	...	rr	r	c	c	cc	cc	cc	cc	cc	c	12
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	1	8	15	22	29	9	13	20	27	4	10	17	24	1	7	14	24	28	4	11	18	26	5	10	20	24	30	8	15	22	29
1	...	...	...	rr	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	..
2	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
3	rr	r	rr	rr	rr	r	r	rr	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	r	r	+	+	r	r	...	r	r	...	rr	rr	r	rr	r	r	rr	r	...	rr	...	r	...	rr	...	rr	r	rr	...	rr	rr
5	...	...	...	rr	...	...	...	...	...	...	...	...	..	...	...	...	...	...	.	rr	...	...	rr	...	...	...	...	...	...	...	...
6	rr	rr	+	r	+	+	+	r	...	rr	rr	...	...	...	...	rr	...	...	...	rr	...	...	...	...	...	rr	...	...	...	...	...
7	...	...	rr	...	rr	...	rr	...	rr	rr	...	rr	rr	rr	rr	r	rr	rr	rr	r	...	...	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	..	...	...	...
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	rr	...	...	...	...	...	rr	...	...	...	...	...	rr	rr
10	...	...	...	..	..	...	...	...	...	...	...	rr	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	..	...
11	r	rr	rr	r	r	rr	...	rr	rr	r	r	rr	r	r	...	rr	rr	rr	r	rr	r	r	r	r	r	r	r	rr	r	rr	rr
12	r	rr	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...
13	...	...	...	...	...	...	...	..	...	...	rr	...	...	...	...	...	...	rr	...	rr	...	...	...	rr	...	...	rr	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	..	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...
18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	rr	...	...	...	...	...	...	...	...	...	...
19	r	+	+	rr	+	rr	rr	r	r	+	r	+	+	r	r	+	+	c	+	+	r	+	c	+	+	c	+	r	r	rr	+
20	...	...	...	...	...	...	...	r	rr	rr	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	c	+	+	...	rr	..	...	rr	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	...	...	rr	...	...	rr	rr	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
26	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...
29	...	...	...	...	r r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...
33	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	...	...	...	...	...	...	...	...	rr	...	r	...	rr	...	rr	r	rr	r	...	...	...	...	...	...	...	...	...	...	...	...	...
35	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	+	c	c	...	r	...	r	r	...	rr	r	r	rr	rr	...	r	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
37	+	cc	c	rr	+	r	+	rr	rr	r	r	+	r	rr	rr	c	...	c	r	r	r	...	+	r	rr	rr	...	rr	rr	...	...
38	rr	rr	r	...	rr	rr	r	rr	rr	r	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	...	rr	...	...	...	...	...
39	rr	r	rr	...	r	rr	rr	rr	rr	rr	rr	...	...	...	...	...	...	rr	...	r	rr	...	r	...	rr	r	...	...	...	rr	...
40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
42	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
43	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
44	...	...	...	...	cc	...	..	...	...	rr	rr	...	...	rr	rr	rr	rr	...	rr	rr	rr	...	...	...	...	c	rr	...	...	...	...
45	rr	r	c	...	r	rr	rr	c	rr	r	rr	r	r	rr	rr	rr	rr	rr	r	r	c	r	c	c	c	c	+	+	c	+	r
46	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	...	...	...	...	...	...	rr	rr	...	...
47	rr	rr	rr	...	rr	r	rr	rr	rr	r	rr	rr	rr	rr	rr	r	r	rr	rr	c	r	rr	rr	r	rr	r	r	rr	...	rr	rr
48	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	rr	...	...	...	rr
49	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
50	r	...	...	rr	+	rr	rr	r	rr	rr	...	...	...	...	...	rr	rr	rr	...	+	...	...	+	+	r	c	+	+	r	rr	rr

TABLE I—*continued.*

WEST CHANNEL, PLYMOUTH, 1906—*continued.*

	January.				February.				March.				April.				May.				
	1	4	10	26	2	12	16	24	3	17	22	29	5	12	20	27	4	9	17	25	
COPEPODA.																					
Acartia Clausi	r	rr	+	+	c	c	r	+	+	c	c	c	c	+	+	+	r	r	+	+	1
— discaudata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Calanus finmarchicus	rr	r	r	r	r	r	rr	r	r	r	r	+	+	r	rr	r	r	r	r	+	3
Caligus rapax	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Candacia pectinata	...	...	rr	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	5
Centropages hamatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	6
— typicus	r	r	rr	r	...	...	rr	rr	...	...	...	r	r	r	...	rr	...	...	...	rr	7
Clytemnestra rostrata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
Corycaeus anglicus	c	+	+	+	r	+	+	r	+	r	...	r	...	r	rr	rr	rr	rr	...	rr	9
Euterpe acutifrons	...	...	...	rr	r	r	...	...	...	...	...	...	...	...	...	rr	rr	...	...	rr	10
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— plumifera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
— similis	...	...	...	...	rr	r	r	r	+	+	+	rr	r	r	+	r	r	rr	rr	rr	20
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Parapontella brevicornis ...	...	...	...	...	rr	r	r	r	rr	r	+	r	r	r	r	...	rr	rr	...	rr	22
Pseudocalanus elongatus ...	+	+	+	+	c	c	c	c	c	c	cc	cc	cc	cc	c	c	+	+	+	+	23
Temora longicornis	...	rr	r	...	rr	..	...	rr	...	r	r	+	+	r	+	+	r	+	+	c	24
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Macropsis Slabberi	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
Siriella armata	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
Apherusa Clevei	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
Corophium Bonelli	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	32
Euthemisto gracilipes	...	...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	33
Caridid larvae	...	...	rr	...	...	...	...	...	...	...	...	rr	r	r	r	r	...	r	...	r	34
Cirripede larvae	...	...	...	...	...	...	...	...	rr	rr	+	c	c	c	+	r	rr	rr	...	...	35
— — (Cypris stage)	...	...	...	...	...	...	...	...	...	...	rr	...	r	r	+	+	r	r	r	rr	36
Megalopa	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr	r	37
Micronisicus	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	38
Nauplius	r	r	r	r	r	r	r	r	r	r	+	+	+	+	r	r	r	r	r	r	39
Zoaea	...	...	..	rr	r	r	r	r	+	r	...	r	r	r	r	r	...	r	r	r	40
Gnathia maxillaris (Juv) ...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	41
MOLLUSCA.																					
Limacina retroversa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	42
Gasteropod larvae	...	rr	rr	rr	+	r	r	r	r	r	r	rr	rr	rr	rr	rr	...	...	...	rr	43
Lamellibranch larvae	r	r	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	44
TUNICATA.																					
Oikopleura dioica	...	...	r	r	r	+	+	+	r	r	r	+	c	c	+	+	rr	rr	rr	...	45
Fritillaria borealis	..	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	46
VERTEBRATA.																					
Fish ova and larvae	cc	cc	c	c	r	+	+	c	+	cc	+	r	+	r	r	r	r	rr	rr	r	47

TABLE I—*continued.*

WEST CHANNEL, PLYMOUTH, 1906—*continued.*

	June.					July.				August.				September.					October.				November.					December.			
	1	8	15	22	29	9	13	20	27	4	10	17	24	1	7	14	24	28	4	11	18	26	5	10	20	24	30	8	15	22	29
1	c	c	+	c	c	+	+	+	r	+	r	+	+	r	r	+	r	r	+	+	c	r	+	c	+	+	+	+	+	+	+
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
3	r	+	r	r	r	cc	c	r	+	rr	r	r	r	rr	rr	r	r	rr	rr	r	rr	+	r	r	r	r	rr	rr	r	rr	rr
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	..	...	rr	..	...	rr	...	...	...
5	...	...	...	...	...	rr	...	...	...	rr	rr	rr	...	...	...	...	...	...	rr	...	...	...	...	rr	...	...	...	...	...	...	...
6	...	...	...	rr	rr	...	...	rr	...	..	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	rr	...	r	r	rr	rr	rr	r	r	rr	r	r	c	c	c	+	+	+	c	c	c	c	r	r	r	+	r	rr	rr	rr	...
8	..	...	...	...	...	...	...	rr	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	rr	rr	...	r	rr	rr	rr	r	rr	rr	rr	rr	rr	rr	r	rr	r	r	+	+	+	+	+	+	+	c	+	+	+	r	rr
10	rr	rr	...	...	rr	...	...	rr	...	rr	...	...	...	...	rr	rr	...	rr	rr	+	r	rr	r	rr	rr	rr	rr	+	rr	rr	rr
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	rr	...	...	...	...	...	...	rr	...	...	...	...	...	..	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...
15	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	rr	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
18	...	...	...	...	...	...	...	rr	...	. .	...	rr	rr	rr	rr	...	rr	rr	...	rr	...	...	...	rr	...	...	...	r	...	...	...
19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...
20	r	r	r	rr	rr	rr	rr	r	...	+	...	r	r	rr	r	rr	+	r	rr	+	+	r	r	r	r	+	r	r	r	rr	rr
21	rr	...	rr	rr	rr	rr	rr	rr	rr	r	rr	r	rr	rr	rr	rr	r	r	rr	r	rr	r	...	...	rr	rr	rr	r	r	r	rr
22	rr	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	..	...
23	+	+	+	+	r	r	r	+	r	r	+	+	+	+	r	r	+	+	+	r	r	+	+	c	+	+	+	c	c	c	c
24	c	c	c	cc	c	c	c	c	r	c	c	c	+	+	+	+	r	r	+	+	+	+	r	rr	r	r	r	r	r	r	+
25	rr	rr	+	+	+	r	r	+	rr	r	c	c	+	c	+	+	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...
26	r	rr	+	rr	rr	rr	rr	r	rr	r	+	c	c	c	c	+	r	rr	r	rr	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	..	...	...	...	...	...	...	...	...	...	...	...
29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	rr	...	...	...	...
32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	. .	...	...	...	...	rr	...	...	rr	...	...	...	...
33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...
34	r	...	r	+	r	r	...	r	rr	rr	rr	rr	r	rr	rr	rr	...	rr	rr	rr	...	rr	r	rr	...	...	rr	rr	...	...	rr
35	...	rr	...	rr	rr	...	...	rr	rr	rr	rr	r	r	+	c	c	+	+	r	rr	...	...	...	...	rr	rr	...	...	...	...	rr
36	rr	rr	...	...	...	...	...	...	...	rr	...	...	rr	...	...	rr	...	...	rr	...	...	rr	...	...	...	...	...	...	...	...	...
37	rr	rr	...	...	rr	..	...	rr	rr	...	...	...	rr	...	rr	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
38	...	...	...	...	rr	rr	...	...	...	rr	rr	...	...	...	...	..	...	rr	rr	rr	rr	rr	r	r	rr	...	rr	rr	rr	rr	rr
39	rr	r	+	+	r	r	rr	+	rr	+	r	r	r	r	r	r	+	r	rr	r	r	rr	r	+	r	+	+	r	r	r	r
40	r	+	rr	r	r	r	rr	r	rr	rr	r	+	r	rr	rr	rr	r	rr	r	rr	r	r	rr	rr	rr	...	rr	rr	r	r	+
41	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	..	...
42	...	...	...	...	+	rr	...	+	rr	rr	rr	r	rr	r	rr	rr	rr	rr	rr	rr	rr	rr	r	+	rr	rr	...	rr	...	...	...
43	rr	...	rr	rr	rr	...	rr	rr	rr	rr	rr	...	...	...	rr	...	...	...	rr	rr	...	...	...	rr	...	rr	...	rr	...	...	rr
44	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	rr	r	rr	+	...	rr	...	rr	rr
45	...	rr	rr	rr	+	...	...	+	r	c	+	+	rr	rr	r	r	r	r	rr	r	r	rr	...	+	r	r	rr	rr	r	r	r
46	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
47	r	+	r	r	r	r	rr	rr	rr	rr	rr	rr	...	rr	rr	rr	rr	...	...	rr	rr	...	...	...	...	...	...	...	..	rr	...

TABLE II.

Cardigan Bay Lightship, 1905.

—	Jan.		Feb.		Mar.		April.		May.	June.		July.		Aug.		Sept.			Oct.		Nov.	Dec.
	6	24	7	21	7	22	6	21	19	4	18	2	17	3	15	1	14	29	14	30	12	12
Diatomaceae.																						
Actinoptychus splendens ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
— undulatus ...	+	c	+	c	c	c	+	+	+	r	...	...	rr	r	...	r	r	r	r	r	+	+
Asterionella japonica ...	rr	...	rr	rr	r	r	rr	rr	...	c	rr	...	...	...	rr	...	+	+	+	r	+	r
Bacillaria paradoxa... ...	c	c	c	c	c	c	c	+	r	r	rr	rr	r	r	...	r	c	c	+	+	+	+
Bellerochea malleus ...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Biddulphia alternans ...	rr	rr	rr	...	rr	rr	...	...	rr	...	...	...	...	rr	...	rr	rr	rr	r	rr	r	rr
— aurita	...	...	...	rr	...	...	rr	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...
— favus	...	...	...	...	...	...	rr	rr	rr	...	...	...	...	...	...	rr	rr	rr	...	...	...	...
— granulata ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...
— mobiliensis ...	r	+	c	+	+	c	+	+	r	r	r	..	rr	rr	rr	+	+	c	+	+	+	+
Cerataulina Bergonii ...	...	...	...	...	...	...	...	rr	rr	r	+	+	rr	rr	rr	...	...	...	...	...	...	...
Chaetoceras boreale... ...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
— convolutum ...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	...	...	...	...	...	...	...	...
— crinitum ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
— curvisetum ...	...	...	...	...	...	rr	r	...	...	...	rr	rr	...	...	...	...	rr	...	rr	...	...	...
— danicum ...	...	...	rr	...	rr	+	r	rr	rr	rr	...	...	rr	...	rr	...	rr	r	...	...	rr	...
— debile	...	...	...	...	...	...	r	rr	rr	c	...	...	...		...	...	...	...	..	...	...	...
— decipiens ...	...	r	r	rr	+	+	+	r	r	cc	rr	...	...	rr	rr	...	rr	rr	r	r	r	r
— densum ...	...	rr	...	...	...	...	...	...	rr	rr	rr	rr	...	+	rr	...	...	...	...	...	...	...
— Schüttii ...	...	...	rr	...	r	rr	...	...	...	rr	...	+	r	rr	c	r	+	+	r	...	r	rr
— sociale	...	...	...	...	...	...	...	...	...	...	+	r	...	...	...	...	...	...	...	...	...	...
— teres	...	...	...	rr	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...
— Willei	...	...	...	...	...	...	rr	...	...	...	r	rr	r	r	rr	...	...	..	...	...	...	...
Corethron hystrix	...	...	rr	...	...	...	..	...	...	rr	...	...	...	...	...	...	...	rr	...	...	...	...
Coscinodiscus concinnus ...	rr	r	+	r	r	+	+	r	rr	r	r	rr	...	rr	...	...	...	...	...	rr	r	rr
— excentricus ...	c	cc	cc	cc	c	c	c	c	+	r	rr	...	r	r	rr	+	c	c	c	c	c	c
— Grani ...	...	...	...	r	r	+	c	+	r	rr	...	...	...	...	...	rr	rr	rr	...	...	r	rr
— oculus iridis	...	...	...	...	...	...	rr	r	r	rr	rr	...	...	.	..	...	...	...	...	...	rr	...
— radiatus ...	+	c	c	c	c	c	cc	cc	cc	c	+	rr	r	+	r	c	+	+	+	+	+	+
Coscinosira polychorda ...	...	...	rr	...	...	r	...	...	...	r	rr	...	...	...	...	...	...	...	...	...	...	...
Ditylium Brightwellii ...	rr	rr	rr	rr	r	+	+	r	r	+	r	rr	...	...	...	...	rr	...	rr	rr	r	r
Eucampia zoodiacus ...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...
Fragilaria oceanica	...	...	...	...	...	...	...	...	r	rr	...	...	...	...	...	.	...	...	...	...	...	...
Guinardia flaccida	...	rr	rr	r	r	+	r	r	r	c	+	+	c	cc	c	r	r	...	rr	rr	rr	rr
Hyalodiscus stelliger ...	+	r	+	+	+	c	+	+	+	r	...	...	rr	r	r	r	r	r	r	r	r	r
Lauderia borealis	rr	r	r	r	r	c	r	rr	...	+	+	r	...	...	...	...	...	rr	...	r	r	r
Leptocylindrus danicus ...	...	...	...	...	...	...	rr	...	...	rr	r	...	...	+	r	...	...	rr	...	...	...	...
Lithodesmium undulatum...	...	rr	rr	rr	rr	r	rr	rr	rr	...	...	...	...		..	...	rr	rr	rr	rr	r	rr
Navicula membranacea ...	...	rr	rr	...	...	rr	rr	...	...	r	r	r	...	rr	+	rr	...	...	rr	rr	rr	...
Nitzschia closterium ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	rr	...
— seriata	...	...	...	...	...	rr	r	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...
— sp....	...	...	...	...	...	...	...	...	...	...	cc	cc	c	...	...	...	...	...	...	...	...	...
Paralia sulcata	+	+	+	+	+	c	r	+	+	r	rr	...	rr	r	r	r	rr	rr	r	rr	r	r
Pleurosigma sp.	...	rr	...	rr	rr	r	rr	..	...	...	...	rr	rr	rr	rr	rr	rr	rr	rr	rr	rr	...
Rhizosolenia semispina ...	...	...	...	...	...	...	...	...	...	rr	...	rr	c	c	c	+	rr	rr	rr	rr	rr	...
— setigera ...	...	rr	...	...	...	rr	...	...	rr	r	...	...	...	...	...	...	rr	...	rr	...	...	...
— Shrubsolei ...	r	r	r	rr	r	c	+	r	r	c	c	c	c	cc	c	rr	rr	rr	rr	rr	r	r
— Stolterfothii	...	...	...	...	...	r	...	...	...	..	r	+	r	+	+	...	...	...	..	...	...	rr
Skeletonema costatum ...	rr	r	rr	rr	r	c	r	rr	...	...	...	...	...	rr	rr	...	...	...	rr	rr	...	...
Stephanopyxis turris ...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	rr	...	...	...	rr	...	...	...
Streptotheca thamensis ...	rr	+	c	+	c	c	c	+	+	+	r	rr	rr	+	+	c	c	+	+	+	c	+
Thalassiosira decipiens ...	...	...	rr	...	...	rr	rr	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...
— gravida ...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
— Nordenskioldii	...	...	...	..	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
— sp.	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thalassiothrix nitzschioides	rr	rr	rr	r	+	+	+	r	rr	+	+	...	...	...	...	rr	r	rr	+	r	+	r.
Perediniales.																						
Ceratium furca	rr	rr	r	r	r	+	rr	rr	r	r	r	rr	r	+	c	+	r	r	r	r	r	r
— fusus	rr	...	...	...	rr	r	...	...	rr	rr	rr	...	rr	c	cc	+	+	r	r	r	rr	rr
— longipes	...	rr	...	rr	r	r	rr	rr	...	rr	...	rr	r	c	c	c	+	r	r	r	r	r
— tripos	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	rr
Dinophysis acuminata ...	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	...	...	...	...	...	...	...	...
— acuta	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...
Diplopsalis lenticula ...	...	...	...	...	...	...	...	...	...	...	?	...	rr	c	c	+	rr	r	rr	...	...	...
Gonyaulax polygramma ...	...	...	...	...	...	...	...	rr	...	rr	...	...	...	rr	...	...	...	...	...	...	...	...
Peridinium conicum ...	...	rr	rr	r	rr	r	r	r	r	+	r	rr	rr	+	c	r	...	rr	rr	r	r	r
— depressum ...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	c	rr	r	rr	...	rr	...	...	...
— divergens ...	...	...	...	...	...	...	rr	...	...	...	rr	...	r	r	...	...	...	...	...	...	...	...
— ovatum... ...	...	...	...	...	...	...	...	rr	...	r	r	+	+	c	+	r	rr	rr	rr	...	...	...
— pallidum ...	...	...	...	rr	...	...	rr	...	...	r	r	rr	+	c	c	+	r	rr	rr	...	...	rr
— Steinii	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
Prorocentrum micans ...	...	...	...	...	...	...	...	...	...	..	...	...	rr	...	rr	rr	...	...	...	...	...	...
Photophyta Cetera.																						
Dictyocha fibula	...	rr	rr	rr	rr	r	rr	rr	...	...	...	...	..	...	...	rr	...	...	rr	...	rr	rr
Distephanus speculum ...	...	...	...	...	rr	...	...	...	...	...	rr	...	...	...	...	rr	rr	...	...	rr	...	rr
Halosphaera viridis... ...	r	r	+	+	+	c	c	c	c	c	rr	rr	r	+	c	c	+	+	+	+	+	r
Hexasterias problematica ...	...	rr	rr	rr	...	rr	...	rr	...	...	...	...	...	...	...	...	...	rr	rr	rr	rr	rr
Phaeocystis globosa ...	...	...	...	...	...	...	...	...	...	...	cc	cc	c	...	...	...	...	...	...	...	...	...
Trochiscia brachiolata ...	...	rr	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...
— Clevei	...	...	rr	...	...	rr	...	rr	rr	...	...	...	rr	r	rr	rr	rr	...	rr	...	...	...

TABLE II.—*continued.*

CARDIGAN BAY LIGHTSHIP, 1905—*continued.*

	Jan.		Feb.		Mar.		April.		May.	June.		July.		Aug.		Sept.			Oct.		Nov.	Dec.
	6	24	7	21	7	22	6	21	19	4	18	2	17	3	15	1	14	29	14	30	12	12
PROTOZOA.																						
Cyttarocylis serrata... ...	...	...	...	rr	...	...	rr	...	...	...	...	...	...	r	...	rr	...	...	...	...	...	rr
Noctiluca miliaris	rr	...	rr	...	rr	...	r	rr	rr	...	r	r	...	rr	rr	...	...	...	...	...	...	...
Tintinnopsis beroidea ...	r	r	rr	r	r	+	r	r	rr	r	...	rr	rr	c	c	c	c	c	+	+	+	rr
— campanula ...	...	...	rr	rr	...	...	rr	...	...	...	...	...	...	+	c	rr	+	r	rr	r	r	r
COELENTERATA.																						
Pleurobrachia pileus ...	...	...	...	...	...	rr	rr	...	r	rr	...	rr	...	...	rr	...	...	...	...	...	...	...
Obelia sp.	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
Phialidium cymbaloideum...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	rr	...	rr	...	...	...	...	...
— temporarium ...	...	...	...	...	...	...	...	...	...	...	...	rr	r	r	rr	rr	+	r	rr	...	rr	rr
ECHINODERMATA.																						
Auricularia	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...
Ophiopluteus	...	...	...	...	...	...	...	...	...	...	rr	rr	...	rr	...	rr	rr	...	...	...	...	...
VERMES.																						
Autolytus sp.	...	rr	rr	r	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sagitta bipunctata	+	r	r	r	rr	...	r	...	r	r	...	...	...	...	rr	c	+	r	r	r	r	r
Tomopteris helgolandica ...	rr	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	...
Polychaete larvae	...	rr	r	r	r	r	rr	rr	rr	...	...	...	...	r	...	r	+	r	rr	rr	rr	rr
Terebellid larvae	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
BRYOZOA.																						
Cyphonautes	rr	rr	rr	...	...	...	rr	rr	rr	...	rr	...	...	...	...	rr	...	...	...	rr	...	rr
COPEPODA.																						
Acartia Clausi	c	c	c	r	r	+	c	cc	cc	c	+	rr	...	+	+	cc	cc	c	c	+	c	+
— discaudata	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alteutha bopyroides ...	rr	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...
Anomalocera Pattersoni ...	...	...	...	...	...	...	rr	c	r	rr	...	...	...	...	r	...	rr	r	rr	...	rr	...
Calanus finmarchicus ...	r	r	r	rr	rr	...	...	...	+	rr	...	...	...	...	rr	+	r	r	r	r	rr	r
Centropages hamatus ...	...	...	r	rr	...	r	+	+	c	+	r	rr	rr	+	+	c	c	+	c	rr	+	r
— typicus ...	...	...	...	...	...	...	...	...	...	rr	rr	...	rr	+	+	cc	c	+	c	...	c	r
Corycaeus anglicus	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	rr	...	...	...	...	...
Echinosoma sp.	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Euterpe acutifrons	rr	r	+	rr	rr	+	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	rr	...
Harpacticus chelifer ...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
Isias clavipes	...	...	...	...	...	...	...	...	r	r	...	...	...	+	c	cc	+	rr	rr	...	...	...
Longipedia Scotti	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metridia lucens	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
Oithona nana	rr	rr	r	...	...	rr	rr	...	...	...	...	...	...	r	rr	r	rr	...	...	rr	rr	rr
— similis	...	...	rr	...	rr	...	rr	...	rr	...	...	rr	...	rr	r	r	r	rr	rr	...	...	rr
Paracalanus parvus... ...	r	rr	r	...	...	rr	r	...	...	...	...	...	...	...	rr	+	+	+	+	r	+	r
Parapontella brevicornis ...	...	...	...	...	...	...	rr	rr	rr	...	...	...	...	...	r	rr	r	rr	rr	rr	rr	...
Pseudocalanus elongatus ...	c	c	c	+	+	rr	c	+	+	...	...	...	...	...	...	r	r	+	+	+	+	+
Temora longicornis... ...	rr	rr	r	rr	rr	rr	+	+	cc	r	rr	...	rr	rr	rr	+	+	...	rr	...	...	rr
Thalestris Croni	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...
CRUSTACEA CETERA.																						
Podon intermedius	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...
Metopa sp. juv.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	r	...	...	...	...	...
Podocerus falcatus	rr	...	rr	...	...	...	...	...	...	...	r	rr	...	r	rr	...	rr	...	...	rr	rr	...
Eurydice inermis	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pseudocuma cercaria ...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...
Cumacea juv.	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Megalopa	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	rr	...	...	...	...	...	...
Micronisсus	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	rr	...	rr	...	rr
Nauplius and metanauplius	r	r	rr	r	r	+	+	+	+	+	r	r	rr	c	c	c	+	r	r	r	r	r
Zoaea	...	...	rr	rr	r	...	c	r	+	...	...	...	...	...	+	r	r	rr	...	...	rr	rr
Caridid larvae	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...
Cirripede larvae	...	...	...	...	...	rr	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— (cypris) larvae ...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
MOLLUSCA.																						
Limacina retroversa ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	?	...	...	...	...	...
Gasteropod larvae	...	...	...	rr	...	...	rr	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
Lamellibranch larvae ...	rr	...	...	...	c	r	...	rr	r	...	...	...	...	...	...	...	...	...	...	...	...	...
TUNICATA.																						
Oikopleura dioica	...	...	r	rr	rr	r	r	rr	+	r	rr	rr	...	r	rr	r	...	...	...	...	rr	rr
VERTEBRATA.																						
Fish ova	...	...	rr	rr	rr	c	c	+	r	r	...	...	...	...	rr	...	...	...	...	...	...	...
— larvae	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	rr	...	...	...	...	...	...

TABLE III.

Sevenstones Lightship, 1905.

	Jan.		Feb.		Mar.		April.		May.		June.		July.		Aug.		Sept.			Oct.		Nov.		Dec.	
	7	23	6	21	7	23	6	20	6	19	3	17	4	18	3	17	1	16	30	14	30	14	28	13	27
Diatomaceae.																									
Achnanthes sp....	rr	rr	...	rr	rr	r	r	rr	rr	+	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Actinoptychus undulatus	rr	+	r	r	r	r	r	r	r	+	rr	...	...	...	...	...	...	rr	rr	rr	+	r	+	c	+
Asterionella japonica	rr	rr	r	rr	rr	rr	r	r	+	rr	...	...	...	...	...	...	...	rr	...	rr	rr	rr	r	r	rr
Bacillaria paradoxa	rr	r	+	rr	rr	rr	r	+	rr	rr	...	...	...	...	...	...	...	...	...	rr	...	rr	rr	rr	r
Biddulphia alternans	r	r	r	rr	rr	rr	rr	rr	...	rr	...	...	...	...	...	...	...	...	rr	...	...	rr	r	+	r
— granulata	...	...	...	...	...	rr	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...	rr	...	rr	rr	rr
— mobiliensis	+	+	+	r	rr	+	+	r	rr	r	rr	...	...	...	...	...	...	...	rr	rr	r	r	+	+	c
Cerataulina Beyonii	...	...	...	...	...	..	...	...	...	...	...	...	...	..	...	...	...	...	...	rr	...	...	..	...	...
Chaetoceras boreale	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
— contortum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...
— curvisetum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	..	...	...	...	...
— danicum	rr	rr	r	rr	r	r	+	r	...	...	...	...	...	...	...	...	...	...	...	...	r	rr	rr	r	rr
— debile	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...
— decipiens	r	rr	rr	rr	rr	...	r	+	rr	rr	...	...	...	r	...	...	...	rr	rr	r	r	rr	rr	r	
— densum	...	...	...	rr	rr	...	...	...	...	...	...	...	+	+	...	...	...	rr	+	r	r	rr	rr	...	...
— didymum	rr	rr	r	...	...	rr	r	rr	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...
— laciniosum	...	...	...	...	...	rr	...	...	...	...	...	...	...	rr	...	...	...	...	...	rr	rr	...	...	...	...
— Peruvianum	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— teres	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	rr	...	...	...	...	...	...	...
— Schüttii	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	rr	rr	+	+	r	...	...	...	...
Corethron hystrix	r	r	r	r	rr	rr	rr	rr	...	...	...	...	...	...	...	...	rr	r	+	c	+	+	r	rr	
Coscinodiscus concinnus ...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— excentricus ...	+	+	c	+	+	+	c	+	+	+	r	...	...	...	rr	rr	...	rr	r	r	c	c	c	c	c
— Grani	rr	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— oculus iridis ...	rr	...	...	rr	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— radiatus ...	+	+	r	r	+	+	c	c	+	c	r	...	...	...	rr	r	rr	r	r	r	c	+	c	c	+
Ditylium Brightwellii	r	rr	r	r	rr	r	+	r	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...
Guinardia flaccida	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr	r	...	...	...	...	...	...
Hyalodiscus stelliger	c	+	+	r	r	c	+	+	r	+	r	rr	...	...	r	...	rr	r	+	+	cc	c	c	c	c
Isthmia enervis	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lauderia borealis	...	...	...	...	...	rr	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr
Lithodesmium undulatum ...	...	...	...	...	...	...	rr	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Navicula membranacea ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	..	...	...	...	...	...
Nitzschia closterium	...	...	rr	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	r	rr	...
— seriata	rr	rr	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Paralia sulcata	+	+	+	r	r	r	r	r	r	+	r	rr	...	...	rr	...	rr	r	r	r	c	c	c	c	c
Pleurosigma sp.	rr	rr	rr	r	rr	rr	rr	rr	...	rr	...	...	...	...	...	...	...	...	rr	rr	rr	rr	rr	r	r
Rhizosolenia alata	rr	rr	rr	rr	...	...	...	...	...	...	...	rr	r	cc	cc	cc	cc	c	+	+	c	c	+	c	+
— semispina	...	...	...	...	...	...	...	rr	...	...	...	rr	rr	...	...	...	...	+	...	rr	...	...	...	...	...
— setigera	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	rr	rr	...	...
— Shrubsolei	rr	rr	...	...	...	...	rr	...	...	...	...	rr	rr	c	+	...	...	r	+	+	+	rr	r	...	...
— Stolterfothii	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...
— styliformis	...	...	...	...	...	...	...	...	...	...	...	+	c	cc	c	r	rr	rr	rr	rr	r	rr	rr	rr	...
Streptotheca thamensis ...	rr	rr	rr	rr	r	+	r	+	r	+	rr	...	...	...	...	...	...	...	...	rr	rr	rr	rr	...	r
Thalassiosira gravida	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— decipiens ...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— sp.	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...
Thalassiothrix nitzschioides ...	+	+	c	rr	rr	r	c	+	r	+	r	...	...	...	...	...	rr	rr	...	rr	+	+	c	c	c
Peridiniales.																									
Ceratium furca	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— fusus	...	...	rr	...	...	rr	rr	rr	...	...	...	...	...	rr	+	...	r	r	rr	...	...	...	rr	...	rr
— hexacanthum ...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— longipes	rr	rr	rr	...	rr	rr	r	r	rr	rr	...	rr	...	...	r	...	r	rr	r	r	r	rr	rr	rr	rr
— tripos	rr	rr	rr	rr	...	rr	rr	rr	...	...	...	...	rr	rr	c	c	c	r	+	r	r	rr	r	r	r
Dinophysis acuta	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...
— ovum	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	...	...	rr	...	...	...	...	...	...	...
— rotundata	..	...	...	...	..	..	...	...	...	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...
Diplopsalis lenticula	...	...	...	...	...	...	...	...	...	...	rr	...	...	rr	r	+	+	r	rr	r	...	...	...	...	...
Gonyaulax polygramma ...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	rr	...	...	r	...	...	...	...	...	...	...
Peridinium conicum	...	...	...	...	...	...	rr	r	rr	rr	...	...	...	...	...	...	...	...	rr	rr	...	...	...	rr	...
— depressum	...	...	...	...	...	rr	...	rr	rr	r	rr	rr	...	...	r	...	rr	rr	rr	rr	...	...	...	...	...
— divergens	rr	...	...	..	...	rr	rr	...	...	...	...	..	...	...	rr	...	...	...	...	...	...	...	...	...	...
— ovatum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...
— pallidum	...	..	...	...	rr	rr	...	rr	...	rr	...	...	...	rr	r	...	...	...	...	...	...	...	...	...	rr
— pentagonum	..	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Prorocentrum micans	...	...	...	...	...	...	...	...	...	..	...	...	...	...	rr	rr	...	rr	...	...	...	...	...	...	...
Protophyta cetera.																									
Coccosphaera atlantica	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
Dictyocha fibula	...	rr	rr	rr	...	...	rr	rr	rr	...	...	...	...	...	rr	...	rr	rr	rr	rr	r	rr	r	r	rr
Distephanus speculum	...	...	...	..	...	...	...	rr	...	...	...	..	...	...	...	...	...	...	rr	rr	...	...	rr	rr	...
Halosphaera viridis	+	+	r	r	r	+	+	c	+	+	+	r	...	+	r	rr	c	r	c	c	+	+	+	r	+
Phaeocystis globosa	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	r	...	...	...	...	...	...	...	...
Trochiscia Clevei	...	...	...	...	rr	rr	...	...	...	...	...	...	...	rr	rr	...	...	...	rr	...	rr	...	...	...	...
— multispinosa	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
Protozoa.																									
Lithomelissa sp.	...	...	rr	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	rr	...	...	r	rr	rr
Tintinnopsis beroidea	...	...	...	...	...	...	rr	rr	...	rr	...	...	...	...	rr	...	r	r	+	c	+	r	+	r	+

TABLE III.—*cont.*

SEVENSTONES LIGHTSHIP, 1905—*continued.*

	Jan.		Feb.		Mar.		April.		May.		June.		July.		Aug.		Sept.			Oct.		Nov.		Dec.	
	7	23	6	21	7	23	6	20	6	19	3	17	4	18	3	17	1	16	30	14	30	14	28	13	27
COELENTERATA.																									
Muggiaea atlantica	...	...	...	...	..	...	...	...	..	...	...	...	...	...	...	...	...	...	...	c	+	c	+	r	...	...
Beroe ovata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...
Pleurobrachia pileus	...	...	...	. .	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	r	r	rr	...	...	...	...
Gemmaria implexa	...	...	...	...	...	...	..	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
Laodice calcarata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	...	...	...	...	...	...	...
Lizzia blondina	...	...	...	...	...	...	...	...	...	...	...	...	+	+	r	...	...	...	...	...	...	...	...	...	...	...
Obelia nigra	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	...	...	...	...
— sp.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	rr	rr	r	rr	r	...	...	...	...	...
Phialidium cymbaloideum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	rr	...	...	...	...	...	...	...
— temporarium	...	..	...	...	...	...	..	...	...	...	...	...	...	...	...	+	r	...	rr	...	r	rr	rr	...	...	...
Sarsia gemmifera	...	...	...	...	...	...	...	...	...	...	...	rr	r	c	r	...	...	...	...	...	...	...	...	...	...	...
— prolifera	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...
Actinula (Tubularia)	...	...	...	...	...	...	...	...	...	...	rr	r	r	r	...	...	...	rr	...	...	...	rr	rr	...	...	...
ECHINODERMATA.																										
Ophiopluteus	...	...	...	...	...	...	...	..	...	...	...	...	...	...	rr	+	r	...	...	c	rr	...	...	...	...	...
Auricularia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...
VERMES.																										
Sagitta bipunctata	...	...	...	r	r	r	r	rr	...	...	...	...	...	...	...	...	. .	r	+	rr	+	r	c	c	c	+	c
Tomopteris helgolandica	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr
Polychaete larvae	...	...	...	...	...	rr	rr	rr	rr	...	rr	...	...	...	...	...	...	...	rr	rr	rr	rr	...	rr	rr	
BRYOZOA.																										
Cyphonautes	...	...	...	...	rr	rr	rr	...	...	...	...	r	...	...	c	+	+	rr	c	r	r	...	r	rr	rr	
COPEPODA.																										
Acartia Clausi	...	...	...	...	r	rr	r	r	+	+	+	c	r	c	r	+	+	r	c	c	+	r	r	r	rr	
Anomalocera Pattersoni	...	...	...	...	...	...	...	...	...	...	+	r	...	rr	+	rr	rr	r	+	r	rr	rr	r	...	rr	
Calanus finmarchicus	...	...	...	r	+	+	+	c	r	rr	+	r	c	r	c	r	cc	c	cc	r	c	c	c	c	c	
Candacia pectinata	...	...	...	..	..	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...
Centropages typicus	...	...	...	+	r	r	...	rr	rr	r	r	rr	+	r	cc	c	cc	c	cc	cc	c	+	r	r	r	
Corycaeus anglicus	...	...	...	rr	rr	rr	...	rr	...	...	...	...	...	r	+	+	c	r	+	+	r	+	+	+	r	rr
Isias clavipes	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	rr	...	...	...	...	rr	rr	...	...	...	
Longipedia coronata	. .	...	...	...	...	...	...	...	rr	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...
Metridia lucens	...	...	...	...	rr	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	r	r	r	rr	r	
Oithona nana	..	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	..	...	...	...	...	...	...	...	...	...	...
— similis	...	...	...	rr	r	r	r	r	rr	r	+	rr	+	r	+	c	c	r	r	rr	rr	rr	rr	rr	r	
— plumifera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
Paracalanus parvus	...	...	..	rr	rr	r	r	+	+	r	+	r	+	r	+	+	+	c	r	c	+	+	+	+	r	r
Parapontella brevicornis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
Pseudocanalus elongatus	...	..	r	r	r	r	+	+	rr	c	rr	r	+	+	r	rr	c	+	c	+	c	+	c	c	c	c
Temora longicornis	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	+	...	rr	rr	r	rr	rr	rr	rr	
Thalestris Croni	...	...	...	rr	...	...	...	...	...	...	rr	rr	...	..	...	...	...	...	...	...	...	...	...	...	...	...
CRUSTACEA CETERA.																										
Evadne Nordmanni	...	...	...	...	...	...	...	...	...	...	...	..	...	r	r	...	...	...	rr	...	...	...	...	...	...	...
Podon intermedius	...	...	...	...	...	...	...	...	...	...	...	...	...	...	cc	r	...	...	+	...	...	...	...	...	...	...
Nyctiphanes Couchi	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr	...	...	...
Apherusa Clevei	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
Podocerus falcatus	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
Megalopa	...	..	...	...	...	...	...	...	...	...	...	rr	...	r	rr	rr	...	rr	rr	...	...	...	...	...	...	...
Microniscus	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nauplius	...	...	...	rr	rr	rr	rr	r	r	r	r	r	r	+	cc	c	cc	r	+	r	r	r	rr	r	rr	
Zoaea	...	...	...	...	rr	rr	rr	r	...	+	rr	r	+	rr	c	c	+	c	rr	+	rr	r	+	r	rr	rr
Caridid larvae	...	...	...	...	...	...	rr	...	...	...	...	..	...	rr	...	rr	rr	...	...	...	rr	rr	...	...	...	...
Cirripede larvae	...	...	...	...	...	...	...	rr	rr	c	rr	...	...	...	...	rr	...	...	...	.	..	...	...	...	...	...
— (Cypris) larvae	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	rr
Hyperiid juv	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	..	..	rr	rr	...
Squillidae larvae	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...
MOLLUSCA.																										
Limacina retroversa	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	r	c	r	cc	...	r	...	...	...	...	
Gasteropod larvae	...	...	...	...	rr	rr	...	...	...	...	rr	...	...	...	r	+	r	...	...	...	...	...	...	...	...	...
Lamellibranch larvae	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	r	...	...	rr	
TUNICATA.																										
Oikopleura dioica	...	...	...	...	...	...	r	r	...	rr	..	...	...	rr	...	r	+	+	rr	r	rr	r	...	rr	rr	...
Ascidian tadpole	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	rr
VERTEBRATA.																										
Fish ova	...	...	...	...	...	...	...	rr	r	rr	+	r	r	+	+	+	+	+	r	...	...	...	...	...	...	...
— larvae	...	...	...	...	...	...	...	...	rr	...	...	rr	...	...	rr	rr	...	...	...	rr	...	...	...	...	...	...
INCERTAE SEDIS.																										
Umrindete cyste	...	...	...	...	rr	...	rr	...	...	rr	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...

TABLE IV.

Sevenstones Lightship, 1906.

	Jan.		Feb		Mar.		April		May		June.		July.		Aug.		Sept.		Oct		Nov.		Dec.	
	12	26	12	24	12	26	10	26	10	23	8	23	7	23	6	22	4	20	3	20	3	19	2	17
Diatomaceae.																								
Achnanthes sp.	...	...	rr	...	rr	rr	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr
Actinoptychus undulatus	c	c	c	+	+	r	r	rr	r	...	...	...	...	...	...	...	...	rr	rr	rr	...	...	...	rr
Asterionella japonica	rr	r	+	c	+	+	rr	rr	...	...	...	...	...	...	...	...	...	...	r	rr	...	...	...	...
Bacillaria paradoxa	rr	rr	+	c	c	r	r	rr	...	...	..	...	...	...	...	...	...	...	...	rr	...	...	...	...
Biddulphia alternans	r	r	r	+	rr	...	rr	...	..	...	...	...	...	...	...	..	...	...	...	...	...	...	...	rr
— granulata	rr	rr	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...
— mobiliensis	c	+	+	c	+	+	+	...	rr	...	...	...	...	...	...	...	...	rr	rr	rr	rr	...	...	rr
Cerataulina Beyonii	...	...	...	...	...	...	...	+	+	+	+	rr	...	...	...	...	...	...	...	...	...	...	...	...
Chaetoceras boreale	...	...	...	...	...	...	...	c	c	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...
— constrictum	...	...	...	...	...	...	...	rr	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
— curvisetum	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...
— danicum	rr	rr	rr	c	+	r	+	...	...	...	...	...	...	...	...	...	...	rr	r	...	...	...	...	rr
— debile	...	...	...	...	...	...	rr	r	...	...	...	...	...	...	rr	...	..	...	...	...	...	...	...	...
— decipiens	...	rr	rr	rr	r	rr	+	...	...	...	...	..	...	...	r	...	rr	...	+	rr	rr	...	...	...
— densum	...	...	...	...	rr	...	r	c	cc	r	r	rr	...	rr	...	...	...	...	r	...	rr	...	...	...
— didymum	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
— laciniosum	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...
— convolutum	...	rr	rr	rr	r	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— teres	..	...	...	rr	rr	...	...	...	...	...	rr	...	...	...	...	rr	...	...	...	...	...	...	...	...
— Schüttii	...	rr	...	rr	rr	...	rr	rr	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...
Corethron hystrix	rr	rr	r	r	r	rr	rr	...	...	...	...	...	...	...	rr	...	...	+	c	r	r	rr	...	rr
Coscinodiscus excentricus	c	c	c	c	+	+	+	rr	rr	...	...	rr	...	...	...	...	rr	+	c	r	r	rr	rr	r
— Grani	...	...	...	...	r	r	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— oculus iridis	...	...	...	...	...	...	rr	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— radiatus	c	c	+	+	+	+	c	r	r	...	r	rr	...	..	..	rr	rr	...	+	r	r	rr	r	+
Ditylium Brightwellii	...	...	...	...	r	r	r	+	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr
Eucampia zoodiacus	...	...	...	...	...	...	...	...	r	+	+	+	r	...	...	rr	...	...	...	...	...	...	...	...
Guinardia flaccida	...	...	...	...	..	...	...	...	c	c	c	c	+	r	r	+	rr	rr	...	r	...	...	...	...
Hyalodiscus stelliger	c	c	+	+	+	+	+	r	r	...	...	rr	rr	...	...	...	...	r	r	+	+	rr	r	+
Isthmia enervis	...	...	rr	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lauderia borealis	...	...	rr	r	r	rr	rr	+	r	c	+	rr	...	...	...	...	...	...	...	...	...	...	rr	rr
Leptocylindrus danicus	...	...	...	...	...	...	...	...	...	...	...	...	..	...	+	...	rr	...	...	...	...	...	...	...
Lithodesmium undulatum	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Navicula membranacea	...	...	...	...	...	...	...	rr	+	c	cc	c	r	...	rr	r	...	...	...	...	...	...	...	...
Nitzschia closterium	...	...	rr	r	...	rr	...	rr	...	rr	..	...	rr	rr	...	...	...	...	rr	rr	...	...	...	..
— seriata	...	rr	...	r	...	...	rr	rr	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...
Paralia sulcata	c	c	c	+	+	+	r	rr	r	rr	r	rr	...	rr	rr	rr	...	r	r	r	r	r	rr	+
Pleurosigma sp.	r	r	r	r	rr	rr	rr	rr	rr	rr	rr	...	...	...	...	...	...	rr	rr	rr	rr	rr	rr	rr
Rhizosolenia alata	r	rr	r	rr	rr	rr	r	c	c	c	c	c	c	c	c	cc	c	+	r	rr	rr	...	rr	r
— hebetata	...	...	...	...	...	...	...	r	+	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...
— semispina	...	...	rr	rr	rr	r	+	cc	cc	c	c	rr	r	...	rr	...	...	rr	+	...	...	...	...	...
— setigera	...	rr	r	r	r	r	+	...	...	...	...	...	...	...	...	..	...	...	c	...	r	...	...	rr
— Shrubsolei	...	rr	...	rr	rr	rr	r	c	c	c	+	r	r	rr	+	...	rr	r	+	rr	...	...	...	...
— Stolterfothii	...	...	...	...	...	...	...	c	cc	cc	cc	c	rr	r	rr	...	...	...	...	...	...	...	...	...
— styliformis	...	...	...	...	...	...	...	rr	r		+	+	r	r	rr	...	...	...	...	...	...	...	...	...
Streptotheca thamensis	rr	rr	+	+	c	+	c	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	..	rr
Thalassiosira decipiens	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— Nordenskiold	...	..	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	rr
— sp.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
Thalassiothrix nitzschioides	c	cc	c	c	c	r	+	rr	rr	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	rr
Peridiniales.																								
Ceratium furca	...	...	...	rr	rr	...	r	...	..	...	...	...	...	...	rr	rr	...	rr	...	...	...	...	..	...
— fusus	...	rr	rr	rr	rr	r	+	rr	r	r	r	r	r	r	+	c	+	r	+	...	rr	rr	...	...
— hexacanthum	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— lineatum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	rr	...	...	...	...
— longipes	rr	rr	rr	r	rr	...	rr	rr	rr	rr	rr	rr	rr	...	r	rr	r	r	+	r	rr	...	...	...
— tripos	rr	rr	rr	rr	...	rr	rr	...	...	rr	rr	rr	+	c	c	c	c	c	+	+	r	rr	rr	rr
Dinophysis acuminata	...	...	...	...	...	...	...	...	...	rr	rr	rr	+	r	r	rr	rr	rr	r	...	...	...	...	...
— acuta	...	...	...	...	...	...	...	rr	rr	...	rr	...	rr	r	rr	...	...	...	...	...	...	...	...	...
— ovum	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— rotundata	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr
Diplopsalis lenticula	...	...	...	...	...	...	...	rr	r	c	c	+	r	r	rr	rr	r	r	rr	...	...	...	...	rr
Gonyaulax polygramma	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	rr	rr	rr	r	...	...	...	...	...
Gymnodinium lunula	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...
Peridinium conicum	rr	rr	rr	r	rr	rr	rr	rr	+	+	+	r	rr	...	rr	..	...	...	...	...	...	...	...	rr
— decipiens	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— depressum	rr	...	...	...	...	...	...	...	+	+	+	+	r	rr	rr	...	rr	rr	...	rr	..	...	...	...
— divergens	...	...	...	...	...	...	...	...	rr	..	...	rr	...	...	...	...	...	...	..	...	...	...	...	...
— ovatum	...	...	...	...	...	...	rr	+	rr	r	+	rr	...	...	...	...	...	...	...	...	...	...	...	...
— pallidum	...	...	...	...	...	rr	r	+	rr	rr	r	r	r	rr	...	...	...	...	rr	rr	rr	...	...	rr
— pentagonum	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...
— Steinii	...	...	...	...	...	...	...	...	...	rr	rr	rr	rr	rr	...	rr	...	...	...	...	...	...	...	...
Prorocentrum micans	...	...	...	...	...	...	...	rr	...	...	...	rr	rr	rr	c	r	r	+	+	rr	...	...	rr	...
Protophyta cetera.																								
Coccosphaera atlantica (coccolith)	...	...	...	..	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr	...	...	...	rr	...
Dictyocha fibula	r	r	rr	r	rr	rr	r	rr	rr	rr	...	...	rr	...	rr	rr	rr	rr	+	rr	rr	rr	...	rr
Distephanus speculum	...	rr	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...
Halosphaera viridis	+	r	+	r	+	+	+	r	+	rr	r	...	...	+	c	+	r	+	c	+	+	rr	r	r
Phaeocystis globosa	...	...	...	...	...	...	...	...	...	r	rr	...	...	...	...	...	...	...	...	...	...	...	...	...
Trochiscia Clevei	...	rr	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	r	...	...	...	...	...	...	...	...

TABLE IV.—*cont.*

SEVENSTONES LIGHTSHIP, 1906—*continued.*

	Jan.		Feb		Mar		April.		May.		June.		July		Aug.		Sept		Oct,		Nov		Dec.	
	12	26	12	24	12	26	10	26	10	23	8	23	7	23	6	22	4	20	3	20	3	19	2	17
PROTOZOA.																								
Lithomelissa sp....	...	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
Noctiluca miliaris	...	...	...	...	...	...	...	...	...	+	rr	rr	r	+	rr	...	...	...	...	...	...	...	...	...
Tintinnopsis beroidea	...	r	r	r	r	rr	rr	rr	...	rr	r	...	...	...	...	...	...	rr	+	r	rr	...	...	rr
COELENTERATA.																								
Beroe ovata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...
Pleurobrachia pileus	...	...	...	...	...	...	...	...	...	*r	*rr	...	...	...	rr	...	...	...	...	...	...	...	...	rr
Actinula (Tubularia)	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	...	...	..	...	rr	rr	...	...	...	...
Arachnactis Bournei	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Euphysa aurata...	...	...	...	...	...	...	...	..	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gossea corynetes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
Hybocodon prolifer	...	...	...	rr	...	...	...	r	r	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Laodice calcarata	...	...	...	...	...	..	...	rr	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...
Lizzia blondina...	...	...	...	...	...	...	...	...	...	rr	...	rr	rr	+	rr	...	...	...	...	...	...	...	...	...
Margellium octopunctatum	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Obelia nigra ..	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	rr	rr	rr	...	..	...	...
— sp....	...	...	...	...	...	...	...	r	+	r	...	...	...	rr	rr	...	rr	rr	...	rr	...	...	...	...
Phialidium cymbaloideum	...	...	...	...	...	...	...	r	...	rr	rr	...	rr	rr	...	...	...	...	...	...	...	...	...	...
— temporarium	...	...	...	...	..	...	...	rr	r	rr	...	rr	rr	r	rr	...	rr	+	rr	...	...	...	..	...
Sarsia prolifera	...	...	...	...	...	...	..	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ECHINODERMATA.																								
Auricularia	...	...	...	...	...	...	rr	...	...	...	...	rr	rr	...	...	...	rr	...	...	...	...	...	...	...
Bipinnaria	...	...	...	...	...	...	...	...	...	...	...	..	rr	rr	...	...	...	...	...	...	...	...	...	...
Echinopluteus	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	..	...	...	...	...	...	...	...	...	...
Ophiopluteus	...	...	...	...	...	...	rr	...	...	rr	rr	r	r	r	...	rr	r	r	...	...	...	...	...	...
VERMES.																								
Sagitta bipunctata	...	r	+	r	...	...	...	r	...	...	...	r	r	r	rr	...	rr	rr	...	+	+	r	c	+
Tomopteris helgolandica	..	...	...	...	...	...	..	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Polychaete larvae	...	...	rr	...	...	rr	rr	rr	rr	r	rr	...	rr	...	...	...	...	...	rr	...	...	...	...	...
BRYOZOA.																								
Cyphonautes	...	...	...	...	...	rr	...	...	...	rr	rr	...	+	c	c	+	r	+	r	rr	r	r	...	rr	rr
COPEPODA.																								
Acartia Clausi	...	...	...	rr	rr	rr	+	c	c	c	c	r	+	c	+	rr	rr	r	c	r	rr	...	...	rr
Anomalocera Pattersoni	...	...	...	...	...	*r	rr	+	...	...	rr	*rr	...	rr	...	r	+	...	rr	r	rr	...	..	...
Calanus finmarchicus	...	...	c	r	c	+	r	c	r	c	cc	c	r	c	c	c	+	+	c	+	r	+	+	r
Candacia pectinata	...	...	...	...	...	...	...	...	...	...	...	...	*rr	...	rr	...	...	*r	...	...	...	...	...	...
Centropages typicus	...	...	rr	rr	rr	...	...	rr	r	+	r	c	+	c	c	c	c	cc	cc	cc	c	+	...	...	r
Corycaeus anglicus	...	...	..	...	...	...	...	rr	r	...	...	r	r	+	c	+	r	+	+	c	+	+	rr	r	r
Isias clavipes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	+	rr	...	...	...	...
Metridia lucens	...	...	...	...	...	rr	...	...	...	r	...	...	...	...	...	...	...	...	...	rr	rr	..	...	...
Oithona plumifera	...	...	rr	...	...	...	..	...	...	rr	..	...	...	...	...	...	...	...	...	...	...	...	...	...
— similis	...	...	r	r	rr	r	rr	r	r	+	+	r	+	+	r	+	+	+	+	...	rr	rr	rr	rr	rr
Paracalanus parvus	...	...	r	rr	r	+	+	+	rr	c	+	r	...	+	+	+	r	+	+	c	c	+	+	rr	rr
Parapontella brevicornis	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	rr	...	r	..	...	...	...	...
Pseudocalanus elongatus	...	...	+	r	+	+	+	+	...	c	cc	c	...	+	r	+	c	+	+	r	r	c	c	rr	rr	r
Temora longicornis	...	...	...	...	...	...	...	...	...	rr	rr	c	rr	rr	...	r	c	r	+	rr	rr	r	r	rr	rr	rr
Thalestris Croni...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
CRUSTACEA CETERA.																								
Evadne Nordmanni	...	...	...	...	...	...	...	...	...	...	r	rr	+	rr	+	r	c	+	+	...	...	...	...	...
Podon intermedius	...	...	...	...	...	...	...	...	...	...	...	r	r	rr	r	rr	r	...	...	...	...	...	...	...
Nyctiphanes Couchi	...	...	...	...	...	...	rr	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Apherusa Clevei	...	...	...	...	...	...	...	..	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...
Podocerus falcatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	...	+	...
Megalopa	...	...	...	...	...	...	...	...	...	..	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...
Micronisc us	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	rr	...	...	...	rr	...	...	...	...	...
Nauplius	...	...	...	...	rr	rr	r	rr	+	r	+	+	rr	+	+	+	c	+	+	r	r	rr	r	...
Zoaea	...	...	...	...	...	rr	rr	r	...	rr	+	+	...	rr	rr	...	r	+	rr	...	r	rr	. .	rr	...
Caridid larvae	...	...	...	...	...	...	...	...	rr	rr	...	...	..	...	...	...	...	...	...	...	...	...	...	...
Cirripede larvae	...	...	...	...	..	...	...	...	rr	rr	rr	r	rr	rr	...	...	...	...	...	...	...	...	...	...
— (Cypris)	...	...	...	...	...	...	...	...	...	. .	rr	...	...	...	...	rr	...	...	...	...	rr	...	...	...
Hyperiid juv.	...	...	...	...	...	rr	...	...	..	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Harpacticidae juv.	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	rr	...	...
MOLLUSCA.																								
Limacina retroversa	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	rr	+	+	r	r	r	rr	...	...	...
Gasteropod larvae	...	...	...	...	...	...	rr	..	...	...	rr	...	r	...	..	...	...	...	...	rr	..	...	..	...	...
Lamellibranch larvae	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	rr	.	rr	r	rr	...	rr	...
TUNICATA.																								
Oikopleura dioica	...	...	...	...	...	rr	rr	c	+	c	c	c	r	r	+	r	rr	r	r	r	r	rr	r	rr	...	...	...
VERTEBRATA.																								
Fish ova	...	...	...	...	...	...	...	rr	rr	+	+	r	rr	rr	...	rr	+	rr	r	rr	rr	rr	...	rr	rr	...	...	...	...
— larvae	...	...	...	...	...	...	...	...	r	...	rr	rr	rr	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...

Aug. 6th.—Evadne with winter eggs.
Aug. 22nd.—Many young Copepods, *e.g.*, Calanus, Centropages, and Anomalocera.

TABLE V.

VARNE LIGHTSHIP, 1905.

	Jan.		Feb.		Mar.		April.		May		June.		July.			Aug.		Sept.		Oct.		Nov.	Dec.	
	4	21	5	18	5	21	5	19	8	26	3	17	3	17	24	9	30	14	28	13	28	16	12	26
DIATOMACEAE.																								
Actinocyclus Ehrenbergii	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
Actinoptychus splendens	...	...	...	rr	rr	rr	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	rr	...	rr
— undulatus	...	...	rr	...	rr	+	r	rr	...	...	rr	...	...	...	...	...	...	rr	rr	...	+	+	r	rr	rr
Asterionella japonica	...	...	...	r	rr	r	r	rr	...	r	+	r	...	...	...	...	...	rr	...	...	...	rr	...	...	...
Bacillaria paradoxa	...	...	c	+	+	+	r	+	...	rr	...	...	...	...	...	rr	rr	r	+	rr	...	+	rr	r	r
Bellerochea malleus	...	...	rr	r	rr	rr	rr	rr	...	rr	...	rr	...	...	...	r	r	rr	...	...	...	r	r	rr	...	rr
Biddulphia alternans	...	...	rr	r	rr	rr	...	...	...	...	...	...	...	...	...	rr	...	...	rr	r	+	r	r	r
— aurita	...	...	...	rr	rr	r	rr	rr	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
— granulata	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr	...	...
— mobiliensis	...	...	+	+	+	+	+	+	r	rr	rr	rr	...	...	...	rr	rr	rr	rr	+	+	r	r	r
Cerataulina Bergonii	...	...	...	...	...	...	...	...	cc	...	...	...	...	...	...	...	...	...	rr	...	rr	rr	...	...
Chaetoceras boreale	...	...	...	...	...	...	rr	...	c	rr	...	...	...	...	...	...	...	rr	+	rr	...	...	...	...
— danicum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
— debile	...	...	...	...	...	rr	...	...	...	...	rr	...	...	...	...	...	...	...	+	rr	rr	...	...	...
— decipiens	...	...	rr	...	...	rr	rr	...	rr	...	...	...	...	...	...	r	+	+	rr	rr	...	...	...	...
— densum	...	...	...	...	...	...	...	+	...	...	...	rr	rr	...	...	rr	...	...	...	...	...	...	...	...
— didymum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	rr	rr	...	...	...
— Schuttii	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...
— teres	...	...	...	...	...	...	rr	...	...	...	...	...	...	rr	...	...	...	...	...	rr	...	...	...	...
Coscinodiscus concinnus	...	...	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	...	...	...
— excentricus	...	...	c	c	+	+	+	c	rr	r	rr	rr	rr	...	rr	rr	r	r	r	+	+	+	+	+
— Grani	...	...	r	r	r	...	rr	r	rr	...	rr	...	...	...	...	...	rr	...	r	+	r	rr	rr	r
— radiatus	...	...	c	c	c	+	+	c	+	+	r	rr	rr	rr	...	rr	rr	rr	rr	+	+	+	+	c
Ditylium Brightwellii	...	...	rr	rr	rr	rr	...	rr	...	...	...	...	...	...	...	...	...	...	rr	r	rr	r	...	...
Eucampia zoodiacus	...	...	rr	...	...	rr	...	...	rr	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
Guinardia flaccida	...	...	r	...	rr	...	...	rr	+	...	rr	...	...	r	+	rr	rr	r	+	r	rr	rr	rr	rr
Hyalodiscus stelliger	...	...	rr	rr	r	rr	rr	rr	...	rr	rr	rr	...	...	...	rr	rr	rr	rr	..	rr	rr	rr	rr
Lauderia borealis	...	...	r	rr	...	rr	rr	rr	...	...	...	...	...	...	...	...	...	..	rr	rr	rr	rr	r	rr
Lithodesmium undulatum	...	...	rr	rr	rr	rr	...	rr	...	...	...	...	...	...	...	...	...	...	rr	r	r	rr	rr	rr
Navicula membranacea	...	...	rr	rr	rr	rr	rr	r	...	...	...	rr	...	...	r	rr	rr	r	rr	rr	...	...	rr	...
Nitzschia closterium	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...
Paralia sulcata	...	...	r	r	r	rr	rr	rr	rr	rr	rr	rr	rr	r	r	r	r	r	...	rr	r	r	rr	rr
Pleurosigma sp.	...	...	rr	rr	rr	rr	rr	...	...	...	rr	rr	...	...	rr	rr	rr	rr	rr	rr	rr	...	rr	...
Rhizosolenia setigera	...	...	...	r	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— Shrubsolei	...	...	rr	rr	rr	...	rr	rr	c	rr	...	r	...	rr	rr	...	...	rr	...	r	...	...	rr	rr
— Stolterfothii	...	...	rr	...	rr	rr	rr	...	c	...	rr	rr	r	c	cc	cc	c	+	rr	r	rr	...	rr	rr
Skeletonema costatum	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Streptotheca thamensis	...	...	+	r	r	r	+	+	rr	+	+	+	rr	...	...	...	rr	rr	r	rr	r	rr	r	rr
Thalassiosira gravida	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
Thalassiothrix nitzschioides	...	...	...	rr	...	...	...	rr	...	...	...	rr	...	...	...	...	...	rr	rr	...	...	rr	...	...
PERIDINIALES.																								
Ceratium furca	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	...	...	...
— fusus	...	...	r	r	rr	rr	r	...	r	r	...	rr	rr	rr	r	r	r	+	r	r	r	r	rr	rr	...	rr
— lineatum	...	...	..	...	...	...	rr	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...
— longipes	...	...	rr	rr	...	rr	rr	rr	r	r	r	r	+	+	r	r	r	+	rr	+	+	+	+	rr	rr	rr
Dinophysis acuminata	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...
Diplopsalis lenticula	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	r	+	+	rr	r	+	rr	...	rr	...	rr
Gonyaulax polygramma	...	...	...	...	..	...	...	...	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...
Gymnodinium lunula	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
Peridinium conicum	...	...	rr	rr	rr	rr	...	r	+	rr	rr	rr	rr	rr	...	rr	rr	rr	rr	+	r	r	r	rr	r	
— divergens	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	
— ovatum	...	...	...	rr	...	rr	r	r	+	rr	...	...	...	rr	rr	rr	...	rr	rr	rr	rr	...	rr	...	...	
— pallidum	...	...	...	rr	rr	...	rr	...	rr	...	...	rr	rr	...	...	rr	...	...	...	...	...	...	rr	...	rr	
— pentagonum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	
— Steinii	...	...	...	...	...	...	...	...	r	rr	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	
Prorocentrum micans	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	...	...	
PROTOPHYTA CETERA.																								
Dictyocha fibula	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	
Distephanus speculum	...	...	...	rr	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr	...	
Halosphaera viridis	...	...	r	r	r	rr	rr	+	rr	r	rr	+	r	r	r	rr	rr	r	rr	rr	rr	rr	r	...	r	
Hexasterias problematica	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
PROTOZOA.																								
Noctiluca miliaris	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	rr	...	...	...	...	...	...	rr	+	rr	...	rr	rr
Tintinnopsis beroidea	...	...	r	rr	r	r	rr	+	rr	rr	rr	r	rr	r	rr	rr	rr	r	rr	rr	rr	r	r	r		
— campanula	...	...	rr	r	rr	rr	rr	r	...	...	...	...	...	rr	rr	rr	...	rr	...	rr	...	rr	rr	rr		
COELENTERATA.																								
Pleurobrachia pileus	...	...	...	...	...	...	rr	...	rr	...	...	+	+	c	rr	...	rr	rr	r	...	...	...	...	...	...	rr
Hybocodon prolifer	...	...	...	...	...	...	rr	...	rr	...	...	..	...	r	...	...	...	...	...	...	...	...	...	...	...	
Laodice calcarata	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	..	...	...	...	rr	...	...	...	...	...	..	
Obelia nigra	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	
— sp.	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	rr	rr	rr	...	...	...	...	...	...	...	

TABLE V.—*cont.*

VARNE LIGHTSHIP, 1905—*continued.*

	Jan.		Feb.		Mar.		April.		May.		June.		July.			Aug.		Sept.		Oct.		Nov.	Dec.	
	4	21	5	18	5	21	5	19	8	26	3	17	3	17	24	9	30	14	28	13	28	16	12	26
COELENTERATA—*cont.*																								
Philalidium temporarium	...	...	...	...	...	...	...	...	...	...	...	+	rr	...	r	r	r	rr	rr	+	+	rr	...	rr
Sarsia tubulosa	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Aurelia aurita	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
ECHINODERMATA.																								
Ophiopluteus	..	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	rr	...	rr	...	...	...	...
VERMES.																								
Autolytus sp.	...	...	...	...	rr	...	...	...	...	...	...	rr	...	..	...	...	...	...	...	...	...	...	rr	...
Sagitta bipunctata	...	...	...	...	rr	r	...	...	...	...	...	c	r	r	c	+	+	+	rr	rr	rr	+	r	r
Polychaete larvae	...	...	...	...	...	+	...	...	...	...	rr	rr	...	...	r	...	rr	rr	rr	rr	...	...	rr	rr
Terebellid larvae	...	...	...	...	...	...	...	...	...	...	...	r	rr	...	...	...	...	...	...	...	...	...	...	...
BRYOZOA.																								
Cyphonautes	...	...	...	...	r	...	...	rr	...	rr	..	...	..	...	...	...	...	...	...	...	...	...	...	...
COPEPODA.																								
Acartia Clausi	...	...	+	+	+	r	+	+	c	c	c	+	cc	+		c	c	c	+	+	+	+	+	+
— discaudata	...	...	...	...	...	...	...	rr	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
Alteutha bopyroides	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr
Anomalocera Pattersoni	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	rr	rr	...	rr	...	...	...	...	...
Calanus finmarchicus	...	...	...	rr	r	...	rr	rr	+	rr	rr	...	r	+	+	rr	r	+	...	rr	...	...	...	rr
Centropages hamatus	...	...	r	r	+	r	+	c	r	+	+	r	c	+	r	c	+	+	c	+	r	+	rr	r
— typicus	...	...	...	...	...	...	rr	...	...	+	+	rr	rr	r	r	r	r	rr	rr	r	...	r	...	...
Corycaeus anglicus	...	...	...	...	...	..	...	...	rr	rr	...	...	...	rr	...	rr	rr	rr	rr	r	rr	rr	rr	...
Cyclopina littoralis	...	...	...	...	...	...	...	..	..	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
Euterpe acutifrons	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Isias clavipes	...	...	rr	...	...	...	rr	rr	...	...	...	...	rr	...	...	rr	...	rr	rr	rr	...	r	...	rr
Labidocera Wollastoni	...	...	...	...	...	...	...	...	...	r	rr	r	...	...		+	rr	r	rr	...	...	...	...	...
Oithona nana	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	rr	rr	...	+	r	rr	...	...	...	...
Paracalanus parvus	...	...	r	rr	rr	...	...	rr	...	...	...	...	...	...	rr	rr	rr	...	rr	rr	...	rr	...	. .
Parapontella brevicornis	...	...	c	c	c	r	+	+	c	r	+	r	rr	...	...	+	+	r	r	r	+	c	c	+
Pseudocalanus elongatus	...	...	...	...	rr	rr	rr	...	...	rr	rr	rr	rr	...	...	+	r	r	r	r	r	r	r	r
Rynchothalestris rufocincta	...	...	r	+	+	r	r	+	+	r	r	+	cc	rr	...	rr	r	rr	rr	rr	rr	rr	+	+
Temora longicornis	...	...	...	rr	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
	...	...	+	+	c	r	+	r	c	c	c	c	...	cc	r	rr	c	c	+	+	+	+	+	+
CRUSTACEA.																								
Podon intermedius	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	...	...	...	...	...	...	...
Macropsis Slabberi	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
Podocerus falcatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Proto pedata	...	...	rr	...	...	...	...	...	rr	rr	rr	rr	..	...	...	...	...	...	...	rr	...	...	...	...
Idothea linearis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...
— sp. juv.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cuma Edwardsii	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	rr	..	...
Megalopa	...	...	...	...	...	...	...	rr	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...
Microniscus	...	...	...	...	...	...	...	...	r	r	r	rr	...	...	rr	r	...	...	...	...	...	...	...	...
Nauplius and Metanauplius	...	...	...	rr	...	...	...	rr	r	r	rr	...	...	...	rr	rr	rr	...	...	...	rr	rr	...	rr
Zoaea	...	...	r	r	rr	r	r	r	r	r	+	rr	r	r	r	+	r	r	+	r	rr	r	r	r
Caridid larvae	...	...	...	...	r	rr	rr	+	r	rr	r	r	...	...	+	+	+	...	rr	r	r	...	rr	...
Cirripede larvae	...	...	...	...	r	rr	rr	+	r	rr	rr	r	rr	rr	+	+	...	rr	rr	rr	...	...	...	...
— (cypris) larvae	...	...	rr	...	...	rr	...	+	rr	rr	..	...	...	...	..	...	...	...	rr	...	...	...	...	...
Squillidae larvae	...	...	..	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
MOLLUSCA.																								
Gasteropod larvae	..	...	...	rr	...	...	...	...	rr	rr	...	...	rr	...	rr	rr	...	...	rr	...	...	rr	...	...
Lamellibranch larvae	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...
TUNICATA.																								
Oikopleura dioica	...	...	...	+	r	rr	rr	rr	r	cc	+	r	r	r	rr	rr	...	rr	...	r	rr	rr	rr	rr	rr
VERTEBRATA.																								
Teleostei ova	...	...	...	r	r	+	r	+	+	+	+	+	...	rr	rr	...	...	...	...	...	...	...	rr	...	r
— larvae	...	...	...	rr	...	r	r	rr	rr	rr	...	rr	rr	rr	...	...	..	rr	...	...	...	...	...	...	rr

TABLE VI.

VARNE LIGHTSHIP, 1906.

	Jan.		Feb.		Mar.		Apr.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.	Dec.
	10	24	9	23	10	24	9	23	9	23	6	21	6	21	4	21	4	18	2	20	30	15
DIATOMACEAE.																						
Actinocyclus Ehrenbergii	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...
Actinoptychus splendens	...	rr	rr	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	r	...	rr	rr
— undulatus	...	rr	r	rr	r	rr	r	r	+	rr	...	...	...	rr	...	..	rr	...	...	rr	rr	r	+
Asterionella japonica	...	...	...	rr	rr	+	r	r	r	...	+	rr	rr	...	...	...	...	r	+	+	rr	...	...
Bacillaria paradoxa	...	...	rr	rr	+	c	c	c	r	r	...	...	rr	...	rr	r	r	rr	r	rr	+	rr	r	r
Bacteriastrum varians	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
Bellerochea malleus	...	...	rr	r	rr	rr	...	...	rr	rr	...	...	rr	...	...	rr	rr	rr	rr	r	+	rr	rr	+
Biddulphia alternans	...	...	r	r	r	...	rr	rr	...	rr	...	...	...	...	...	...	...	...	rr	r	rr	+	rr	
— aurita	...	...	...	...	rr	rr	...	...	rr	rr	r	...	...	...	...	...	...	...	...	...	...	...	...	
— favus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	
— granulata	...	...	rr	rr	rr	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	
— mobiliensis	...	...	r	r	r	r	r	+	r	r	rr	...	rr	...	...	...	rr	...	rr	rr	+	r	r	c
Cerataulina Bergonii	...	...	...	...	rr	r	+	r	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	
Chaetoceras boreale	...	...	...	...	...	rr	rr	rr	rr	...	rr	rr	...	...	...	...	rr	...	rr	rr	rr	rr	...	...
— curvisetum	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	rr	r	..	...
— danicum	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	rr	c	rr	rr	r	rr	...	...
— debile	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	...	...
— decipiens	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	...	...
— *didymum*	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	rr	...	r	+	+	...	...	...	...
— laciniosum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	..	...	...	...
— Schuttii	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	...	rr	rr	rr	...	...	...	...
— simplex	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	r	...	...	...	...
— Willei	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...
Coscinodiscus concinnus	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	...	...	...	rr	...	...	...	...
— excentricus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
— Grani	...	...	c	c	c	c	+	c	+	+	rr	rr	rr	...	...	rr	r	rr	rr	r	...	...	+	c
— oculus iridis	...	...	r	r	rr	r	rr	rr	...	...	...	...	...	...	...	...	...	...	r	r	rr	r	+	
— radiatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r
Ditylium Brightwellii	...	...	c	+	c	c	c	+	+	r	r	rr	rr	...	...	...	...	rr	rr	rr	rr	rr	+	+
Guinardia flaccida	...	...	rr	rr	rr	...	rr	...	rr	...	rr	rr	...	...	...	...	...	...	rr	r	...	r	r	r
Hyalodiscus stelliger	...	...	...	rr	rr	rr	rr	rr	rr	...	rr	r	r	r	...	...	rr	...	rr	r	r	r	r	rr
Lauderia borealis	...	...	r	rr	rr	rr	rr	rr	rr	...	rr	rr	...	rr	rr	rr	rr	...	rr	rr	r	rr	rr	rr
Leptocylindrus danicus	...	...	rr	rr	r	r	+	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	rr
Lithodesmium undulatum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
Navicula membranacea	...	...	rr	rr	rr	...	rr	rr	...	...	...	...	...	...	...	...	...	...	rr	r	rr	rr	r	r
Nitzschia closterium	...	...	...	...	...	...	...	...	r	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
— sp.	...	...	...	...	...	...	...	...	r	r	rr	rr	...	rr	...	...	rr	...	...	...	...	...	...	...
Paralia sulcata	...	...	...	...	...	...	...	...	c	r	cc	r	...	...	...	...	...	...	...	...	...	...	...	...
Pleurosigma sp.	...	...	r	r	r	rr	rr	r	rr	rr	rr	...	r	rr	r	r	r	rr	rr	rr	r	r	...	...
Rhizosolenia semispina	...	...	rr	rr	rr	...	...	...	...	rr	rr	...	...	rr	rr	rr	rr	rr	rr	...	rr	rr	rr	rr
— *setigera*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— Shrubsolei	...	...	rr	rr	rr	rr	rr	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
— Stolterfoth i	...	...	rr	rr	rr	rr	rr	r	...	+	+	rr	...	...	rr	+	rr	...	...	...	rr	...	...	...
Skeletonema costatum	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...
Streptotheca thamensis	...	...	+	r	r	+	+	r	r	r	rr	rr	r	...	...	...	rr	rr	r	rr	r	r	+	...
Thalassiosira decipiens	...	...	...	...	rr	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thalassiothrix nitzschioides	...	...	...	rr	...	...	rr	rr	rr	...	...	rr	...	...	...	...	...	rr	rr	rr	...	...	...	...
PERIDINIALES.																						
Ceratium furca	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...
— fusus	...	...	rr	rr	...	...	...	...	rr	rr	...	...	...	rr	rr	...	rr	rr	rr	r	+	+	r	rr
— longipes	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	rr	rr	rr	rr	rr	r
Dinophysis acuminata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...
— ovum	...	...	...	...	...	...	rr	...	...	...	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...
— rotundata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diplopsalis lenticula	...	...	...	...	rr	...	rr	...	r	..	...	r	rr	r	rr	...	rr	...	...	...	rr	...	rr	...
Gonyaulax polygramma	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	...	...	...
Gymnodinium lunula	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	...	...	...	...	...	...	...
Peridinium conicum	...	...	rr	rr	rr	r	r	rr	c	+	r	rr	rr	...	...	...	...	...	rr	r	r	r	...	
— depressum	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	rr	rr	rr	...	...	...	...	...	...	...	...
— divergens	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
— globulus	...	...	..	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
— ovatum	...	...	...	...	rr	r	+	r	+	r	+	+	+	rr	rr	r	rr	...	...	...	...	...	...	...
— pallidium	...	...	rr	rr	...	...	rr	...	...	rr	r	rr	rr	...	...	...	rr	...	rr	r	...	rr	...	...
— Steinii	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
Prorocentrum micans	...	...	...	...	...	...	rr	rr	rr	...	rr	...	...	...	...	...	...	...	rr	rr	r	...	...	...
PROTOPHYTA CETERA.																						
Dictyocha fibula	...	...	...	rr	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...
Distephanus speculum	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	rr	r	+	r	rr	...	...	...
Halosphaera viridis	...	...	rr	rr	rr	rr	rr	rr	r	rr	r	r	r	rr	r	rr	+	rr	r	...	r	rr	r	r
Hexasterias problematica	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
Phaeocystis globosa	...	...	...	...	...	...	...	...	...	...	cc	+	cc	r	...	...	...	...	...	...	...	...	...	...
PROTOZOA.																						
Noctiluca miliaris	...	...	...	...	...	...	...	...	rr	...	rr	rr	+	+	+	rr	rr	rr	...	...	rr	rr	rr	+
Tintinnopsis beroidea	...	...	rr	r	rr	r	r	r	r	rr	...	rr	rr	..	rr	rr	rr	rr	...	rr	r	rr	rr	+
— campanula	...	...	rr	rr	rr	rr	...	..	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	rr	rr	r

TABLE VI.—*continued.*

VARNE LIGHTSHIP, 1906—*continued.*

—	Jan.		Feb.		Mar.		Apr.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.	Dec.
	10	24	9	23	10	24	9	23	9	23	6	21	6	21	4	21	4	18	2	20	30	15
COELENTERATA.																						
Pleurobrachia pileus	rr	...	rr	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	rr	...	rr	...	...
Hybocodon prolifer	...	...	...	...	...	rr	rr	...	rr	...	...	rr	...	...	...	...	...	...	...	...	...	...
Obelia sp.	...	...	...	...	...	..	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	..	...
Phialidium cymbaloideum	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	..	...	...	...	...
— temporarium	...	...	...	...	...	...	...	...	...	...	rr	...	...	r	+	...	...	rr	rr	rr	rr	rr
Actinula (Tubularia)	...	...	..	...	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...
ECHINODERMATA.																						
Asteroid Juv.	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ophiopluteus	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr	...	r	...	...
VERMES.																						
Autolytus sp.	...	r	rr	...	...	rr	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
Sagitta bipunctata	+	+	+	rr	rr	rr	...	...	...	...	...	rr	...	rr	r	rr	r	rr	rr	+	r	+
Polychaete larvae	...	rr	...	rr	rr	rr	rr	rr	...	...	rr	...	...	...	...	rr	...	...	rr	rr	...	rr
Terebellid larvae	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	..	...	...
BRYOZOA.																						
Cyphonautes	...	...	...	rr		r	rr	rr	rr	rr	rr	...	...	...	...	...	...	...	rr	...	...	rr
COPEPODA.																						
Acartia Clausi	+		+	rr	rr	+	c	r	+	+	c	r	rr	+	c	c	+	+	+	+	+	
Alteutha bopyroides	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	rr	...	...	...	...	...
Anomalocera Pattersoni	...	...	...	...	...	...	...	...	..	...	...	...	...	...	rr	rr	...	...	...	...	...	...
Calanus finmarchicus	rr	...	rr	r	rr	rr	rr	...	rr	rr	...	rr	...	rr	r	...	rr	rr	...	...	...	...
Caligus rapax	...	...	rr	...	..	...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...
Centropages hamatus	rr	rr	rr	r	rr	+	+	rr	rr	...	r	rr	rr	+	+	r	r	rr	r	+	r	rr
— typicus	...	rr	...	...	...	..	...	...	...	...	...	...	...	...	rr	rr	...	...	...	rr	...	...
Corycaeus anglicus	.	...	...	...	...	...	...	...	...	...	...	...	...	..	...	r	...	rr	...	...	...	rr
Cyclopina littoralis	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	..	...	rr
Eurytemora hirundoides	...	...	...	...	...	rr	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...
Euterpe acutifrons	rr	...	...	...	..	..	.	..	...	...	...	...	...	...	...	...	rr	...	rr	rr	...	+
Isias clavipes	...	...	...	...	...	..	...	...	...	...	...	...	...	rr	rr	r	+	...	r	...	...	...
Labidocera Wollastoni	...	...	.	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...
Oithona nana	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	...	+
Paracalanus parvus	rr	r	r	+	+	r	+	rr	r	rr	rr	rr	rr	r	rr	rr	...	rr	r	r	c	r
Parapontella brevicornis	...	...	...	...	...	rr	...	...	rr	rr	rr	...	...	rr	...	...	...	rr	rr	rr	rr	rr
Pseudocalanus elongatus	+	+	c	+	+	c	+	rr	+	+	+	r	...	+	r	...	rr	...	r	r	rr	r
Temora longicornis	r	r	r	+	+	+	+	rr	r	rr	r	r	rr	+	+	+	+	r	+	rr	+	+
CRUSTACEA CETERA.																						
Podon intermedius	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
Podocerus falcatus	...	...	rr	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	rr	...	...	...
Pseudocuma cercaria	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
Megalopa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
Micronisсus	...	...	rr	...	...	...	...	...	...	...	...	...	..	...	...	...	rr	...	...	...	...	...
Nauplius and Metanauplius	rr	rr	rr	rr	rr	r	r	rr	rr	r	r	rr	rr	rr	+	r	r	r	+	r	r	r
Zoaea	...	...	r	rr	rr	rr	r	...	rr	...	rr	rr	...	rr	r	rr	rr	r	rr	...	rr	rr
Caridid larvae	...	...	rr	rr	rr	rr	rr	...	...	...	rr	...	...	...	rr	rr	rr	...	rr	rr	...	...
Cirripede larvae	...	...	...	...	rr	rr	c	rr	rr	...	rr	...	...	...	...	...	...	...	rr	...	...	...
— (cypris) larvae	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
Cumacea sp. Juv.	...	...	...	...	rr	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
MOLLUSCA.																						
Gasteropod larvae	...	...	...	...	...	rr	...	...	rr	...	...	...	...	rr	rr	...	...	rr	rr	...	rr	...
Lamellibranch larvae	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...
TUNICATA.																						
Oikopleura dioica	...	...	...	...	rr	r	rr	rr	r	...	rr	r	+	rr	...	rr	r	rr	...	rr	rr	r	...	r
VERTEBRATA.																						
Teleostei ova	+	r	r	r	+	r	+	+	r	+	rr	rr	...	rr	...	rr	...	...	...	...	rr	rr
— larvae	rr	...	+	r	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+

CHART 1.

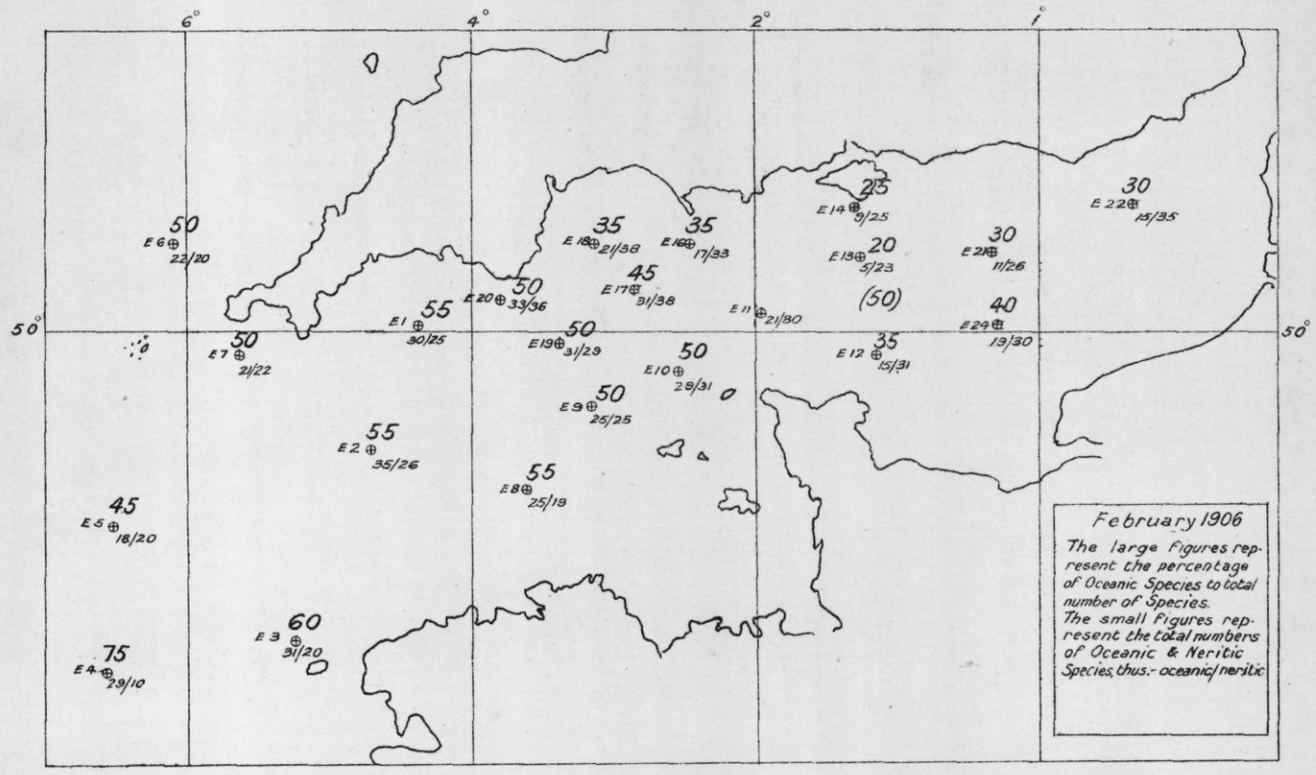

CHART 2.

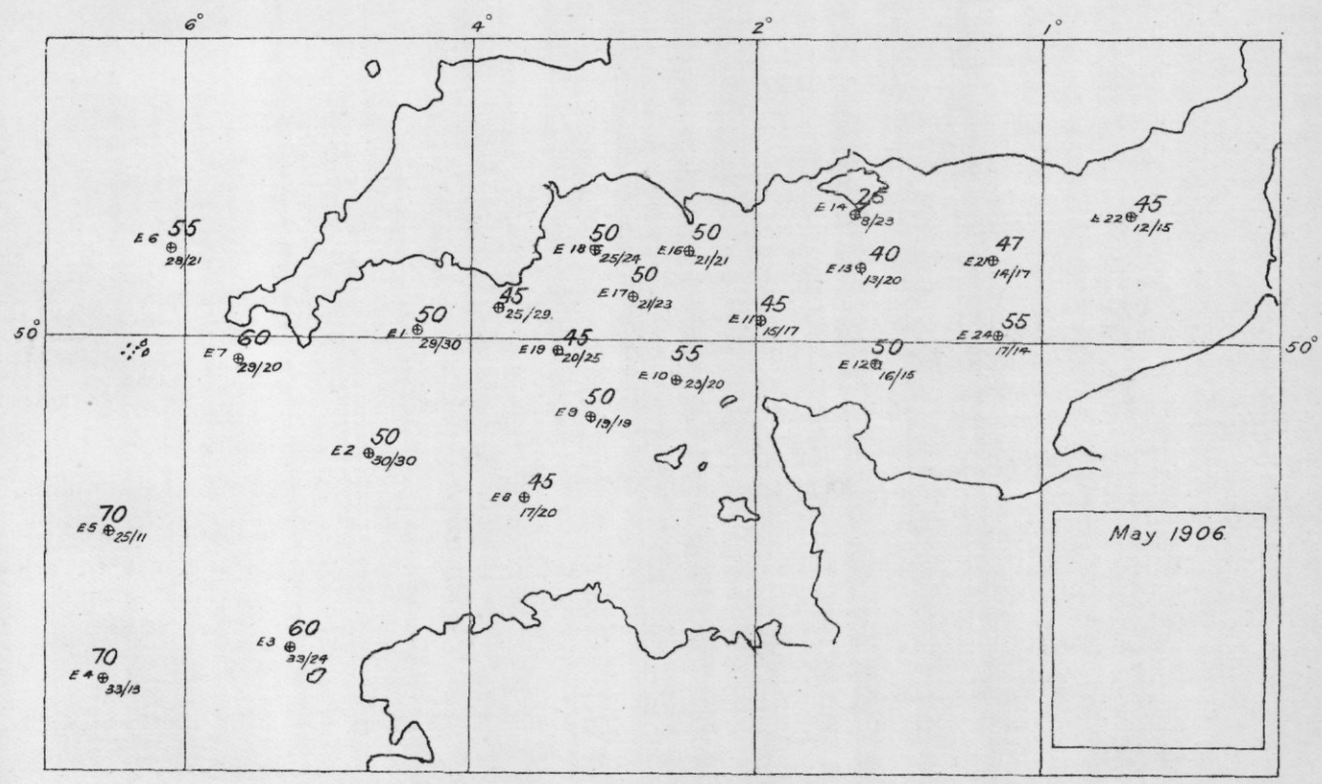

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CHART 3.

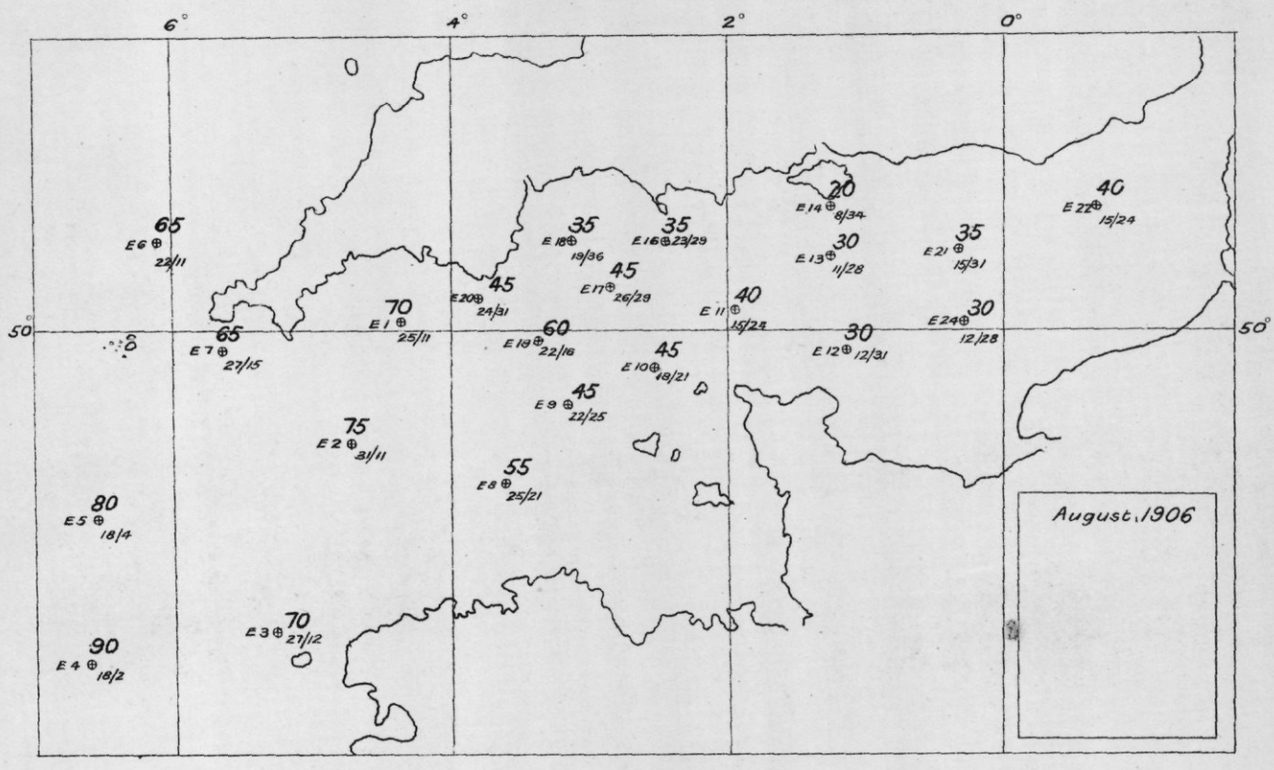
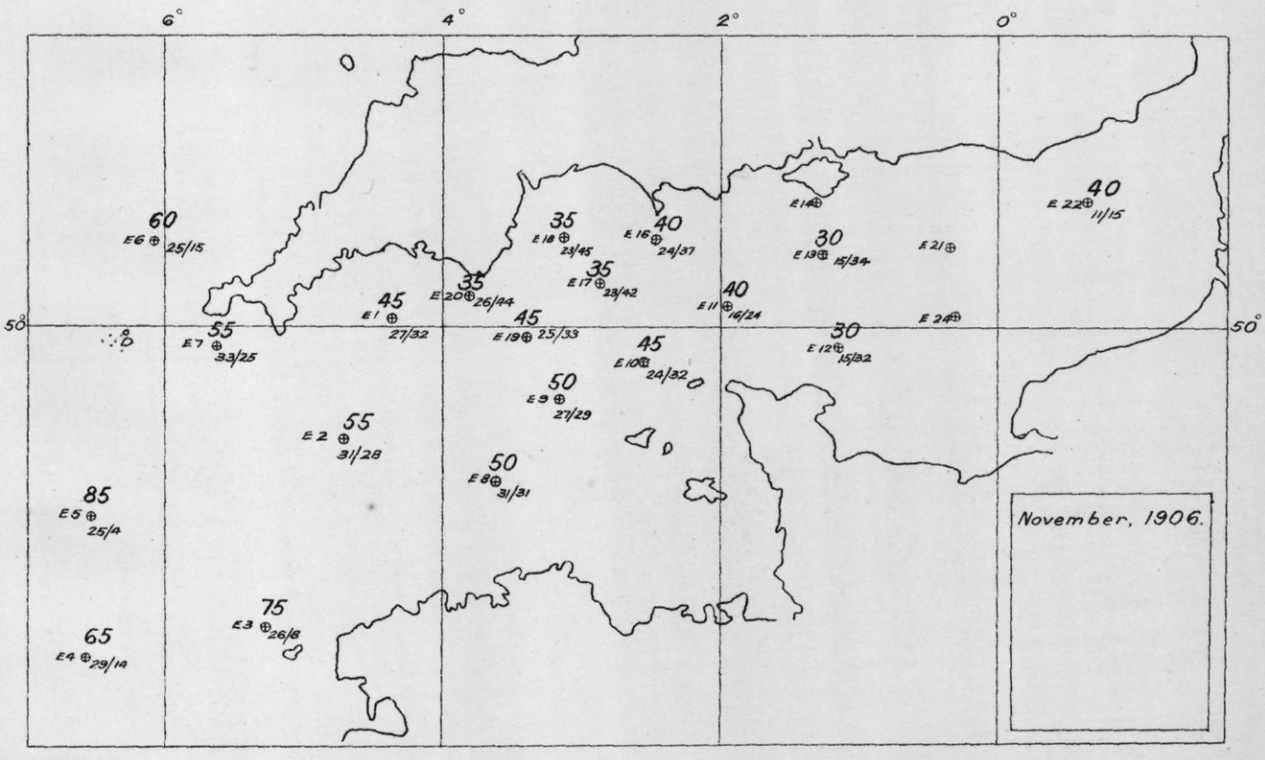


CHART 4.



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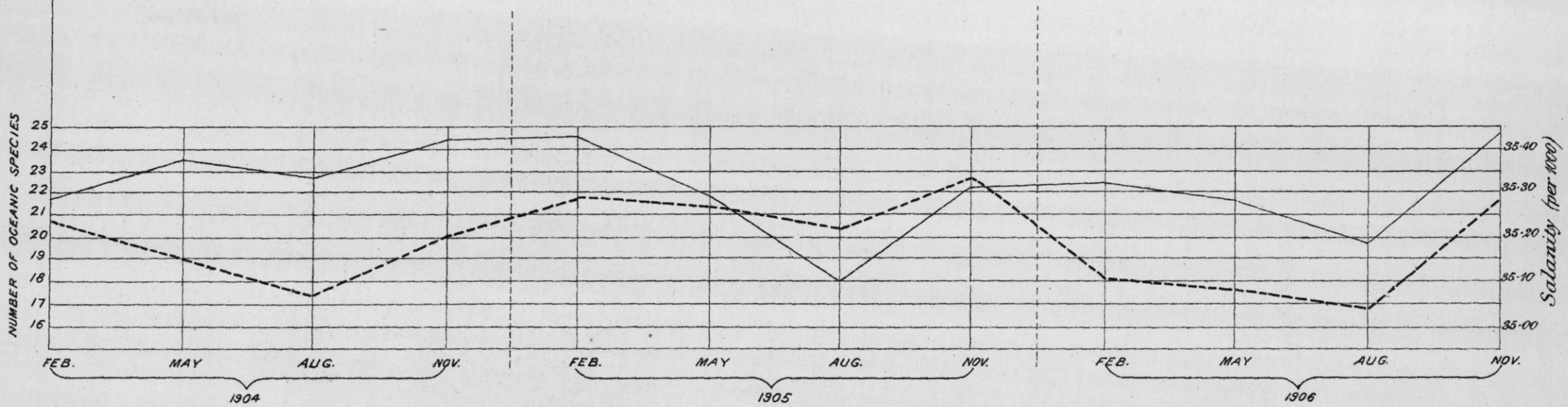
1904				1905				1906			
FEB.	MAY	AUG.	NOV.	FEB.	MAY	AUG.	NOV.	FEB.	MAY	AUG.	NOV.
21·7	23·5	22·7	24·3	24·5	21·9	18·0	22·2	22·4	21·6	19·8	24·7
35·23	35·15	35·07	35·20	35·29	35·27	35·22	35·33	35·11	35·08	35·04	35·28

AVERAGE NUMBER OF OCEANIC SPECIES PER STATION.
Average Salinity per Station.

CHART 5.

CHART SHOWING VARIATIONS OF SALINITY AND OF NUMBER OF OCEANIC SPECIES.

Salinity ..... shown thus ------
Number of Species " " ——



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