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NORTH SEA FISHERIES INVESTIGATION COMMITTEE.

P74

SECOND REPORT (SOUTHERN AREA)

ON

FISHERY AND HYDROGRAPHICAL INVESTIGATIONS IN THE NORTH SEA AND ADJACENT WATERS.

1904—1905.

Vol II - PART I.

Presented to both Houses of Parliament by Command of His Majesty.

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MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM.

INTERNATIONAL FISHERY INVESTIGATIONS.

P74

SECOND REPORT (SOUTHERN AREA)

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SECOND REPORT (PART I.) of the COUNCIL of the MARINE BIOLOGICAL ASSOCIATION of the UNITED KINGDOM on work carried out in connection with the INTERNATIONAL FISHERY INVESTIGATIONS.

To SIR EDWARD W. HAMILTON, K.C.B., K.C.V.O.,

Chairman of the North Sea Fisheries Investigation Committee.

SIR,

I AM instructed by the Council of the Marine Biological Association to submit for the information of the North Sea Fisheries Investigation Committee the First Part of their Second Report on work done in connection with the International Investigation of North Sea Fisheries. The detailed memoirs, which have been drawn up under the Council's direction by the members of the scientific staff, deal chiefly with the work carried out during the years 1904–1905. Other memoirs, dealing with the same period, will accompany the Second Part of this Report.

I. GENERAL.

The following is a list of members who have served on the Council since 1904 :—

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HON. TREASURER.—Mr. J. A. Travers (late Prime-Warden of the Worshipful Company of Fishmongers).

SECRETARY.—Mr. E. J. Allen.

The following is a list of the scientific staff employed by the Council to carry out the investigations :—

DIRECTOR AND SECRETARY TO THE COUNCIL.—E. J. Allen, D.Sc.

NATURALIST in charge of Fishery Investigations until September, 1907 (who was also in charge of the North Sea Work).—Walter Garstang, M.A., D.Sc.

ASSISTANT NATURALISTS for Fishes.—W. Wallace, D.Sc., A. E. Hefford, B.Sc.

ASSISTANT NATURALISTS for Invertebrates.—J. O. Borley, M.A., R. A. Todd, B.Sc.

ASSISTANT NATURALISTS for Plankton.—L. H. Gough, Ph.D. (until 1906), W. Bygrave, B.A.

HYDROGRAPHER.—D. J. Matthews.

STATISTICAL ADVISER.—Edgar Schuster, M.A.

STATISTICAL ASSISTANT.—Miss R. M. Lee, M.A.

ASSISTANTS.—J. Potter, A. L. Ansell, G. T. Atkinson.

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The Council have pleasure in again reporting that in their opinion the different members of their staff have carried out the duties entrusted to them with efficiency and success.

The general lines of work followed in 1902–1903, have been continued during 1904–1905. The North Sea investigations have been made with the hired steam-trawler *Huxley*, whilst for the summer cruises in the English Channel the Association's own steamer *Oithona* has been employed. The laboratory researches in connection with the hydrographical and plankton investigations were carried out at Plymouth, whilst those connected with the North Sea fisheries were done at Lowestoft. During the course of 1905 the Council found it necessary to obtain somewhat larger premises at the latter port.

The Council desire to draw attention to the following points in the special memoirs, which in their opinion seem worthy of particular consideration.

II.—FISHERY INVESTIGATIONS IN THE NORTH SEA.

Much attention has been given to the recently developed method of ascertaining the ages of individual fishes by an examination of the number of rings of growth in their otoliths or ear-stones. This is a matter of much importance in relation to practical fishery problems, since it not only enables a more accurate estimate to be made of the rate of growth of fishes in different regions, but may also throw light upon the effects produced by fishing operations. The observations recorded in the first report have been very considerably extended and their value increased by the examination of the otoliths of plaice collected along a line running out from the shore into deep water, the particular line selected being that from the Texel to the Leman Grounds, off the coast of Norfolk. By this means the difficulty formerly experienced, on account of the larger plaice moving out into deeper water, of obtaining the true average length of the fish at any particular age has been overcome, and it is now possible to determine what appears to be a sufficiently reliable estimate of the average rate of growth of the plaice in the region investigated.

A striking point in connection with which much definite information has been gained by this work is the difference in the rate of growth between the two sexes, the females growing at a considerably more rapid rate than males (*see* p. 33). A result of some biological importance seems also to be indicated, namely, the higher death-rate of the males compared with that of the females after the fifth year, with the final result that after eight years relatively few males remain.

Considerable progress has been made with the investigation of the food of fishes in the North Sea. Amongst the important points which appear from the observations are the predominant extent to which Crustacea serve as food for almost all the useful species of fish during the earliest stages of their lives, and the degree to which different species of fish diverge in their selection of food as they grow older. Further, it is shown that some flat fishes, especially the plaice, cease feeding during the winter months, a habit which may be related to the spawning period of the fish. The questions, discussed in the memoir on the subject, of the competition between plaice, haddock, and dabs for molluscan food, especially on the Dogger Bank, and the great destruction of molluscan fry by these species, more particularly by the haddock, are matters of great interest.

III.—HYDROGRAPHICAL AND PLANKTON INVESTIGATIONS IN THE ENGLISH CHANNEL.

The detailed observations obtained on the quarterly cruises in the English Channel have been published regularly in the Bulletin of the International Council. Attention may here be drawn, also, to two other records of work carried out in connection with the Association's investigations, which have been published by the Central Bureau, viz. :—

(1.) Principal Results of the Experiments with Bottom-Trailers. By Geo. P. Bidder. *Rapports et Proces-verbaux du Conseil International pour l'Exploration de la Mer. Vol. VI.*, 1906, p. xxxv.

(2.) On the Distribution and the Migrations of *Muggiaea Atlantica*, Cunningham, in the English Channel, the Irish Sea, and off the South and West Coasts of Ireland in 1904. By L. H. Gough, Ph.D. *Publications de Circonstance*, *No.* 29, 1905.

The memoir on the Surface Waters of the North Atlantic, which is now presented, constitutes a valuable extension of the hydrographical investigations, which was undertaken on the recommendation of our international colleagues. The work has been rendered possible only through the co-operation of the British Meteorological Office, and the gratuitous assistance which has been given by the commanders and officers of a number of steamers making regular voyages in the Atlantic. As will be seen from the memoir, it has been found possible by means of the samples of sea-water collected on board the different vessels to obtain some information on the larger movements of the Atlantic water, and a continuation of such observations will be of great assistance in the interpretation of the results obtained on the hydrographical cruises in the North Sea and English Channel.

The plankton observations for the years 1904 and 1905 confirm the conclusions arrived at during the previous year, and again show the close similarity in the biological conditions of the eastern end of the English Channel and the southern bight of the North Sea.

In conclusion, the Council would take the opportunity of thanking all those who have assisted the work, and more especially the officers of the mercantile marine who have supplied samples of sea-water from so many different localities.

I am,

Sir,

Your obedient Servant,

E. J. ALLEN,

Director and Secretary to the Council.

Marine Biological Laboratory,
Lowestoft,

15th October, 1907.

REPORT

ON THE

AGE AND GROWTH-RATE OF PLAICE

IN THE

SOUTHERN NORTH SEA,

AS DETERMINED BY THE INVESTIGATION OF OTOLITHS,

BY

WILLIAM WALLACE, D.Sc.,

Assistant Naturalist on the Staff.

With Diagrams (Figs. 1–13) in Text, Synoptic Table, Tables I–IX, and Plates I–V at end.

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I.—GENERAL CONSIDERATIONS.

§ 1. Introduction.

It has been recognised, ever since scientific methods of investigation have been directed to the solution of practical fishery questions, that amongst the first and most essential problems to be attacked are those of the age of fishes of particular sizes, of the rate of growth of fishes, and of the average duration of life of fishes of both sexes. An accurate knowledge of these matters is necessary for the proper understanding both of the life-histories of the fishes and of the changes produced in the fish population by the operations of the fishermen. A ready means of ascertaining the exact age of any individual fish is clearly, therefore, of much practical value, and fortunately such a means has been discovered in the recently developed method of examining the number of rings shown by the otoliths or ear-stones.

The data with which this Report deals consist of determinations of age (as inferred from the number of yearly rings in the otoliths), combined with measurements of length, in 7,863 plaice.

In addition, a large amount of material including the otoliths of over 7,200 plaice collected during the current year (1906) on various grounds exists but has not been worked up.

In the collection of all this material my colleagues, Mr. J. O. Borley, Mr. R. A. Todd, and Mr. A. E. Hefford, have kindly co-operated, while Mr. G. T. Atkinson has been of great assistance in dealing with the fishes at sea. I would also record here my indebtedness to Dr. Garstang for his valuable criticism; to Mr. Todd for his fine photographs of otoliths and plaice reproduced in Plates I., II., and III.; and to Mr. Hefford for undertaking an independent investigation of a large collection of otoliths (Leman ground to the Texel, September, 1905) with the view of determining to what extent the "personal equation" enters into these observations.

In the discussion of results, I have limited my remarks to the quantitative distribution and average size of the age groups of plaice, neglecting for the present the range of size which will be an important consideration when we come to convert statistics of length into those of age. My arrangement of the raw material in the Age-Group Tables at the end of this Report should however materially facilitate this process.

§ 2. Nature of the Results obtained.

The analysis of the material so far examined has yielded a considerable amount of definite information in regard to the following important points:—

(1.) The distribution of the various age groups of plaice over the Southern North Sea.*

(2.) The Average Age of the Plaice on different grounds.

(3.) The relation of Size to Age in various parts of this region.

(4.) The Average Annual growth of plaice in the Southern North Sea.

(5.) The relative mortality of males and females at different ages.

(6.) The Age and Size of Plaice at maturity.†

These matters will be somewhat briefly discussed, my object being to call attention only to those general results which clearly emerge from the first analysis of the data at present available.

---

* By Southern North Sea I mean the area lying to the South and S.E. of the 30-fathom line. This includes the Dogger Bank and Flamborough off grounds, &c., as well as the whole of the "Flemish Bight."

† This will form the subject of a separate Report.

§ 3. Earlier Method of Research.

Prior to Reibisch's* discovery of annual rings in the otoliths of plaice, the only method of inferring the average rate of growth of fishes was the method of frequency-curves, often known as Dr. Petersen's method, from having been adopted as the basis of an elaborate research by Dr. Petersen† on the growth of plaice in the Baltic, Belts, and Kattegat. The method was later employed by other investigators, and the most extensive researches in regard to the plaice were made in Scotland by Dannevig‡ and Fulton,§ the work of the latter especially being on a very large scale. Still more recently Johansen‖ and Cligny¶ have used this method to determine the growth-rate of plaice on the Danish and French coasts respectively.

This method is founded on the following well-known facts :—

(1.) The plaice (and other fishes) spawn but once a year.

(2.) The spawning period is strictly limited to a definite small portion of the year.

Now, assuming, for simplicity, that all plaice are hatched at exactly the same date** in each year, it follows that at any given moment, two plaice, if they differ at all in age, will do so either by one whole year, or by two whole years, or three years, &c., but not by intervals involving fractions of a year. Again, the size of fishes of a given age may be expected to vary according to the normal law—in the absence of disturbing factors, and always provided we are dealing with homogeneous material (of the same race, &c.). In other words the length-frequencies of fishes all of the same age will form a simple "probability curve" with a single mode.

Consequently if we make at one and the same time a large and representative collection of plaice, and plot out the frequencies of different lengths, the gross curve thus formed will exhibit a succession of undulations, each undulation representing one generation, the product of one season's spawning ; and the peaks of the curve—the crests, so to speak, of the waves of growth—will correspond to sizes which may be taken as the average sizes of successive years. Then the differences between these average sizes will give the rate of growth from year to year.

The chief difficulties experienced in the use of this method are as follows :—††

(1.) It is impossible from a mere study of length-frequencies to determine whether a given size group is caused by the predominance of fishes all of one age or of several ages.

(2.) It is impossible to tell whether two successive size groups are of the same year of age or of two successive years (as the method *assumes*), or finally whether the interval between them is more than one year, since an intermediate year might for one reason or another be missing.

(3.) Even when it is highly probable that two successive size groups represent two successive years of age, it must always be uncertain what these ages are ; at least in the absence of the youngest group—the 0 group, the size of which, however, is generally fairly certain.

(4.) Even assuming the size groups to represent age groups it is impossible by this method to ascertain, with any degree of accuracy, the range of size of fishes of a given age, as the amount of overlapping of the sizes of adjacent age groups cannot be certainly calculated.

(5.) Finally, a large collection of specimens is required to give a frequency-curve showing definite size groups, and therefore the method is inconvenient as well as uncertain, especially in dealing with the older fishes.

---

* Reibisch, 1899 ; *Wissensch. Meeresunters. K. Kommission, Kiel, Bd.* 4 (pp. 233–248).

† Petersen, 1893 ; *Report of the Danish Biological Station*, IV. (pp. 2–29).

‡ Dannevig, 1899 ; 17*th Ann. Rept., Fishery Board for Scotland*, Part III. (pp. 232–247).

§ Fulton, 1902 ; 20*th Ann. Rept., Fishery Board for Scotland*, Part III. (pp. 337–360).

‖ Johansen, 1905 ; *Medd. fra Kom. for Havunders, Série Fiskeri*, Bd. 1, Nr. 2.

¶ Cligny, 1905 ; *Ann. de la Stat. Aquic. Boulogne, Nouv. Sér.*, Vol. I. (pp. 101–122).

** As we know that this is not the case, but that the spawning period extends over three months or so, the variations of a given size group will be partly due to *slight* differences of age.

†† (1) to (3) have been recently stated by Johansen (1905, pp. 3–5).

§ 4. Advantages of the Otolith Method.

The obvious advantages of the otolith method, if reliable, are as follows :—

(1.) It gives us directly the age of individual fishes.

(2.) To determine with sufficient accuracy the average size of a given age group, it is not necessary to measure a very large number of specimens as is the case if we employ Petersen's original method.

(3.) The method gives us not only the *average* size of an age group, which, in favourable circumstances (*e.g.*, a large enough collection), may be inferred from measurements alone (*see* Fig. 4), but also the *range* of size which it is impossible to infer accurately from the measurements, since the amount of overlapping cannot be certainly calculated.

Advantages (2) and (3) follow of course from (1).

§ 5. Evidences of Reliability of Otolith Method.

This method has been independently found to be reliable by Heincke,* Redeke,† Johansen,‡ and myself, and may now be stated to have superseded, for the reasons already mentioned, the older method of dependence on frequency-curves.

The method depends on the periodic growth and seasonal differentiation in the otoliths and other skeletal structures—in a word, the phenomenon of "rings of growth."

Owing to the kindness and skill of my colleague, Mr. R. A. Todd, I am enabled to present in Plates I. to IV. a very instructive series of photographs, which besides showing very clearly the nature of the objects with which we have to deal, affords visual evidence of :—

(1.) The seasonal periodicity in the production of white and dark rings : white in Spring–Summer ; dark in Autumn–Winter.

(2.) The facility with which the number of significant rings can be definitely stated in the great majority of cases.

(3.) The regular (average) relation between the number of rings and the length of the fish.

These are three important considerations upon which the reliability and success of the method depends. I shall briefly refer to these points in order, and illustrate them by a reference to the figures in Plates I. to IV.

The Figs. 1 to 7 represent seven groups of otoliths, each otolith representing a single fish.§ All the otoliths in each group (Figure) were taken from plaice of the same centimetre length. For example, Fig. 1 represents 36 otoliths of 36 plaice all of 16 cm. length (16·0—16·9 cm.). These otoliths were not selected in any way, but simply taken at random from a heap of otoliths from 16 cm. plaice collected during the Leman to Texel cruise in May, 1905. They were arranged for photography by *reflected light* by placing on a dead-black background immersed in water, such a number being taken in each case as could be conveniently photographed simultaneously to the desired magnification. The same general explanation applies to the other figures.

(1.) The seasonal periodicity of the white and dark rings is well illustrated by the series of Figs. 1–7.

---

* Heincke, 1905 ; "*Rapports et Procès-Verbaux du Conseil Permanent International pour l'Exploration de la Mer.*" Vol. III., App. E. (pp. 1–39).

† Redeke, 1905 ; "*Rapports et Procès-Verbaux*," &c. Vol. III., App. H^1 (pp. 1–9).

‡ Johansen, 1906 ; "*Rapports et Procès-Verbaux*," &c. Vol. V., Rapport de la Commission C_2 (pp. 87–107).

§ The otolith of the right (upper) side of the plaice in each case.

Figs. 1–3 represent the otoliths of 81 plaice caught in May. It will be observed that they all show a white ring at the margins. This white ring has as yet evidently not attained its full thickness. It is narrow in comparison with any of the inner white rings.

Fig. 4 shows the otoliths of 32 plaice caught in July. In these the white ring at the margins is distinctly broader than in the case of the May-caught plaice.

Figs. 5–7 represent the otoliths of 67 plaice caught in September. Here there is a broad dark ring which extends up to the edges of the otoliths.*

(2.) The facility with which the number of significant rings can be counted in the great majority of cases will be admitted after glancing at Figs. 1–8. Only in a small minority of cases occur faint, narrow, or partial white or dark rings of doubtful significance. Now one has either to reject such doubtful cases or to make an approximate estimate of the number of true annual rings. I have consistently adopted the latter course.

Further, it must be remembered, as Reibisch pointed out (1899), three zones can usually be made out more or less clearly in the white centre or nucleus of the otolith, so that, starting from the very centre, we have (1) a dense white dot occupying the very centre ; (2) a very narrow dark ring ; (3) a narrow white ring. These all belong to the first Spring–Summer growths and are doubtless the expression of phases in the early life history (metamorphosis, &c.) of the fish.

(3.) The regular relation between the number of otolith rings and the length of the fish is very apparent in all the examples illustrated by Figs. 1–7. Each of these figures, as has been stated, represents the otoliths of a collection of plaice of the same centimetre length ; and although the otoliths were not in any way selected, the lengths were chosen so as to approximate to the average length of age groups II., III., and IV., in May, and of groups I., II., and III., in September (*see* p. 26). It is clear that the nearer the length chosen to the average size of a given age group, the larger will be the majority of otoliths showing the number of rings proper to the age group in question.

We may now examine the otoliths depicted in Figs. 1–7, noting the number of *white* rings in each case, and in the few doubtful cases estimating the probable number.

Fig. 1.—Otoliths of 36 plaice : length 16 centimetres. 28 with two rings, 7 with three rings, 1 (?) with one ring.

Fig. 2.—Otoliths of 25 plaice : length 21 centimetres. 3 with two rings, 19 with three rings, 2 with four rings.

Fig. 3.—Otoliths of 20 plaice : length 27 centimetres. 7 with three rings, 13 with four rings.

All the plaice of which the otoliths are shown in these three figures (Figs. 1–3) were captured in the region between the Leman ground and the Texel in May, 1905. The sizes of the plaice, viz., 16 cm., 21 cm., and 27 cm., are approximately the average sizes of two-year-old, three-year-old, and four-year-old fishes respectively, and we see that in the first case the large majority (78 per cent.) of the otoliths had *two* rings ; in the second 71 per cent. had *three* rings ; in the third 65 per cent. had *four* rings.

Fig. 4.—Otoliths of 32 plaice : length 16 centimetres. 19 with two rings, 13 with three rings.

The plaice of which the otoliths are shown in this figure were caught in Bridlington Bay in July, 1905. The majority (60 per cent.) show two rings. The age of these plaice would be two and a half years.

Fig. 5.—Otoliths of 24 plaice : length 14 centimetres. 20 show one ring, 4 show two rings.

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* The *extreme* edge of these otoliths (Figs. 5–7) appears whitish, but a minute examination and comparison of these figures with Figs. 1–3 will show (what is certainly the case) that in the former the whiteness at the margin is not in the substance of the otolith, but is simply due to reflection from the slightly bevelled edges.

Fig. 6.—Otoliths of 25 plaice : length 20 centimetres. 22 show two rings, 3 show three rings.

Fig. 7.—Otoliths of 18 plaice : length 24 centimetres. 5 show two rings, 12 show three rings, 1 shows four rings.

The plaice of which the otoliths are shown in these three figures (Figs. 5–7) were caught in the Leman to Texel region in September, 1905. The sizes selected, viz., 14 cm., 20 cm., and 24 cm., are approximate to (but do not quite coincide with) the average sizes of age groups I., II., and III. (*see* p. 26). We see that of the otoliths of 14 cm. plaice the large majority (83 per cent.) have *one* ring. These plaice would be about $1\frac{3}{4}$ years old. Again, the otoliths of 20 cm. plaice show in 88 per cent. of cases *two* rings. Finally, of the otoliths of 24 cm. plaice the majority (67 per cent.) showed *three* rings.

Apart from the above demonstration, there is in the present Report abundant statistical evidence of the regular relation between the size of a plaice and the number of rings in its otoliths.

For example, an examination of Fig. 3, p. 14, and Figs. 8 and 9, p. 24 will show that :—

(1.) When the length-frequencies of a large collection of plaice plotted out show well-defined size groups, each of these groups is due to the preponderance of fishes having the same number of otolith rings.

(2.) Where we have two successive size groups *a* and *b*, of which *b* has a higher mode than *a*, the fishes preponderating in size group *b* have *just one more* otolith ring than the plaice which preponderate in size group *a*.

In regard to foreign researches the only *details* of otolith-analysis which have so far been published are those of Heincke (1905) and Johansen (1906). Redeke (1905) does not give details but simply states that he has used the method (which he has found "quite indispensable") to check the results of the graphic method. He says (p. 8), "the determination of age from the otoliths has enabled us to draw limits where the ordinary graphic method is not sufficient to show the two different year groups, just because the one-year group is always but imperfectly represented in the hauls, and, as it were, fused with the other."

§ 6. Age Nomenclature.

I have adopted Dr. Petersen's (1893) Nomenclature, according to which :—

the 0 group = fishes under *one* year old,
the I group = fishes fully *one* but less than *two* years old,
and so on.

A plaice's year is assumed to commence at the beginning of April.

§ 7. Tabulation of the Data.

In the arrangement of the data regarding the relation of size to age in the plaice, the *primary grouping* is according to the period of the year. This grouping seemed the most natural and least liable to lead to confusion in comparing different grounds. In accordance with this arrangement, October to March, during which the largest number of samples from separate localities were obtained, is treated as one period. The growth during this period, according to the marking experiments, is very slight ; not more than a quarter of the entire annual growth. In the winter proper growth appears to be more or less at a standstill. Various observations of other investigators, *e.g.*, Fulton (1902, p. 342) and Redeke (1905) lend support to this assertion.

Finally, Mr. Todd's interesting observation of the absence of food in the stomachs of the majority of plaice during the winter months* provides the reason why these fishes add little, if anything, to their growth during the cold season.

* 100 per cent. in November according to samples (*see* Mr. Todd's Report in this volume).

The *secondary grouping* of the data in the tables is according to the geographical position of the localities or grounds. Within each period the particulars for the more northerly grounds will be found towards the top, and those for the more southerly towards the foot of the tables.

These arrangements apply both to the detailed tables (Tables I–IX) at the end of this report, and also to the Synoptic Table, pp. 36 and 37.

Tables I–IX contain the original data, viz., the measurements of plaice which had 1, 2, 3.....9 + *white* otolith rings respectively in the various samples.

A separate table is devoted to each age group.

This arrangement together with the primary grouping according to season, facilitates a comparison of the size of plaice of the same age on different grounds.

The older fishes of nine years and upwards are combined in a single group (IX +) owing to the small numbers in the individual age groups and the difficulty in determining the exact numbers of rings in the case of some of the largest plaice.

The Synoptic Table contains :—(1) the necessary particulars in regard to the trawl hauls in which the various samples were obtained, and (2) the numbers and average sizes of plaice of different ages in these samples, separate data being given for the two sexes where—as in most cases—these were distinguished.

For the actual courses of the trawl hauls in which the samples for otolith-analysis were obtained, the reader is referred, by means of the reference numbers of the hauls, to the charts in the reports on " Trawling Investigations."

II.—DISTRIBUTION AND SIZE OF AGE GROUPS.

§ 1. Distribution of the Age Groups.

Our observations of the age of plaice on the English Inshore grounds within the 10-fathom line have so far been limited to the summer months.

In the Wash (2–7/viii/05) the plaice population in August was found to be mainly composed of groups O. and I. (*see* Fig. 4). Relatively few of the II. group were present and the III. group was found to be scarce although the Estuary was very thoroughly investigated. Off Mablethorpe (23–24/viii/05) on the adjacent Lincolnshire coast, however, the II. group was very abundant but the III. group, although more plentiful than in the Wash, was represented by but few specimens. Off Lowestoft (1–4/v/05) in Spring the I. and II. groups were relatively abundant (*see* Fig. 3), but the III. group was poorly represented and much below the average size (*see* Fig. 3). No plaice older than three years were found in the Thames Estuary (16/vii/04).

In Bridlington Bay, however (7–11/vii/04), fairly large numbers of the older plaice, even up to six years, were caught. These older fishes in the Bay were further remarkable for their very small average size as compared with their size on such offshore grounds as the Dogger, &c. (*see* Synoptic Table and Age Group Tables III.–VI.).

Of all the localities so far examined within the 10-fathom line Bridlington Bay is the only place where these older fishes have been found.*

From these observations it appears that before they are two years old (*see* Fig. 4) the great bulk of the plaice leave the Wash. The two-year-old plaice are very abundant within the 10-fathom line off the open coast in summer, but the three-year-old fishes are relatively infrequent within this zone. From this as well as from the small size of these groups, we may conclude that there is a migration of the great bulk of the II. group to the offshore grounds later in the season. This in fact is indicated by the analysis of samples collected on the Leman Ground in September, 1905 (*see* p. 21).

* Trawling is greatly restricted in this Bay, and is limited to small boats. *See* also footnote to p. 20.

Leman to Texel Region.—The distribution of the age groups in the region between the Leman Banks and the Dutch Coast (Leman Ground to the Texel) in September, 1905, will now be briefly described.

The accompanying Table 1. gives the number of plaice of the different age groups caught *per hour** with the otter trawl at different distances along the Leman-to-Texel line.

TABLE 1.—Showing the approximate Number of Plaice of different Ages caught per hour with the Otter Trawl in a series of hauls from the Leman Ground to the Dutch Coast (the Texel) made in September, 1905 (5–14/ix/05).

No. of Haul.	Reference No.	No. of Miles from Dutch Coast.	Depth in Fathoms.	Age Goups.					Average No. of Otolith Rings.
				I.	II.	III.	IV.	V.+	
O. 343, 344	9^1	90–80	15½–17	1·5	3·5	6·0	5·2	1·1	...
O. 345	9^2	80–70	17–16	1·2	3·7	2·5	3·7	2·5	...
O. 346	9^3	70–60	16–15½	2·2	3·2	6·2	3·7	1·2	...
Mean C.P.H.† on Leman Ground (O. 343–346)				**1·6**	**3·5**	**5·2**	**4·5**	**1·5**	**3·1**
O. 347	10^1	60–50	15½–16	1·3	11·4	15·7	10·1	1·3	...
O. 352	10^2	50–40	16–14½	0·4	11·0	17·8	5·4	0·2	...
O. 351	10^3	40–24	14½–14	0·4	22·8	17·4	8·6	1·0	...
Mean C.P.H. on Brown Bank Ground (O. 347, 352, 351)				**0·7**	**15·5**	**17·0**	**8·0**	**0·8**	**2·8**
O. 350	11^1	24–15	14–14	0·5	51·3	33·4	9·0	...	...
O. 349	11^2	15–6	13–12	2·0	50·1	9·3	0·2	...	...
O. 348	11^3	6–3	12–8	16·2	68·2	9·6	2·5	...	...
Mean C.P.H. on the Texel (O. 350, 349, 348)				**4·2**	**54·2**	**19·0**	**4·2**	...	**2·0**

The broad general features of the distribution of the ages of plaice in this region can best be recognised by considering the products of certain combinations of hauls representing the three following grounds; viz., *Leman Ground*, *Brown Bank Ground*, and *The Texel*. Of these the first is the most offshore and the last the most inshore ground. Three or four hauls were made on each of these grounds in September, 1905. The results of the age analysis of the samples thus obtained will be found in the Synoptic Table.

The chief results of this analysis as regards the distribution of the age groups on the Leman, Brown Bank, and Texel Grounds, are shown graphically in Fig. 1.

Both on the Brown Bank Ground and on the Texel over 75 per cent. of the plaice consisted of groups II. and III., but, whereas on the Texel the II. group greatly predominated; on the Brown Bank Ground II. and III. were nearly equally abundant, but III. was slightly in excess.

* In cases where the number of fishes in the sample examined fell short of the total catch, the *proportions* of the various age groups in the total catch were assumed to be the same as in the sample. The Catch per Hour was then estimated by multiplying the number in each age group by the following factor :—

$$\frac{\text{Total catch.}}{\text{No. in sample} \times \text{No. of hours.}}$$

† C.P.H. = Catch per Hour.

On the Leman Ground about 80 per cent. consisted of groups II., III. and IV., the III. group being rather more abundant than the other two.

Off the Dutch Coast, the I. group, as we should expect, was most abundant on the furthest inshore station on which the "Huxley" was able to trawl, viz., in 7–12 fathoms (O. 348). In a parallel haul (B. 377) with the Beam trawl covered with finer meshing, in the same depth of water, the I. group just equalled the II. group in numbers. From this it is clear that the bulk of the I. group was in shallower water than 7 fathoms at this time.

The I. group was somewhat more abundant and had a lower average size on the Leman Ground than on the Brown Bank Ground. This probably means that the I. group on the Leman Ground was partly, at least, derived from the English Coast, whereas the Brown Bank Ground could only be reached by the largest members of the group from the Dutch Coast.

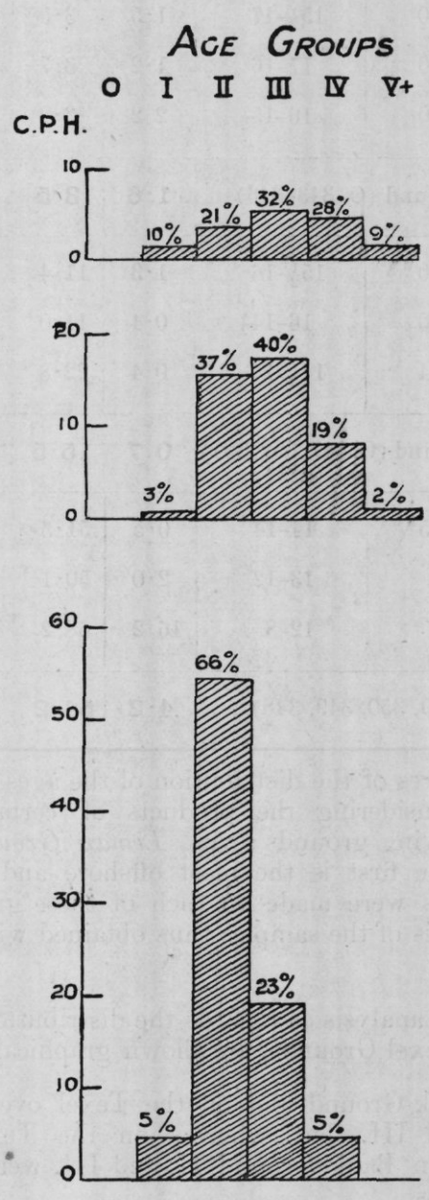


FIG. 1. Showing average catch per hour (c.p.h.) (with the otter trawl) of different ages on the Leman Ground (upper diagram), Brown Bank Ground (middle diagram), and the Texel (lower diagram), in September, 1905. To illustrate Table 1, p. 9.

The IV. group was scarce on the Texel. It was absolutely (c.p.h.) more abundant on the Brown Bank Ground than on the Leman Ground, but formed a larger proportion (percentage) of the population on the latter ground.

The V. group and older fishes (V.+ group) were with very few exceptions caught on the Leman Ground.

It thus appears that in September, 1905, according to these observations, the zones of greatest density (c.p.h.) of the various age groups of plaice in this region occurred in the following situations (*see* Table 1).

The I. group; within 3 miles of the Dutch Coast; in less than 8 fathoms.

The II. group; between 3–6 miles off the Dutch Coast; in 8–12 fathoms.

The III. group; between 15–24 miles off the Dutch Coast; in 14 fathoms.

The IV. group; between 50–60 miles off the Dutch Coast; in 15–16 fathoms.

The V.+ groups; between 70–80 miles off the Dutch Coast; in 16–17 fathoms.

Central Grounds of the Southern North Sea.—Table 2 gives the approximate number of plaice of different ages caught per hour* in certain hauls on the more central grounds up to the end of 1905.

Of these Central grounds we may distinguish a Southern group (South of 53° 30′ N.L.), including Sandette Bank and the Leman and Botney Grounds, from a Northern group (North of 54° N.L.), including the Dogger Bank and Flamborough Off Ground.

Up to the end of 1905, the ages of plaice caught in twenty-two hauls (with the large trawls) on the Northern grounds and eleven hauls on the Southern grounds were determined.

TABLE 2.—Showing approximate Catch per hour of Age Groups and Average Age on various Central Grounds in the North Sea.

Date.	Numbers of Hauls.	Ground.	Age Groups.					Average Age in Years. (No. of Otolith Rings.)
			I.	II.	III.	IV.	V.+	
12/x/05	O. 360, 361	Clay Deep, edge of Dogger	...	...	1·7	8·6	2·5	4·1
11/x/05	O. 358, 359	South Dogger	...	0·5	0·6	2·3	1·0	4·0
22/i/05	O, 270–272	„ „	...	...	1·2	1·6	0·2	3·6
11/iii/04	O. 160–164, 166.	„ „	...	0·1	4·1	3·3	3·4	4·2
19–20/x/05	O. 362–366, B. 397.	Flamborough Off	...	0·4	1·3	3·2	2·5	4·3
20/i/05	O. 268	„ „	0·5	0·2	3·5	5·5	3·9	4·0
13–14/i/05	O. 266, 267	Flamborough Head ...	0·2	0·4	1·6	4·0	8·8	4·6
		(Southern Grounds.)						
27–29/ix/04	B. 213, 214, 220.	Leman Ground	...	1·1	3·1	4·4	2·2	3·9
5–6/ix/05	O. 343–346	„ „	1·6	3·5	5·2	4·5	1·5	3·1
24/x/05	O. 368	„ „	4·5	16·2	12·5	16·0	7·2	3·2
25/i/05	O. 276	Botney Ground, South ...	0·2	0·9	8·7	2·3	1·8	3·6
26/xi/04	B. 247, 248	Sandette Bank	2·6	9·7	28·4	40·6	9·7	3·5

Although from a mere examination of the data displayed in Table 2 it would be hard to say whether the older groups, IV. and V.+, were in general more numerous on the Northern or on the Southern grounds, we find, as we should naturally expect, that

* *See* footnote to p. 9.

the density (catch per hour) of I., II. and III. was decidedly greater on the more inshore Southern grounds than on the more distant Northern grounds. The same thing is shown by the average age (meaning really the average number of otolith rings), since, out of the seven Northern samples, only one averaged less than four years, whereas out of the five Southern samples none attained that age.

Leman Ground in September, 1904 *and* 1905.—If we refer to Table 2, and examine the relative abundance of different ages on the Leman ground (1) in September, 1904, and, (2) in September, 1905, we shall observe certain well-marked differences in the age-composition which seem to indicate that the movements of the plaice in this region were not quite the same in 1904 as in 1905.

The differences are as follows :—

(1.) The I., II., and III. groups were both absolutely and relatively more abundant in 1905 than in 1904.
(2.) The IV. group predominated in 1904, the III. group in 1905.
(3.) The older plaice (V.+) were relatively and (though to a less extent) absolutely more abundant in 1904 than in 1905.

Further, if we turn to the Synoptic Table or refer to p. 27, we shall find that (for either sex) the average sizes of groups III. and IV. were considerably higher in September, 1904, than in September, 1905 (*see* p. 27).

When the trawling data and results of the marking experiments for 1905 have been published and compared with those for 1904 we shall possibly be in a position to state the probable cause of these yearly differences. As suggested by Dr. Garstang, the higher average age in 1904 as compared with 1905 may well have been due to the comparative failure of the summer migration of young plaice from the Dutch coast in 1904.

The higher average *size* for a given age in 1904 may have been due to reduced competition for food resulting from the same cause.

We may now point to *certain seasonal differences in the age composition of the population on the South part of the Dogger Bank* as indicated by the otolith analysis of samples obtained in autumn (11/x/05), winter (22/i/05), and spring (11/iii/04).

The age composition of these three samples from the Dogger is indicated graphically in the accompanying Fig. 2, from an inspection of which the main features can be recognised at a glance. In these diagrams, however, the various older groups (V.+) are not separately distinguished, but the details will be found in the Synoptic Table.

We note the following differences in the age composition of these three samples :—

(1.) Passing over the II. group, which is of little consequence on the Dogger (merely noting its entire absence in the January hauls), we see that the III. group shows an increase in January as compared with October and a still greater increase in March as compared with January.
(2.) We note a slight decrease of the IV. group in January as compared with October and a decided increase again in March, the numbers of this group caught in March considerably exceeding the number caught in October.
(3.) The V.+ group (including all the older fishes) shows a decided decrease in January as compared with October. In fact, in January (*see* Synoptic Table), no fish older than five years was taken. In March again there is a great increase in the numbers of these older fishes, which also constitute a much larger proportion (percentage) of the total in this than in either of the other two samples.

Assuming that these differences in the age composition of these three samples represent regular seasonal changes on the South Dogger, we may provisionally interpret them as due to regular seasonal *migrations* of two kinds (not necessarily occurring at precisely the same time in every year).

The gradual increase of the III. group in January as compared with October and in March as compared with January points to a gradual migration of the III. group on to the Bank from more inshore grounds. That such a migration must occur is obvious since the numbers of the II. group on the South Dogger (judging from these samples) is insignificant. That the migration is gradual, leading to a gradual accumulation of this group on the Bank during winter is indicated by the present evidence—so far as it goes.

Changes (2) and (3) are most readily interpreted as due to a clearing off the Bank, during autumn and winter, of ripe plaice, and their return in spring (when spent). Our researches into the maturity of plaice* in this region show that, in regard to the females, which preponderate on the Bank,

(1) a *part only* of the IV. group (nearly five-year-old plaice), but *most* of the V. group, and *practically all* the older plaice are sexually mature, and it is just these groups which show a decrease in January and an increase again in March.

(2) in October (1905), 58 per cent. of the females in the samples from South Dogger were mature (ripening) ; in January, only 16 per cent. ; in March, 37 per cent. (spent).

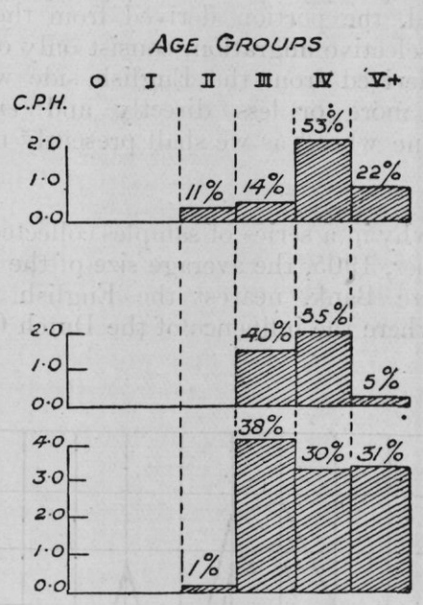


FIG. 2. Showing catch per hour (c.p.h.) of different ages on the South part of the Dogger in October, 1905 (upper diagram), January, 1905 (middle diagram), and March, 1904 (lower diagram). To illustrate Table 2, p. 11.

§ 2. RELATION OF SIZE TO AGE ON ENGLISH IN-SHORE GROUNDS, SOUTH OF FLAMBOROUGH HEAD.

A glance at a Chart of the North Sea will show that on the continental side the conditions favourable to the life and growth of young plaice (*viz.*, shallow water and a sandy bottom) extend over a much greater area than on the English side. This is partly indicated by the positions of the 10-fathom and 20-fathom contour lines which are situated in general further from shore on the continental side, so that there is a greater extent of shallow water in direct relation to the coast. On the English side, on the other hand, the area suitable as a rearing ground for young plaice is in comparison greatly restricted. Not only are the gradients steeper, but there are large tracts of "rough" (stony, &c.) and often muddy ground extending from the near neighbourhood of the coast to a considerable distance from land. There is an especial development of such rough ground opposite the mouths of the Humber and Wash. On our coasts, therefore, the plaice are mainly restricted during the first two years of their life to certain estuaries like the Humber, Wash, and Thames and to certain small shallow Bays of which Bridlington Bay may be taken as a type. In the estuaries themselves, moreover, the young plaice are by no means *generally* distributed. They are absent or very scarce in the deeper parts of the channels where mud is mixed with the sand, and are practically confined to the shallow sandy margins of the shore and slopes of the sand banks.

* *See* forthcoming Report.

Briefly stated, then, the English side of the North Sea is characterised by (1), the relatively small extent of the area within the 10-fathom line, and (2), the presence of rough ground between this zone and the central part of the Sea.

The effect of the presence of this rough ground must be to interfere to a large extent with the distribution of plaice according to size which is so characteristic of the species on the continental side (*see* pp. 21–23), assuming that distribution to be due to the "selective migration" of the larger fishes of a given age.

We have noted (p. 8) that while the II. group was numerous, the III. group was relatively scarce within the 10-fathom line on our shores in summer. This means that the bulk of the II. group must migrate to the off-shore grounds later in the year. Now on a given off-shore ground situated between the English and Dutch Coasts the population is probably derived partly from one and partly from the other side. Of the II. group on such a ground, the portion derived from the Dutch Coast will, on the above-mentioned theory of selective migration, consist only of the *largest* plaice of that year, whereas the portion derived from the English side will, owing to the barrier of rough ground, have come more or less directly and *en masse* from the narrow zone within the 10-fathom line where, as we shall presently notice, it has a relatively low average size.

This possibly explains why in a series of samples collected between the Leman Banks and Dutch Coast in September, 1905, the average size of the II. group was smaller in the neighbourhood of the Swarte Bank, nearest the English Coast, than on the Leman ground further to the S.E. where the influence of the Dutch Coast probably predominated (*see* Fig. 7, p. 22).

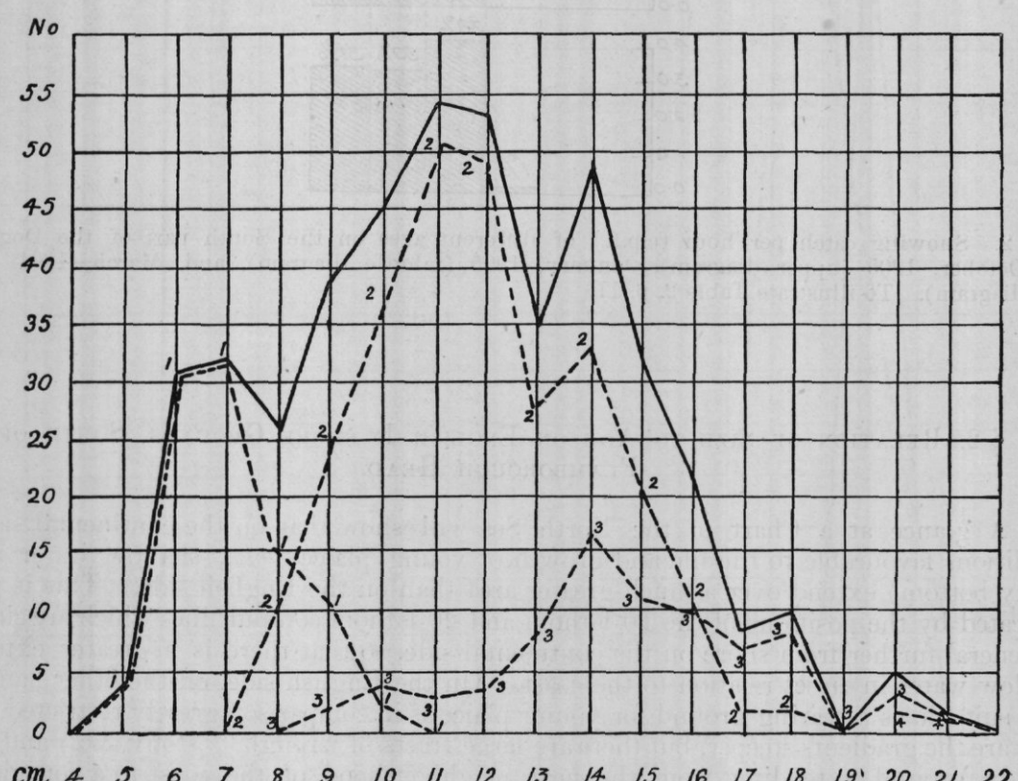


FIG. 3. Age Analysis of Plaice caught in Shrimp Trawls off Lowestoft, 1–4/v/05.
———— = Size-Frequencies of Total Catch.
--1---1--- } Size-Frequencies of Age-Groups I., II., and III., *i.e.*, of Plaice
--2---2--- } having one, two, and three white otolith rings respectively.
--3---3--- }

Our inferences as to the growth of plaice within the 10-fathom line on the English shores of the North Sea, south of Flamborough Head, are based on the following samples from different parts of the coast:—Bridlington Bay (7–11/vii/04 and 7/vii/05), off Mablethorpe (23–24/viii/05), The Wash (2–7/viii/05), off Lowestoft (1–4/v/05), and the Thames Estuary (16/vii/04).

The analysis of the samples collected in the Thames Estuary and Bridlington Bay in July, 1904, was discussed in my previous paper (1905, pp. 206–208).

A comparison and combination of the data furnished by these samples enables a sufficiently accurate estimate of the rate of growth on our shores to be made. The details of the analysis of the various samples will be found in the synoptic and detailed tables. It will suffice here to state the chief results and deductions.

The curve shown in Fig. 3 represents the combined catches of several hauls with the shrimp trawl on the shrimping grounds abreast of Lowestoft at the beginning of May, 1905. The otoliths of all these plaice were examined, and the figure shows the analysis of the catch by this method into its component age groups.

We see that the three cusps of the gross curve of length frequencies are identical with the cusps of the curves of the component age groups I., II., and III. The average sizes of these age groups are respectively 7·6 cm., 12·4 cm., and 15·2 cm. ("amended" by the addition of ·5 cm.*).

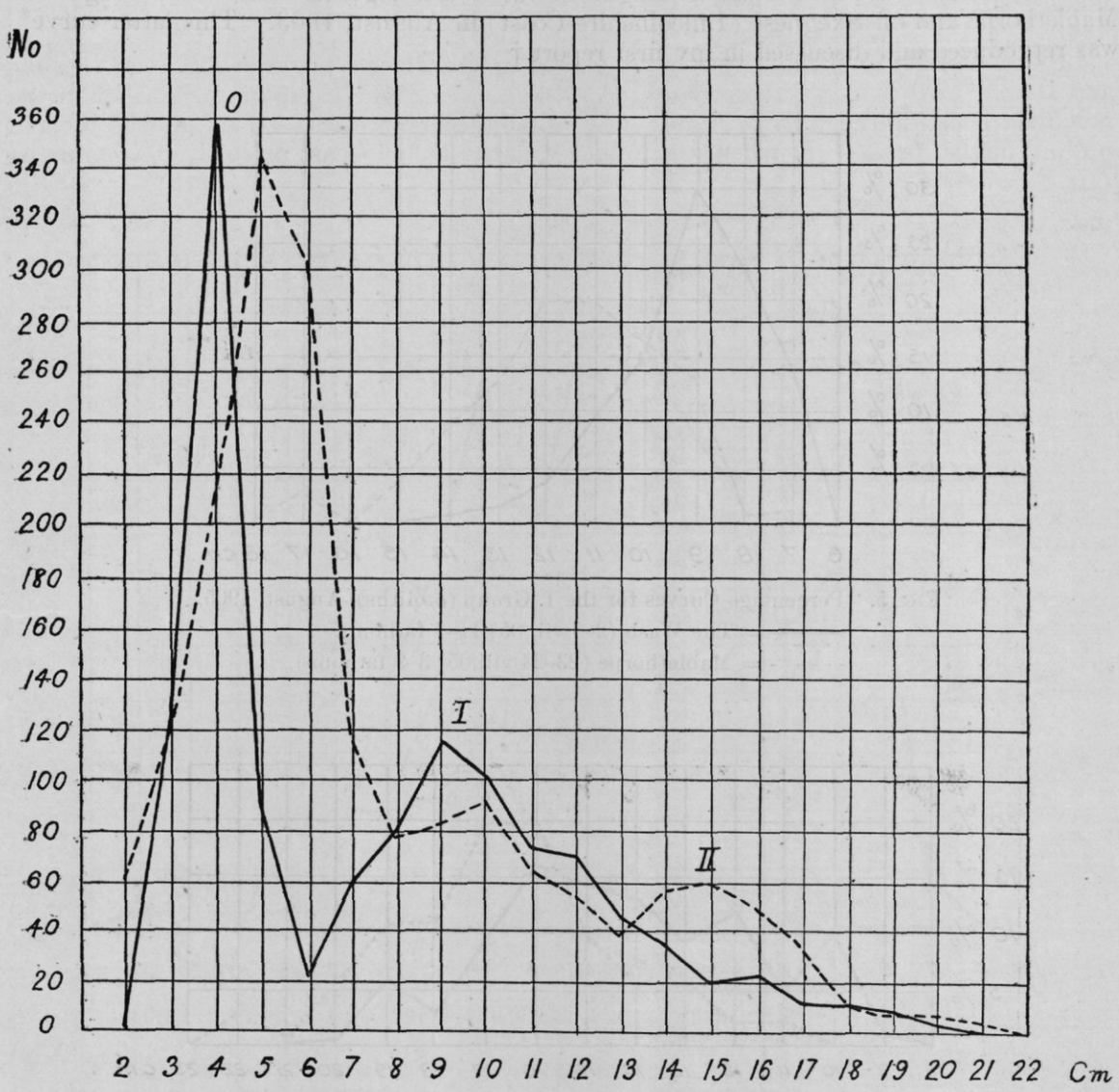


FIG. 4. Length-Frequencies of Plaice caught with Shrimp Trawls in the Wash and off the Lincolnshire Coast.
——— = all Plaice caught within the Wash in August, 1905.
- - - - - - = all Plaice caught in the Wash and off Skegness and Mablethorpe, August, 1903.

* Necessary owing to the international method of measurements, according to which for example all fishes from 2·0 cm. to 2·9 cm. inclusive are classed as 2 cm.

In the third cusp at 14 cm. both the II. and III. groups take part. This probably means that the plaice represented by the third elevation in the curve were caught in deeper water than the rest of the catch, the intermediate depths not having been sampled in due proportion.

It is evident from the form of its curve and its fusion with that of the II. group, that the III. group is not duly represented in this collection, and that we have only here the smaller fishes of this age whose chief habitat is further off shore. On the other hand, the curve for the II. group, if the secondary elevation at 14 cm. were smoothed away (as it doubtless would have been if a larger number of specimens had been obtained) is a fairly symmetrical one.

We can say therefore that 7·5 cm. and 12·5 cm. represent approximately the average sizes of one-year-old and two-year-old plaice on this part of the coast in May, 1905. This gives an average rate of growth during the second year of 5 cm.

The length-frequencies of all the plaice caught within *The Wash* in August, 1905, are shown in Fig. 4, in the form of a curve. Placed alongside of this curve in the same figure is the curve for all the plaice caught in the Wash together with those caught off Mablethorpe and off Skegness (Lincolnshire Coast) in August, 1903. This latter curve* was reproduced and discussed in my first report.†

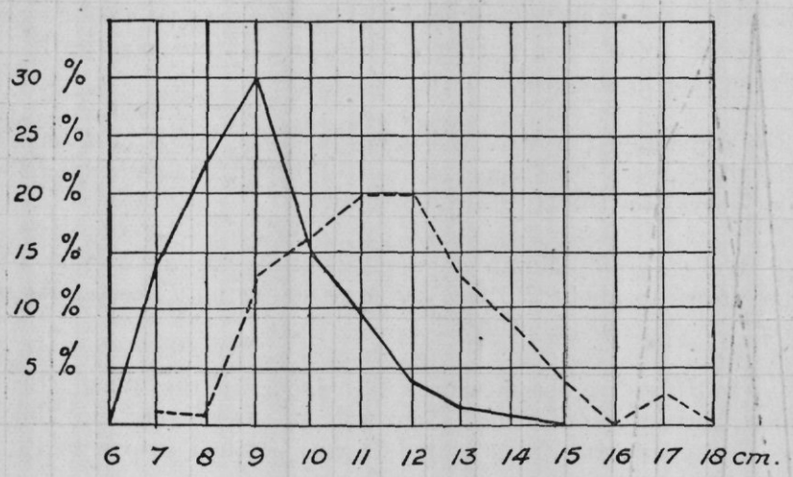


FIG. 5. Percentage Curves for the I. Group (otoliths), August, 1905.
——— = The Wash (2–7/viii/05) 1½–7 fathoms.
- - - - - - = Mablethorpe (23–24/viii/05) 3–9 fathoms.

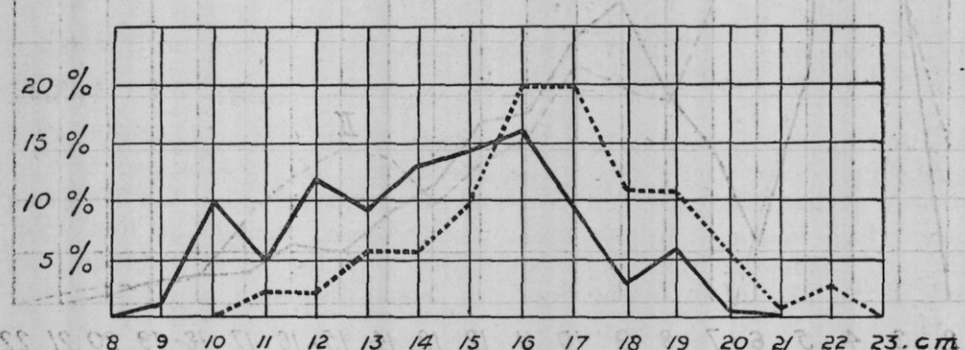


FIG. 6. Percentage Curves for the II. Group (otoliths), August, 1905.
——— = The Wash (2–7/viii/05) 1½–7 fathoms.
- - - - - - = Mablethorpe (23–24/viii/05) 3–9 fathoms.

* *See* Table IV., Trawling Investigations. App. B. *International Investigations. Mar. Biol. Association Report, I. 1902–03, p. 105.*

† *International Investigations. Mar. Biol. Association. Report, I. 1902–03, p. 208.*

It will be noticed on inspecting these curves that the first two cusps of the 1903 curve representing the modal sizes of the yearling (O. group) and year-old (I. group) plaice occur at 5 cm. and 10 cm., whereas the two cusps in the 1905 curve correspond to 4 cm. and 9 cm. The difference is due to the fact that in the 1903 curve the catches off Skegness and Mablethorpe are included ; whereas in the 1905 curve only the plaice caught within the limits of the Wash proper are represented. Further, the presence of a third cusp in the 1903 curve corresponding to the II. group and its absence in the 1905 curve is due to the inclusion of Mablethorpe plaice in the former case.

The examination of the otoliths in a sample from the Wash in August, 1905 (2–7/viii/05) revealed a *I. Group* having an average size of 9·6 cm. and a II. group with an average size of 14·6 cm. indicating, as in Bridlington Bay, a growth of 5 cm. in the second year.

The fishing off Mablethorpe in August, 1905, took place in somewhat deeper water than was the case in August, 1903. On the first occasion the plaice were all caught at a distance of one-third of a mile from shore (exact depth somewhat uncertain) and the curve of sizes showed distinct cusps at 5 cm., 11 cm., and 15 cm.* corresponding to the O., I. and II. groups.

In August, 1905, the plaice were fished in 3½ to 9 fathoms and the curve for the total catch shows cusps at 11·5 cm. and 16·5 cm. corresponding to the I. and II. groups, but the O. group was not caught. The otolith analysis of this catch yielded a I. group with an average size of 12·0 cm. and a II. group with an average size of 17·1 cm. If we subtract ·5 cm. from these averages we obtain values practically identical with the position of the cusps in the gross curve.

In Fig. 5 the percentage curve for the I. group in the Wash (2–7/viii/05) is shown side by side with the curve for the same group caught off Mablethorpe (23–24/viii/05). In Fig. 6, similar curves for the II. group are shown.

Summary.—The *O. group* had an average size of 5 cm. in August (Wash). This group apparently grows to about 7·5 cm. by May following (Lowestoft) when the fish become just over one year old (I. group).

The *I. group* in July–August measured 9–9·5 cm. in the Wash, Bridlington Bay, and the Thames Estuary, indicating a growth of 4–4·5 cm. in the second year. At Mablethorpe, in deeper water, it measured 12 cm. It had grown to 12·5 cm. by May at Lowestoft (II. group).

The *II. group* in July–August measured from 13·5 to 14·5 cm. in the Wash, Thames, and Bridlington Bay, indicating a growth of about 4–5 cm. in the third year, but at Mablethorpe it measured 17 cm. indicating about the same annual growth (17 − 12 = 5 cm.)

The *III. group* in July–August measured from 19 to 20 cm. off Mablethorpe and in Bridlington Bay and the Thames.

Now, allowing another 3 cm. for the growth of the III. group by the following Spring (an ample allowance), this gives 22–23 cm. (about 9-inches) as about the average size of plaice when just four years old on our coasts within the 10-fathom line. This figure, which indicates an average annual growth during the first four years of slightly over 5 cm., is lower by about 6 cm. than the general average size (*viz.*, 27–28 cm.) of the IV. group in the Southern North Sea as a whole (*see* p. 31 and Figs. 12 and 13).

Previous Investigations on other Coasts.—For the sake of reference and comparison with my own results, I have summarised in Table 3 appended here some of the chief results of the work of other investigators on the size and age of plaice in different localities. With the exception of Redeke, who has made use of the otoliths in his

* *See* Table IV. App. B. *Report* I. *1902–03, p. 105.*

researches, all the authors whose results are quoted, based their estimations of age solely on Petersen's method of measurements.

TABLE 3.—Showing Average Sizes (in cm.) of Age Groups O., I. and II., in various Inshore Waters (O–5½ fathoms) according to other Investigators.

Month.	Locality.	Depth (fms.)	Age Groups.			Author and Reference.*
			O.	I.	II.	
VII	Boulogne	Beach	5·3	—	—	Cligny (05) p. 105.
„	Zuyder Zee	„	5·0	—	—	Redeke (05) p. 4.
VIII	Boulogne	0–4½	5·9	9·7	—	Cligny (05) pp. 105 & 121.
„	Dunbar	0–4	5·6	13·6	21·4	Dannevig (99) p. 237.
„	Solway Firth... ...	0–5½	5·8	10·7	—	Fulton (02) pp. 340, 346.
X–XII	Zuyder Zee	—	6	11	—	Redeke (05) p. 4 &c.
„	Esbjerg	0–½	8	11	—	Johansen (05) p. 8 &c.
„	Boulogne	0–4½	7·0	10·2	—	Cligny (05) pp. 105–121.
„	Solway Firth... ...	0–5½	6·1	10·0	—	Fulton (02) pp. 340–346.
„	Dunbar	1½–5	6·0	15·5	22·1	Dannevig (99) p. 237.

* For full reference see pp. 4 and 5.

From an inspection of this table we gather that the rate of growth during the first year is much the same in all localities examined, the average size of a plaice when *one year old* being between 6 and 8 cm.

Within the 5-fathom line along the various coasts and in the estuaries, the *two-year-old* plaice have been found to average 10–11 cm. (except apparently at Dunbar, according to Dannevig's researches). The values for the average size of the two-year-old plaice given respectively by Cligny for Boulogne, Redeke for the Zuyder Zee, Fulton for the Solway, Johansen for Esbjerg, and myself for the Wash, Thames, Bridlington Bay and Lowestoft, agree almost perfectly (allowing where necessary for difference of date).

It should, however, be clearly understood that these values for the I. group represent mainly the selective action of depth on size. The geographical range on the I. group (*see* p. 9) is not limited to the narrow strip of coast within the 5-fathom line: consequently the average size of the group in this zone of depth is considerably below the true average size of the group, viz., about 14 cm. at the end of the year (*see* p. 31 and Fig. 12). The same reasoning applies to the older age groups.

§ 3. Relation of Size to Age in the Region between the Leman Banks and the Dutch Coast.

The results of this part of the investigation are based on the Age Analysis of plaice caught in two continuous linear series of trawlings between the Leman Ground and "The Texel," up to a distance of about three miles from the Dutch Coast. The direction of these lines is roughly N.W. and S.E. One series was carried out in May, 1905 (9–12/v/05), and another in September, 1905 (5–14/ix/05).†

† The data for these series are given in thick type in the Synoptic and Age Group Tables (at the end).

The May series comprised the hauls:—O. 301–309 and B. 300. The September series comprised hauls O. 343–352, and B. 374, 375, and 377.

The actual courses of these hauls will be shown on Charts in the Reports on Trawling Investigations.

Importance of Continuous Radial Series.—The object of determining the ages and sizes of plaice caught in continuous series of hauls between the Leman Ground and the Dutch Coast was to arrive at an estimate—as accurate as possible—of the average annual growth of plaice in this part of the North Sea.

As is now well-known, plaice of all sizes and ages are not found in any one spot. Accordingly the analysis of samples from isolated localities in the North Sea or even a combination of such samples, is not likely to yield accurate values for the average sizes of different age groups. There is in fact* a gradual change of habitat with growth, so that the larger plaice of a given age are found further from shore. Illustrations of this law, based on the otolith investigation of plaice caught at varying distances from the Dutch Coast, are given below (*see* pp. 20–23, Fig. 7).

This zonal distribution of plaice according to *size* depends on *age* only apparently in so far as size itself depends on age; and since the variation in size of a given age is often very considerable (*see* Figs. 10 and 11 and Age Group Tables I.–IX. at end), so also is the geographical range of a given age group. Hence the importance, first urged by Dannevig (1902) of carrying out radial lines of trawlings from the coast into the middle of the sea; since only in this way can we be sure that all sizes of each age are duly represented in our calculations.

This particular line from the Leman Ground to the Dutch Coast (the Texel) was selected for investigation at Dr. Garstang's suggestion, because the trawling investigations and marking experiments indicated that such a line forms the main axis, so to speak, of the waves of summer migration from the Dutch Coast. The Leman Ground, as Dr. Garstang has shown, is mainly populated by plaice which have migrated there in the course of the summer from the Dutch Coast (Garstang *op. cit.* "Trawling Investigations 1902–1903, p. 93).

Material.—The material for age analysis was collected chiefly by means of the Commercial Otter trawl,† but partly (in 7–12-fathoms off the Dutch Coast) by means of the Beam trawl provided with a small-mesh covering net (B. 300 in May; B. 377 in September).

The material collected in *May*, 1905, consisted of 2,561 otoliths. This does not represent *all* the plaice caught along the Leman to Texel line on this occasion. It really represents all the plaice caught on the Leman and Brown Bank Grounds plus a *portion* of the plaice caught on the Texel. Moreover, in May the products of the individual hauls along this line were not separately distinguished, that is to say, the otoliths were

* Johansen (1906 *op. cit.*) gives numerous examples referring to the Danish Coast.

† The recently published results of Redeke's experiments in regard to the numbers of plaice of different sizes which pass through the meshes of the cod-end of a commercial otter trawl show that up to about 16 cm. in length large numbers may escape. (*Verhandelingen uit het Rijksinstitut voor het Onderzoek der Zee. Eerste Deel. I.–II., 1906.*) Now in our Leman-to-Texel samples the I. group had an extreme range of 7–12 cm. in May (Reference No. 2) and of 11–18 cm. in September (No. 12), and the II. group had an extreme range of 10–25 cm. in May and of 13–29 cm. in September. It follows that if the smaller fishes of these two groups were present in appreciable quantities outside the 12-fathom line (within which the small mesh was actually employed) they would not be caught in their natural proportions; in which case the average lengths of these groups in the total collections must be somewhat too high. On the other hand, if we compare the average sizes of the I. and II. groups in O. 348 (No. 11^3) and B. 377 (No. 11^4), two parallel hauls, one with and the other without the small mesh, we shall find that only in regard to the I. group is the difference important. (Tables 1 and 2 at end.)

grouped according to the length and sex of the fishes, but otoliths from the different hauls were combined so as to form one large sample (9–12/v/05).

In *September* the work was done more thoroughly ; that is to say, the otoliths from the individual hauls along the line were preserved separately, so that in this case, we have material for analysis in regard both to the quantitative distribution of the age groups in this region (p. 9) and the relation of size to age in different parts of this region (*see* below p. 21). Altogether 1,960 otoliths were collected ; representing all the plaice (with one or two accidental omissions) caught in the first ten hauls starting from the Leman Ground, and nearly half the number (257 out of 525) caught in the eleventh haul, B. 377. In obtaining this last sample the number of each cm. length in the total catch was as nearly as possible halved so that the proportional frequencies were the same in the sample as in the total catch. By doubling the length-frequencies of each age group in the last sample previous to combining with the other samples, we obtain a result which ought to be approximately the same as if we had determined the ages of *all* the fish caught in the entire series of hauls (*see* Figs. 8 and 9, p. 24).

In May of the current year (1906) otoliths were collected along the same line and along a line further to the South. 4,074 otoliths were collected along these lines. On these occasions the beam trawl with small-mesh covered cod-end was used consistently throughout. The results will be published in my next report.

The law according to which the length of plaice *of the same age* varies with distance from shore* is very definitely shown by the otolith-analysis of the September series of samples.

The positions along the Leman-to-Texel line of the hauls in which these eleven samples were obtained, are given below :—

Reference Number.	Equivalent Number of Haul.	Number of Miles from Dutch Coast.	Depth in Fathoms.	Ground.
9^1	O. 343, 344	90 to 80	$15\frac{1}{2}$–17	Leman.
9^2	O. 345	80 to 70	17–16	„
9^3	O. 346	70 to 60	16–$15\frac{1}{2}$	„
9^4	B. 374, 375	70 to 60	16–$15\frac{1}{2}$	„
10^1	O. 347	60 to 50	$15\frac{1}{2}$–16	North of Brown Ridge.
10^2	O. 352	50 to 40	16–$14\frac{1}{2}$	Brown Bank Ground.
10^3	O. 351	40 to 24	$14\frac{1}{2}$–14	Brown Bank Ground (E. part).
11^1	O. 350	24 to 15	14–14	Between Brown Bank and Texel Grounds.
11^2	O. 349	15 to 6	13–12	The Texel.
11^3	O. 348	6 to 3	12–8	„
11^4	B. 377	6 to 3	12–7	„

* The primary fact, viz., that the increase in size of plaice corresponds in general to increase in depth of water and distance from shore, has been known for some time. It seems to have been first pointed out, so far as home waters are concerned, by Professor McIntosh in his Report to the Trawling Commission, published in 1884, and is mentioned by him ("Resources of the Sea," 1899) as an argument against the "gradual-accumulation-theory" of those who advocated the closure of shallow inshore areas like St. Andrews Bay. In this connection it is interesting to note, as mentioned on p. 8, that in Bridlington Bay, where trawling is greatly restricted, considerable numbers of older plaice up to six years are found. No advantage, however, is apparently gained by their accumulation (if due to this cause) since the size of these older plaice is far below the average (*see* Synoptic Table and Age Group Tables III–VI).

TABLE 4.—Showing Average Lengths (cm.) of Age Groups II., III., and IV., at different distances from the Dutch Coast, along a line (N.W.—S.E.), between "the Texel" and the Leman Bank. Index figures give the numbers of fish on which the averages are based. B.* = Beam trawl with small mesh covering.

Reference Number.	Number of Hauls.	Number of Miles from Dutch Coast.	Age Groups.					
			II.		III.		IV.	
			Males.	Females.	Males.	Females.	Males.	Females.
9^{1}	O. 343. 344	90–80	$23{\cdot}23^{15}$	$24{\cdot}58^{13}$	$26{\cdot}56^{31}$	$27{\cdot}00^{17}$	$31{\cdot}57^{24}$	$32{\cdot}55^{18}$
9^{2}	O. 345	80–70	$24{\cdot}16^{9}$	$26{\cdot}16^{6}$	$28{\cdot}66^{6}$	$27{\cdot}00^{4}$	$30{\cdot}50^{9}$	$31{\cdot}00^{6}$
9^{3}	O. 346	70–60	$23{\cdot}35^{7}$	$25{\cdot}00^{6}$	$27{\cdot}07^{14}$	$26{\cdot}59^{11}$	$30{\cdot}35^{7}$	$32{\cdot}25^{8}$
9^{4}	B.* 374, 375	70–60	$20{\cdot}0^{3}$	$22{\cdot}16^{6}$	$25{\cdot}95^{11}$	$26{\cdot}26^{26}$	$29{\cdot}74^{4}$	$33{\cdot}33^{6}$
10^{1}	O. 347	60–50	$23{\cdot}36^{15}$	$23{\cdot}43^{30}$	$26{\cdot}05^{34}$	$27{\cdot}14^{28}$	$28{\cdot}68^{16}$	$31{\cdot}41^{24}$
10^{2}	O. 352	50–40	$21{\cdot}77^{18}$	$23{\cdot}23^{31}$	$26{\cdot}26^{34}$	$26{\cdot}32^{45}$	$29{\cdot}05^{9}$	$29{\cdot}96^{15}$
10^{3}	O. 351	40–24	$21{\cdot}18^{63}$	$22{\cdot}10^{51}$	$25{\cdot}96^{47}$	$26{\cdot}35^{40}$	$29{\cdot}50^{25}$	$30{\cdot}00^{18}$
11^{1}	O. 350	24–15	$20{\cdot}86^{93}$	$21{\cdot}80^{111}$	$24{\cdot}51^{64}$	$25{\cdot}41^{69}$	$27{\cdot}91^{23}$	$28{\cdot}96^{13}$
11^{2}	O. 349	15–6	$19{\cdot}72^{113}$	$19{\cdot}89^{86}$	$23{\cdot}09^{22}$	$23{\cdot}26^{15}$	$32{\cdot}5^{1}$	—
11^{3}	O. 348	6–3	$17{\cdot}26^{67}$	$18{\cdot}26^{64}$	$21{\cdot}90^{5}$	$23{\cdot}65^{13}$	$25{\cdot}0^{2}$	$25{\cdot}50^{1}$
11^{4}	B.* 377	6–3	$17{\cdot}02^{53}$	$18{\cdot}26^{68}$	$18{\cdot}50^{6}$	$23{\cdot}28^{14}$	$23{\cdot}83^{3}$	$30{\cdot}16^{3}$

Explanation of Fig. 7.—The variations in the average sizes of age groups II., III., and IV., according to their distance from the Dutch Coast are shown in Fig. 7 in the form of three pairs of curves. These curves were constructed in the following manner :—Divisions at equal intervals along the horizontal line forming the base of the diagram are numbered from left to right according to the distance from the Dutch Coast. Equal divisions along the vertical scale to the left are equivalent to lengths of a centimetre. Taking each age and each sex separately the value of the average size in each sample is marked by a point placed opposite the proper divisions of the horizontal and vertical scales. By joining these points we obtain for each age and sex a curve which shows the variations in the average length in the different samples.

Neglecting the irregular fluctuations which are obviously errors due to small numbers, we may recognise at once the general trend of these curves and their meaning :—

(1.) In general the curves all slope towards the right ; that is to say the average size (whether of the II. group, III. group, or IV. group) decreases as we approach the Dutch Coast.

(2.) In general the separate curves for males and females maintain more or less parallel courses, the females at a higher level than the males. The average distance between the two curves of a pair is greatest in the case of the IV. group as we should naturally expect.

(3.) The curves for the II. group do not rise consistently to the left, but there is a descent (in the case of both sexes) at the left end, representing a decrease in the average size of this group as we approach the Swarte Bank. This may be due to an admixture of plaice of English origin with those derived from the Dutch Coast. Owing as explained above (p. 14) to the rough ground opposite the English Coast interfering with "selective migration according to size," the II. group from the English side has probably come more or less directly from the coastal zone within the ten-fathom line where the average size of the group is relatively small (*see* p. 14, &c.).

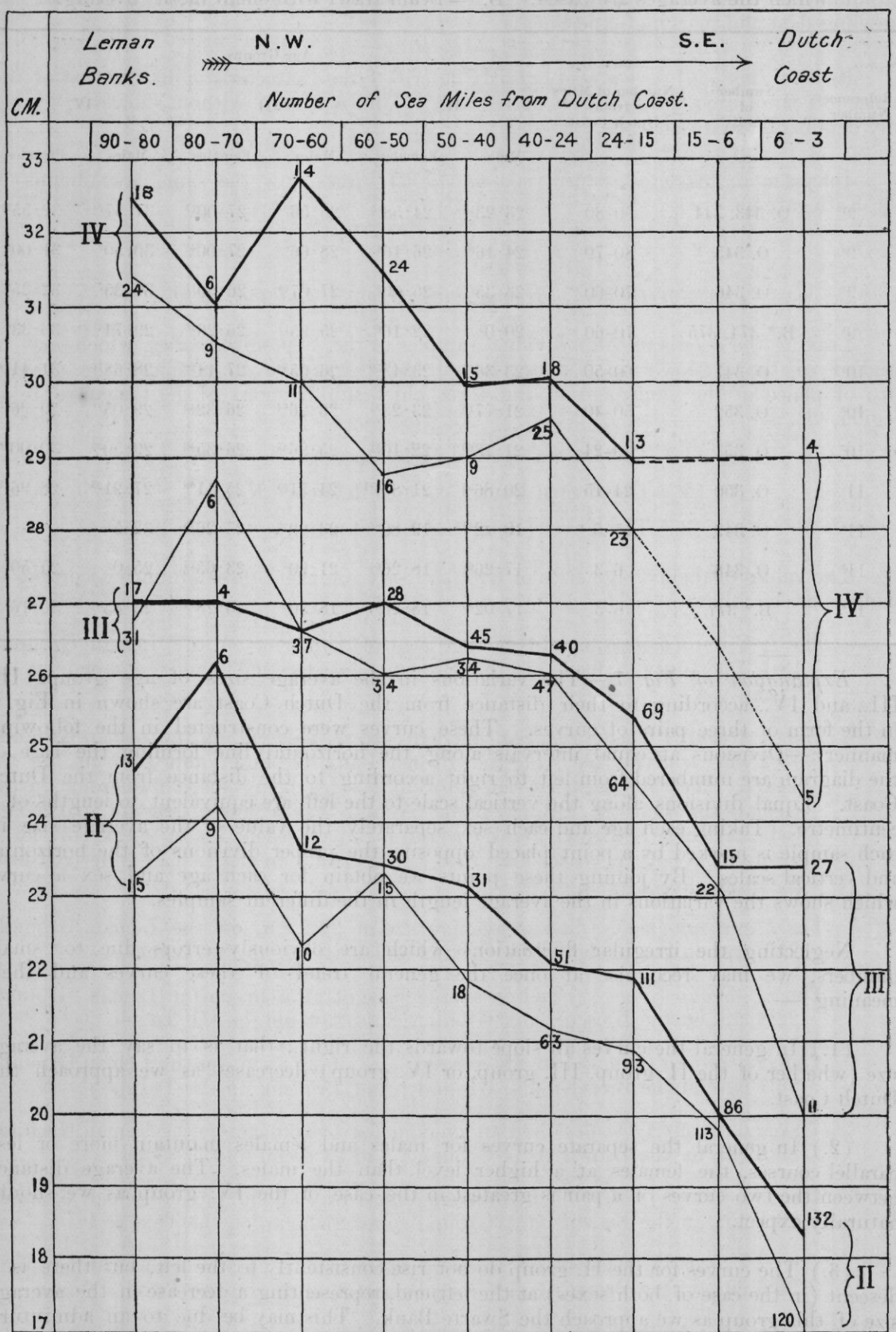


FIG. 7. Curves showing (for males and females separately) the variations in the Average Length of Age Groups II., III., and IV., in a series of samples collected at different distances along a line joining the Swarte Bank to the Dutch Coast (the Texel), 5–11/ix/05. To illustrate Table 4.

Thick line = Females. Thin line = Males.

Figures opposite the points in the curves give the numbers of specimens on which the averages were based.

The general feature common to all these curves, however, is the gradual ascent to the left, which, besides affording a striking illustration of the law of distribution according to size, clearly points to the Dutch origin of the bulk of the population on the Leman ground, thus confirming inferences which have already been drawn from a study of the trawling data and marking experiments.

Redeke (*op. cit.*) has already clearly described the characteristic distribution of the plaice off the Dutch Coast (1), in Spring and (2) in Autumn, without, however, giving any details of otolith analysis.

Johansen in his latest paper (*op. cit.* 1906) shows how the same law obtains in the Kattegat, &c.

Leman Ground, Brown Bank Ground and the Texel.

Leaving the details of the individual samples of the September series, which may be studied in the Age Group Tables, it will be instructive to compare the average size of plaice of the same age in the three chief sub-divisions of the Leman to Texel region, viz. :—

(1.) The Leman Ground (Reference No. 9).

(2.) The Brown Bank Ground (Reference No. 10).

(3.) The Texel (Reference No. 11).

The values of the average sizes of Groups I.–IV. on these three grounds according to samples are as follows :—

The *I. Group* (*males*) had an average size of 16·7 cm. on the Leman Ground ; 18·1 cm. (only 5 fish) on the Brown Bank Ground ; and 14·5 cm. on the Texel.

The *I. Group* (*females*) had an average size of 15·9 cm. on the Leman Ground ; 19·2 cm. (only 4 fish) on the Brown Bank Ground ; and 14·6 cm. on the Texel. We thus see that the I. group, besides being more numerous on the Leman than on the Brown Bank Ground, has a lower average size. This indicates that the Brown Bank Ground is out of reach, so to speak, of the I. group from either coast, and that the I. group on the Leman is derived from the English Coast.

The *II. Group* (*males*) had an average size of 23·2 cm. on the Leman Ground ; 21·6 cm. on the Brown Bank Ground and 19·1 cm. on the Texel.

The *II. Group* (*females*) had an average size of 24·5 cm. on the Leman Ground ; 22·8 cm. on the Brown Bank Ground ; and 19·8 cm. on the Texel.

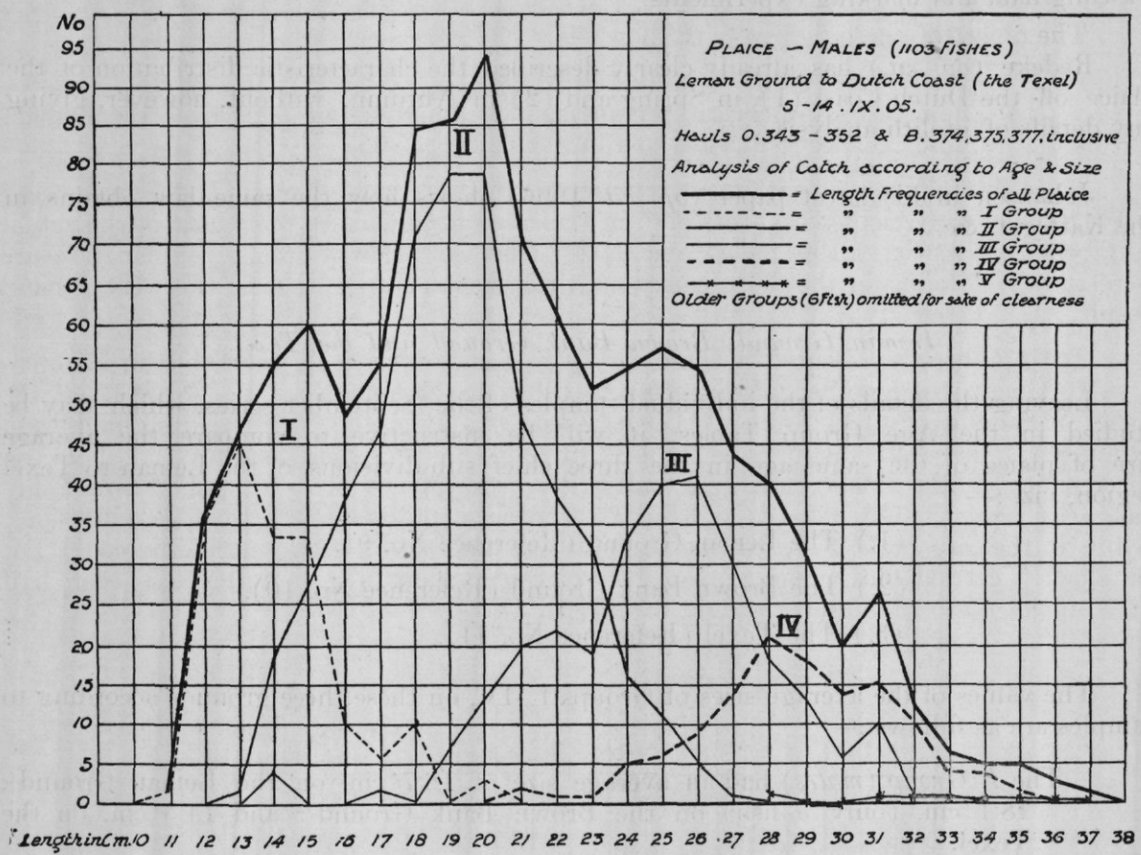
The *III. Group* (*males*) had an average size of 26·8 cm. on the Leman Ground ; 26·1 cm. on the Brown Bank Ground ; and 23·7 cm. on the Texel.

The *III. Group* (*females*) had an average size of 26·6 cm. on the Leman Ground ; 26·5 cm. on the Brown Bank Ground ; and 24·6 cm. on the Texel.

The *IV. Group* (*males*) had an average size of 30·9 cm. on the Leman Ground ; 29·1 cm. on the Brown Bank Ground ; and 27·3 cm. on the Texel.

The *IV. Group* (*females*) had an average size of 32·4 cm. on the Leman Ground ; 30·6 cm. on the Brown Bank Ground ; and 29·2 cm. on the Texel.

The values for the average size of the II. group given here agree perfectly with those quoted by Redeke (1905 pp. 6–8) for the same region ; viz., 18–23 cm. in Autumn according to distance from the Dutch Coast. For example, he gives 23 cm. as the size of this group on the Brown Ridge in November, 1903. This was also the value in my Sample No. 10[1] from the north part of the Brown Ridges.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PLAICE — MALES (1103 FISHES)
Leman Ground to Dutch Coast (the Texel)
5 - 14 . IX . 05.
Hauls 0.343 - 352 & B. 374, 375, 377, inclusive
Analysis of Catch according to Age & Size
= Length Frequencies of all Plaice
= " " " I Group
= " " " II Group
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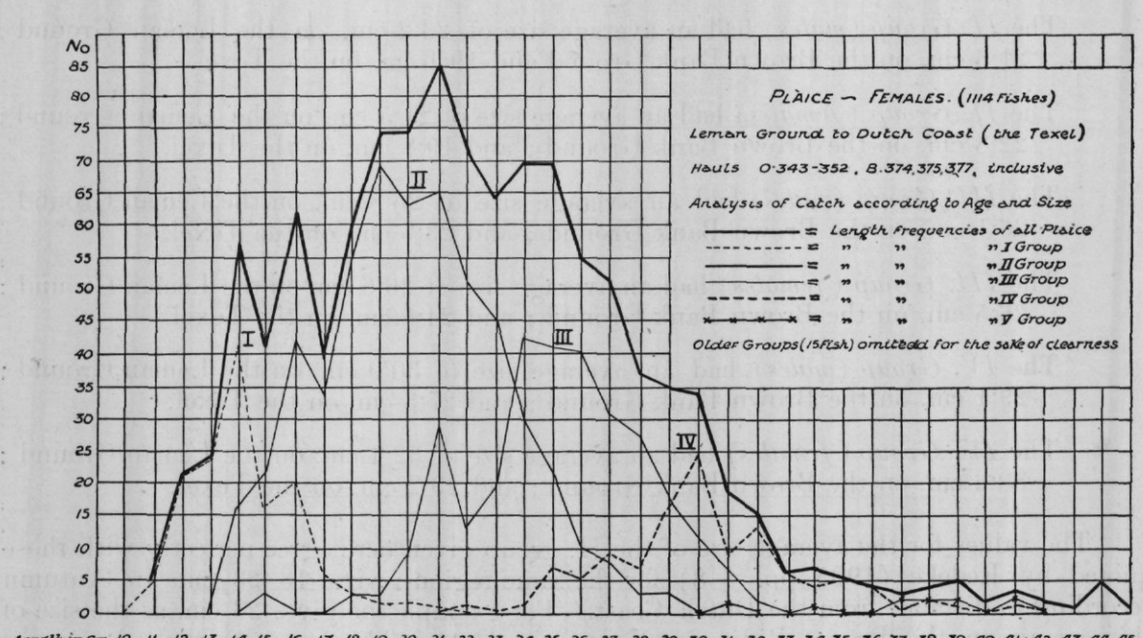
= " " " V Group
Older Groups (6 Fish) omitted for sake of clearness
I
II
III
IV
Length in Cm. 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

FIG. 8.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PLAICE — FEMALES. (1114 Fishes)
Leman Ground to Dutch Coast (the Texel)
Hauls 0·343-352, B. 374, 375, 377, inclusive
Analysis of Catch according to Age and Size
= Length Frequencies of all Plaice
= " " " I Group
= " " " II Group
= " " " III Group
= " " " IV Group
= " " " V Group
Older Groups (15 Fish) omitted for the sake of clearness
I
II
III
IV
Length in Cm. 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

FIG. 9.

Explanation of Figs. 8 *and* 9.—The age analysis, by means of the otolith method of the entire catch of plaice between the Leman Banks and Dutch Coast in September, 1905, is shown graphically in Figs. 8 and 9. In these figures we see the gross frequency curve resolved, so to speak, into separate curves for the various age groups.

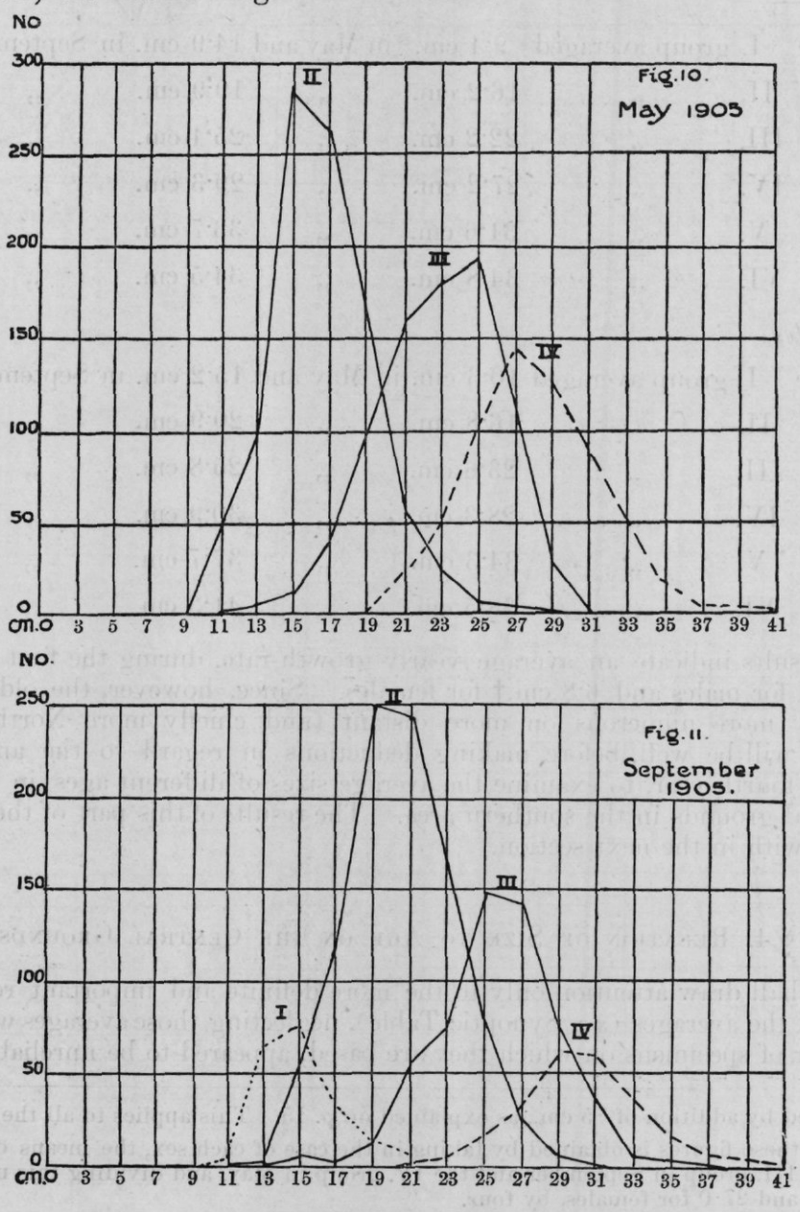
The object of these figures is to show :—

(1.) The relation of size to age in either sex.

(2.) The relative numerical proportions of the different ages over the Leman-to-Texel section as a whole in September, 1905.

Since the numbers of specimens represented in these curves, viz., 1,103 males and 1,114 females differ somewhat from and, in the case of the females, fall short of the actual numbers caught, viz., 1,100 males and 1,147 females, a few words of explanation are necessary to account for the discrepancy which, however, is too slight to affect the general result.

The numbers represented in these curves, in fact, comprise all the fishes in Samples 1 to 10 (inclusive) together with *double* the fishes in Sample No. 11^4. Now if *all* the fishes in Samples 9^1 to 11^3 were all that had been *caught* in the corresponding hauls, and Sample 11^4 just half the number caught in haul B. 377, there would have been no discrepancy in the final result. Actually, however, the otoliths of one or two fishes caught in hauls O. 343–352 and B. 374, 375 were accidentally omitted from the collections, while, in the case of B. 377, the halving of the number at each centimetre could not be exactly carried out. Sample No. 11^4 consisted, therefore, of rather less than half (257 out of 528) the number caught in haul B. 377.



FIGS. 10 AND 11.

Figs. 10 *and* 11 show in graphic form the distribution of the length frequencies of the otolith or age groups, I. to V., in the entire collections made along the Leman-to-Texel line in May and September, 1905. In the construction of these figures a 2 cm. grouping has been adopted and the sexes combined so as to give larger numbers and smoother curves.

These diagrams appear to need little explanation. They show at a glance the growth of the fishes in the interval between May and September, the great range of size of fishes of the same age over this section of the North Sea, and the great extent to which the age groups overlap.

The numerical proportions of the various age groups are not indicated in Figs. 10 and 11. In the case of groups I. and II., only a fraction of the numbers actually *caught* is represented, since the ages of only a portion of the plaice captured on "the Texel" (where these groups were chiefly found) were determined, and it is this portion which is represented in the diagrams. The original data from which these curves were constructed will be found in the Age Group Tables at the end.

General Age Group Averages for the whole Leman-to-Texel Region.—I refer here to the collective averages for May (9–12/v/05) and September (5–14/ix/05). Only the averages of age groups I.–IV. need be mentioned. These averages, with the exception of the VI. group, and (in September) the V. group also, are based on large numbers (*see* Synoptic Table) amounting, in the case of each of the groups II., III., and IV., to several hundred specimens.

1. *Males*—

The	I.	group averaged	9·4 cm.*	in May and	14·9 cm.	in September.
„	II.	„	16·2 cm.	„	19·9 cm.	„
„	III.	„	22·2 cm.	„	25·4 cm.	„
„	IV.	„	27·2 cm.	„	29·3 cm.	„
„	V.	„	31·6 cm.	„	33·7 cm.	„
„	VI.	„	34·8 cm.	„	34·5 cm.	„

2. *Females*—

The	I.	group averaged	10·3 cm.	in May and	15·2 cm.	in September.
„	II.	„	16·8 cm.	„	20·9 cm.	„
„	III.	„	23·6 cm.	„	25·8 cm.	„
„	IV.	„	28·3 cm.	„	30·9 cm.	„
„	V.	„	34·3 cm.	„	37·7 cm.	„
„	VI.	„	38·5 cm.	„	41·3 cm.	„

These results indicate an average yearly growth-rate, during the first four years, of about 6·6 cm. for males and 6·8 cm.† for females. Since, however, the older groups are proportionally more numerous on more distant (and chiefly more Northern) grounds (*see* p. 11) it will be well, before making deductions in regard to the annual growth-rate *after* the fourth year, to examine the average sizes of different ages in samples from various central grounds in the southern area. The results of this part of the investigation will be dealt with in the next section.

§ 4. Relation of Size to Age on the Central Grounds.

Here I shall draw attention only to the more definite and important results afforded by a study of the averages (*see* Synoptic Table), neglecting those averages which, from the small number of specimens on which they are based, appeared to be unreliable.

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* Amended by addition of ·5 cm., as explained on p. 15. This applies to all the other values.

† Each of these figures is obtained by taking in the case of each sex, the means of two averages, *i.e.*, that of the III. group in September and the IV. group in May, and dividing this mean value, viz., 26·3 for males and 27·0 for females, by four.

September, 1904, *and September*, 1905—*Leman Ground.*

We have already seen (p. 12) that the *Average Age* of the plaice on the Leman Ground was decidedly higher in September, 1904, than in September, 1905, and this we thought might be attributed to a comparative failure of the summer migration from the Dutch Coast in the former year, or to other causes at present obscure.

Here I wish to point out the distinctly higher average size in 1904 of those age-groups which are sufficiently well represented in both samples to render the comparison valid. Thus we find:—

The III. Group (*males*) averaged 28·8 cm. in 1904 and 26·8 cm. in 1905.

The III. Group (*females*) averaged 30·5 cm. in 1904 and 26·6 cm. in 1905.

The IV. Group (*males*) averaged 31·7 cm. in 1904 and 30·9 cm. in 1905.

The IV. Group (*females*) averaged 35 cm. in 1904 and 32·4 cm. in 1905.

The fact that in 1904 the hauls were made on September 27–29 and in 1905 on September 5–6, or just over three weeks earlier in the year, is clearly insufficient to account for more than a small part* of these considerable differences.

September, 1905, *and October*, 1905—*Leman Ground.*

The dates of the two samples under consideration are 5–6/ix/05 and 24/x/05. The difference is thus about seven weeks.

Comparing only the well-represented age-groups, we find:—

The II. Group (*males*) averaged 23·2 cm. (34 fish) in September and 24·9 cm. (32 fish) in October, a difference of 1·7 cm.

The II. Group (*females*) averaged 24·5 cm. (31 fish) in September and 25·3 cm. (33 fish) in October, a difference of 0·8 cm.

The III. Group (*males*) averaged 26·8 cm. (62 fish) in September and 28·4 cm. (25 fish) in October, a difference of 1·6 cm.

The III. Group (*females*) averaged 26·6 cm. (58 fish) in September and 30·3 cm. (25 fish) in October, a difference of 3·7 cm.

The IV. Group (*males*) averaged 30·9 cm. (44 fish) in September and 31·7 cm. (21 fish) in October, a difference of 0·8 cm.

The IV. Group (*females*) averaged 32·4 cm. (38 fish) in September and 33·9 cm. (43 fish) in October, a difference of 1·5 cm.

These differences are somewhat irregular, but, except in the case of the III. Group, (females) are not great, and are doubtless due partly to growth in the seven-weeks interval, possibly complicated by migrations, the exact nature of which is at present obscure.

October to March—Various Grounds.

The allowance to be made for growth during this period is slight. Only one sample, *viz.*, from the south part of the Dogger was obtained in March, the rest in October, November and January

N.B.—In speaking of the III. group, IV. group, V. group, &c., in autumn and winter it is important to remember that the fishes belonging to the III. group have practically completed *four* years' growth, those of the IV. group are practically *five* years old, and so on.

* Marking experiments (T. 4 + 5; 1905–6) with plaice transplanted to the Leman Banks showed an average growth of only ·3 cm. during the whole month of September.

In the following synopsis only the *approximate* length (*e.g.*, 27 cm. = 27·0 to 27·9 cm.) is quoted.

The III. Group (*males*) had an average size of:—

27 cm.	...	(12 fish)	on the	Botney Ground (January, 1905).
		(7 „)	„	Clay Deep edge of the Dogger (October, 1905).
28 cm.	...	(19 „)	„	Flamborough Off Ground (October, 1905).
		(25 „)	„	Leman „ (October, 1905).
		(39 „)	„	Sandette Bank (November, 1904).
29 cm.	...	(9 „)	„	Flamborough Off Ground (January, 1905).
		(8 „)	„	South Dogger (January, 1905).
30 cm.	...	(12 „)	„	„ (March, 1904).

The III. Group (*females*) had an average size of:—

28 cm.	...	(10 fish)	on the	Clay Deep edge of the Dogger (October, 1905).
		(26 „)	„	Botney Ground (January, 1905).
29–30 cm.	...	(18 „)	„	Flamborough Off Ground (October, 1905).
		(14 „)	„	South Dogger (January, 1905).
		(50 „)	„	„ (March, 1905).
		(25 „)	„	Leman Ground (October, 1905).

The IV. Group (*males*) had an average size of:—

31 cm.	...	(32 fish)	on the	Clay Deep edge of the Dogger (October, 1905).
		(21 „)	„	Leman Ground (October, 1905).
32 cm.	...	(54 „)	„	Sandette Bank (November, 1904).
		(20 „)	„	Flamborough Off Ground (January, 1905).
		(9 „)	„	South Dogger (October, 1905).
33 cm.	...	(6 „)	„	„ (January, 1905).
		(25 „)	„	Flamborough Off (October, 1905).
35 cm.	...	(17 „)	„	South Dogger (March, 1904).
36 cm.	...	(16 „)	„	Flamborough *Head* Ground (January, 1905).

The IV. Group (*females*) had an average size of:—

32 cm.	...	(54 fish)	on the	Clay Deep edge of the Dogger (October, 1905)
		(7 „)	„	Botney Ground (January, 1905).
33 cm.	...	(10 „)	„	South Dogger (October, 1905).
		(43 „)	„	Leman Ground (October, 1905).
35 cm.	...	(24 „)	„	South Dogger (January, 1905).
36 cm.	...	(62 „)	„	Flamborough Off Ground (October, 1905).
		(33 „)	„	South Dogger (March, 1904).
		(9 „)	„	Sandette Bank (November, 1904).

The V. Group (*males*) had an average size of:—

34 cm.	...	(12 fish)	on the	Sandette Bank (November, 1904).
35 cm.	...	(8 „)	„	Clay Deep edge of the Dogger (October, 1905).
36 cm.	...	(19 „)	„	Flamborough Off Ground (October, 1905).
		(7 „)	„	Leman Ground (October, 1905).
38 cm.	...	(29 „)	„	Flamborough *Head* Ground (January, 1905).

The V. Group (*females*) had an average size of:—

37 cm.	...	(10 fish)	on the	Leman Ground (October, 1905).
40 cm.	...	(10 „)	„	Clay Deep edge of the Dogger (October, 1905).
41 cm.	...	(19 „)	„	Flamborough Off Ground (October, 1905).
41 cm.	...	(24 „)	„	South Dogger (March, 1904).

Provisional Deductions.

Generally speaking, the plaice were largest for their age on the South Dogger and Flamborough Off Grounds. It is as yet impossible to decide definitely whether, or to what extent, this is due to:—(1) the existence of a more rapidly growing race inhabiting the north part of the North Sea,* (2) more rapid growth on the Dogger Bank due to greater abundance of food and less competition for it,† or (3) selective migration according to size.

The average sizes of the III. and IV. groups on the Clay Deep edge of the Dogger and on the South Botney Ground were distinctly lower than on the south part of the Dogger, the Flamborough Off Ground and the Leman Ground. On the whole, we should expect this to be so, since the first-named grounds are nearer the Danish and Dutch Coasts, respectively, than the last-named. In regard to the Flamborough Ground, we have the effects of greater depth of water and perhaps the presence of a more rapidly-growing northern race to consider. In any case, the number of plaice reared on the adjoining English Coast (*e.g.*, Bridlington Bay) is insignificant compared to the number on the Eastern Grounds.

The fact that in October, 1905, the average size of the III. and IV. groups was lower on the Clay Deep edge of the Dogger than on the Leman Ground in spite of the greater proximity of the latter to the coast, may perhaps be taken as an indirect indication that the rate of growth on the Eastern Grounds proper (Danish and German "nurseries") is slightly less than on the Dutch Coast. Such a result is what we should expect from our knowledge that the density of the plaice population is greater on the Danish than on the Dutch "nurseries."

In October, 1905, and November, 1904, respectively, the average size of the IV. group (females) was distinctly larger (viz., 36·5–36·6 cm.) on the Flamborough Off Ground and Sandette Bank, which we know to be spawning grounds, than on the south part of the Dogger and Leman Ground, which are not spawning grounds. Here the size was only 33·9 cm. In March (1904), however, on the South Dogger, the size of this group (females) was about the same as on the Flamborough Off Ground and Sandette Bank in autumn, viz., 36·9 cm.

These local and seasonal differences in the average size of the IV. group (females) may be provisionally correlated with the fact that, according to our observations, only the larger members of this group attain maturity. This involves the temporary migration (in winter) of the larger fishes of this age and sex to the spawning grounds such as the Flamborough Off Ground and Sandette Bank (thereby raising the average size of the group on these grounds) and leaving the smaller plaice of the same age behind on grounds such as the Dogger Bank and Leman Ground. These spawned fishes of the IV. group return to the Bank in spring and so raise the average length again in this region.

The results of analysis of two samples: (1) from the Flamborough Off Ground in October, 1905, and (2) from the South Dogger in March, 1904, furnish an almost identical series of age group averages in the case of the female sex.

The two series are as follows:—

1. Flamborough Off Ground—19–20/x./05.

Age Groups	III.	IV.	V.
Years old	$3\frac{3}{4}$	$4\frac{3}{4}$	$5\frac{3}{4}$
Average Length (cm.)	30·2	36·6	41·2

2. South Dogger—11/iii./04.

Age Groups	III.	IV.	V.
Years old (nearly)	4	5	6
Average Length (cm.)	30·4	36·9	41·9

* Fulton's exhaustive researches, based on Petersen's method (*op. cit.* 1902), indicate more or less clearly a more rapid growth-rate off the East Coast of Scotland than in the Southern North Sea according to the present observations.

† *See* Garstang, "Transplantation Experiments."

The two series of values approximate so closely as to suggest an interchange between the plaice population on the two grounds.

Another case of remarkably close agreement between the average size for a given age in two widely separated localities is furnished by the analyses of two samples, viz., (1) from the Leman Ground in October, 1905, and (2) from the Sandette Bank in November, 1904, in which the average sizes of groups II., III., and IV. (males) were almost identical, the November being slightly higher than the October values, as we should naturally expect.

The two series are as follows :—

1. Leman Ground—24/x./05.

Age Groups	II.	...	III.	...	IV.
Average Length (cm.) ...	24·9	...	28·4	...	31·7

2. Sandette Bank—26/xi./04.

Age Groups	II.	...	III.	...	IV.
Average Length (cm.) ...	25·1	...	28·5	...	32·0

This result suggests a common origin of the plaice population on the Sandette Bank (near the Straits of Dover) and the Leman Ground (between the Norfolk and Dutch Coasts). Coupled with the results of marking experiments which show a southward migration from the Leman Ground in autumn, this remarkably close agreement between the average lengths of plaice of the same age on those two grounds suggests that the population on Sandette Bank in autumn may be directly derived from the Leman Ground, and since the Sandette sample entirely or almost entirely consisted of actually spawning fishes (of which the vast majority were males) it seems probable that the Southward migration is (partly at least) for the purpose of spawning.

III.—AVERAGE GROWTH-RATE IN THE SOUTHERN NORTH SEA.

In the preceding pages I have indicated and partially attempted to account for certain differences in the average lengths of the age-groups of plaice in samples from various parts of the Southern North Sea. It now remains to deduce from the available data a general estimate of the average growth-rate of male and female plaice in the Southern North Sea as a whole.

The importance of samples collected along the lines of migration as necessarily affording the best material on which to base such estimates has already been pointed out (p. 19). The entire collections made in a continuous series of trawlings between the Leman Banks and the Dutch Coast in May and September, 1905 (*see* p. 26), furnish us with the required data so far as the first four or five years are concerned. These samples are, however, deficient in the older groups which are proportionally more numerous on more distant grounds (p. 11).

For purposes of "control" it is important to ascertain whether our estimate of the growth-rate based on the analysis of one collection (which we may call A) is confirmed by the results of analysis of another and entirely distinct collection (which we may call B). In other words we wish to obtain by independent analyses, two series of values for the average lengths of the various age-groups so as to check our results.

One such series (*see* Table 5) has been obtained by combining in one large collection (A) all the samples which were collected in autumn and winter. This combination seems legitimate since the amount of growth during the whole of this period is relatively slight.

Collection A, therefore, consists of (1) the Leman-to-Texel samples collected in September, 1905, together with (2) the various samples from the central grounds collected during the period September–March. The latter samples supplement the above-mentioned deficiencies in the former by furnishing examples of the older groups.

Collection B consists exclusively of the material collected along the Leman–to–Texel line in May, 1905.

If our methods are sound and our samples representative, the curves of growth (*see* Figs. 12 and 13) constructed on the basis of these two sets of data will agree as to their general orientation and trend, at least up to the fifth year.

Comparing the data themselves (Table 5), we shall expect to find that the average length of each age group in Collection A (September–March) will be somewhat lower than the average length of the age group next above in Collection B (May) since, *e.g.*, the O. Group in winter = I. Group in spring, according to our nomenclature.

TABLE 5.—Average Lengths of the Age Groups in two collections of Plaice.

Collection A = Total samples collected during September–March (combined).*

Collection B = Leman-to-Texel Series, May, 1905.†

Index figures give the numbers of fish on which the averages are based.

Collection.	Age Group.	Age in Years.	Average Length (cm.).	
			Males.	Females.
B	I	$1\frac{1}{6}$	$9{\cdot}4^{20}$	$10{\cdot}3^{15}$
A	I	2 (nearly)	$(15{\cdot}5)^{126}$	$(15{\cdot}7)^{102}$
B	II	$2\frac{1}{6}$	$(16{\cdot}2)^{515}$	$(16{\cdot}8)^{432}$
A	II	3 (nearly)	$20{\cdot}4^{518}$	$21{\cdot}3^{526}$
B	III	$3\frac{1}{6}$	$22{\cdot}2^{442}$	$23{\cdot}6^{379}$
A	III	4 (nearly)	$26{\cdot}6^{431}$	$27{\cdot}4^{458}$
B	IV	$4\frac{1}{6}$	$27{\cdot}2^{282}$	$28{\cdot}3^{319}$
A	IV	5 (nearly)	$31{\cdot}5^{349}$	$33{\cdot}8^{388}$
B	V	$5\frac{1}{6}$	$31{\cdot}6^{56}$	$34{\cdot}3^{48}$
A	V	6 (nearly)	$36{\cdot}3^{103}$	$40{\cdot}7^{96}$
B	VI	$6\frac{1}{6}$	$34{\cdot}8^{6}$	$38{\cdot}5^{6}$
A	VI	7 (nearly)	$37{\cdot}2^{24}$	$43{\cdot}4^{47}$

Making a reasonable allowance for spring-growth (chiefly in April–May), it will be seen that the two series of averages and the curves derived therefrom do agree closely.

It is obvious, however, that the averages for the I. Group in Collection A are somewhat too high, partly because all the fishes of this group in the September–March period were captured (*see* Synoptic Table) in deeper water than seven fathoms, whereas the bulk of the I. group lives in shallower water than this (*see* p. 11).

In the curve for Collection A (Fig. 12), I have accordingly omitted the values for the average of the I. group as calculated from the actual data. The curve has been completed (dotted portion) by assigning the value of 7 cm. as the average length of one-year-old plaice. This value is based partly on observations made earlier in the year, according to which just over one-year-old plaice in May, at Lowestoft, averaged 7·5 cm., and partly on Redeke's observations in regard to the Dutch Coast, which agree.

* Reference Nos. 8, 12 to 21, and 26.

† Reference No. 2.

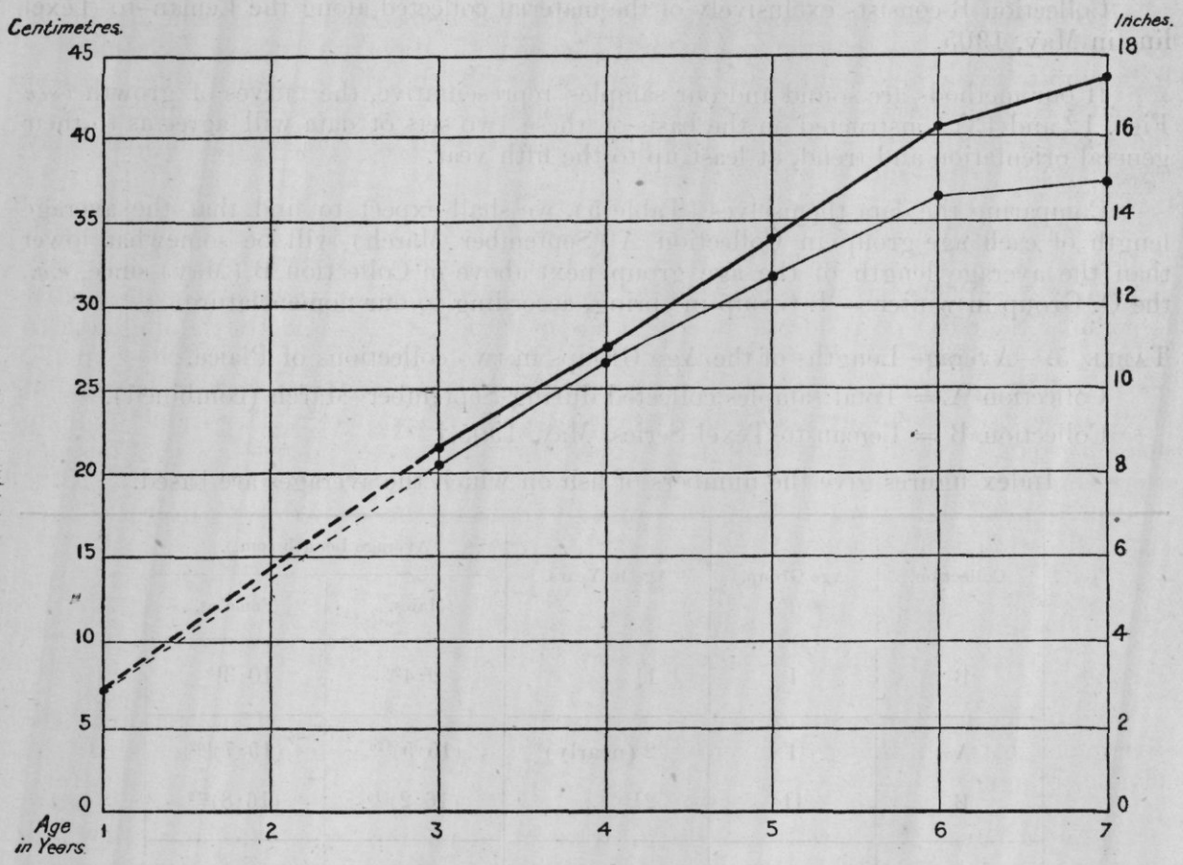

FIG. 12. COLLECTION A.

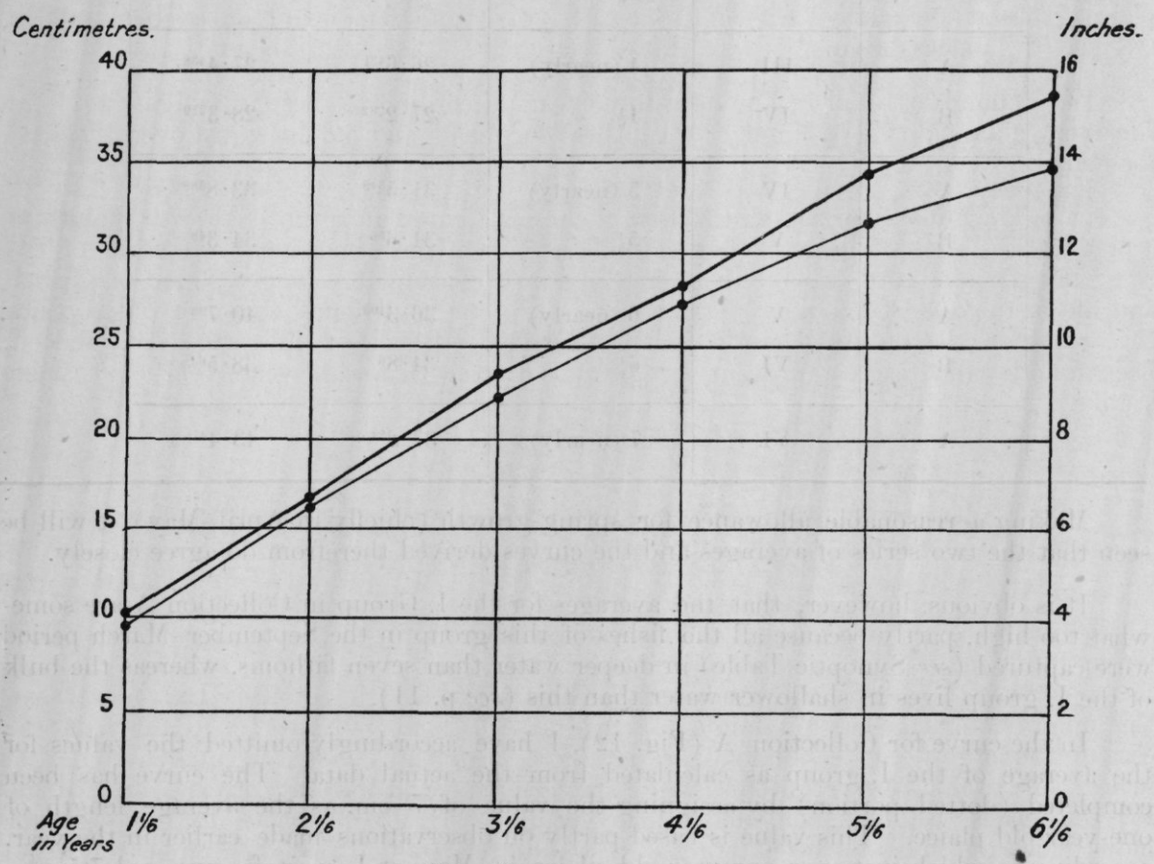

FIG. 13. COLLECTION B.

FIGS. 12 and 13. Curves showing Average Growth-Rate of Plaice, based on the otolith-analysis of Collections A and B (*see* Table 5).

——●—— Females. ——●—— Males.

Comparing, then, the average lengths of plaice of *approximately* the same age in the two collections, we see that the values for Collection B (May) are consistently somewhat higher up to five years of age than in A (September–March), the difference being greatest (about 2 cm.) in the case of the three-year-old fishes, and least (0·1–0·5 cm.) in the case of the five-year-old plaice, as we should naturally expect, owing to the decline in the yearly growth with the advance of age.

In the relatively large size of the six-year-old plaice in Collection A as compared with Collection B, as well as the slightly increased increment between fourth and fifth years as compared with the previous year (in the case of the females), we may recognise what is possibly the effect of residence on the Dogger Bank* as an episode in the life of these fishes. As explained above, the analysis of the Leman-to-Texel samples (Collection B), *alone* do not give us the information we require in regard to the average lengths of six-year-old and seven-year-old plaice, since these older fishes are mainly found on more distant grounds. The numbers of these ages in Collection A, however, which includes representatives from the northern central grounds, are, however, considerable, so that the final portions of the curves in Fig. 13 probably indicate the growth-rate in these later years with sufficient accuracy.

General Deductions (*see* Table 5 and Figs. 12 and 13).

(1.) The males grow more slowly than the females apparently from the first, the divergence between the growth curves for the two sexes becoming greater with the advance of age.

(2.) Whereas the females go on growing at much the same rate until they are six years old, the growth of the males shows a distinct decline after the fourth year.

(3.) During the first four years of their life, according to these observations, male plaice grow at an average rate of 6·6 cm. a year; and females at an average rate of 6·8 cm. (2·7 inches) a year.

(4.) The growth during the next three years, according to these investigations, is at the average annual rate of 3·5 cm. (1·4 inches) for males and 5·3 cm. (just over 2 inches) for females.

(5.) The almost horizontal direction of the male curve after the sixth year points to a practical cessation of growth after seven years. On the other hand, the form of the curve for females after the sixth year points to a considerably longer period of growth and life in the case of this sex. This agrees with our experience that the older plaice (according to the otoliths) are invariably females. Plaice of this sex have, indeed, been found which were apparently up to 16 or even 20 years old (*see* next section).

IV.—NOTE ON THE RELATIVE MORTALITY OF MALES AND FEMALES AT DIFFERENT AGES.

A reference to the Synoptic Table will show that there are no males in the IX.+ Group; this means that *no males showing more than eight rings in their otoliths have come under our notice*, whereas the number of females of which the otoliths had more than this number of rings was 47. Indeed as many as 16–20 rings have been counted in the case of the largest females, but so far not more than eight rings have been found in males. To avoid, however, a too definite statement in regard to the precise limit of life for the males, we may combine in one group (VIII.+) all plaice having eight or more than eight rings in their otoliths. If we do this we find that the number of males in the oldest group so formed is only six, whereas the number of females is 59 or 91 per cent.

* *See* Garstang, 1902–03, *op. cit.* Transplantation Experiments.

TABLE 6.—Showing Numbers and Proportions (Percentages) of the Sexes at different Ages.

Sex.	—	0.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.+	Total.
♂	No.	—	163	1,068	883	635	159	30	11	6	2,955
	%	—	56	52	51	47	53	37	24	9	49
♀	No.	—	127	998	863	710	140	51	35	59	2,983
	%	—	44	48	49	53	47	63	76	91	51

The above Table gives the result of adding up the number of males and females in each age group in all the samples so far examined in which the sexes were distinguished.

We learn from this Table that :—

(1.) The number of males and females up to five years of age is approximately the same, but shows a slight excess in favour of the males.

(2.) After the fifth year the number of females distinctly preponderates over the number of males, the relative scarcity of this sex gradually increasing with age.

(3.) Of plaice of eight and over eight years of age the total number of males found in our samples was six, whereas the number of females was 59 (*i.e.* 91 per cent.)

A result of considerable biological importance is clearly indicated by these statistics limited as they are, *i.e.*, the higher death rate of the males after the fifth year with the final result that after eight years relatively very few males remain.

An obvious objection to this generalisation is that the slower growth of the males (*see* Fig. 13, p. 32) would lead to a confusion of the white rings at the peripheries of their otoliths, and so lead to an under-estimation of their age.

In answer to this it may be pointed out that the *gradual* falling off in the relative numbers of males with increase of age after the fifth year, as is indicated in the table, precludes the possibility of this interpretation.

Fig. 8, Plate IV., shows the otoliths of a male plaice, 44 cm. long, the oldest and one of the largest of the sex found by us.

In these otoliths the number of white rings is very clear : they can be easily counted and their number is seen to be eight. There is no indication of the fusion of white rings at the margin.

Although a detailed discussion of the biological significance of this phenomenon would be premature or, at any rate, out of place in this Report, two collateral phenomena may be mentioned which possibly bear on the earlier death of the males. These are as follows :—

(1.) In males, according to our investigations, the advent of maturity is one year or (on an average) even two years earlier than in the case of the females.

(2.) The curve of the growth for the males (shown in Fig. 12) points to a practical cessation of growth after seven years.

KEY TO PLATES I. TO IV. FIGS. 1–9.

ILLUSTRATIONS FROM PHOTOGRAPHS BY R. A. TODD, B.Sc.

These figures give views of the concave (outer) surfaces of the otoliths. All are magnified 4·8 times.

Fig. 1.—Right otoliths of 36 plaice: length 16 centimetres. Mostly with 2 rings (II. Group). From Leman-to-Texel Collection, 9th–12th May, 1905.

Fig. 2.—Right otoliths of 25 plaice: length 21 centimetres. Mostly with 3 rings (III. Group). From Leman-to-Texel Collection, 9th–12th May, 1905.

Fig. 3.—Right otoliths of 20 plaice: length 27 centimetres. Mostly with 4 rings (IV. Group). From Leman-to-Texel Collection, 9th–12th May, 1905.

Fig. 4.—Right otoliths of 32 plaice: length 16 centimetres. Mostly with 2 rings (II. Group). Bridlington Bay, 7th July, 1905.

Fig. 5.—Right otoliths of 24 plaice: length 14 centimetres. Mostly with 1 ring (I. Group). Leman-to-Texel Collection, 5th–14th September, 1905.

Fig. 6.—Right otoliths of 25 plaice: length 20 centimetres. Mostly with 2 rings (II. Group). Leman-to-Texel Collection, 5th–14th September, 1905.

Fig. 7.—Right otoliths of 18 plaice: length 24 centimetres. Mostly with 3 rings (III. Group). Leman-to-Texel Collection, 5th–14th September, 1905.

Fig. 8.—Pair of otoliths of a male plaice: length 44 centimetres. 8 rings. Flamborough Head Ground, 13th January, 1905.

Fig. 9.—Right otoliths of 5 plaice, females: length 46 centimetres. 7–9 rings. Leman-to-Texel Collection, 9th–12th May, 1905.

PLATE V. Natural Average Size of Female Plaice in Southern North Sea.

SYNOPTIC TABLE summarising the RESULTS of OTOLITH INVESTIGATIONS in regard from various parts of the SOUTHERN NORTH SEA; and giving

Index figures give the numbers of observations

The two series of Averages in thick type are based on the analyses of plaice collected in one in May and the

Age Nomenclature.

Group O. = under one year old, *i.e.*, with no white ring in otoliths.

Group I. = fully one year old but less than two years old, *i.e.*, with one white ring in otoliths, &c., &c.

N.B.—A plaice's year is assumed to commence on April 1st.

Period of Year.	Date of Collection.	Locality.	Depth in Fathoms.	Gear and Reference Numbers of Hauls.	O.		I.		II.		Reference No.
					Males.	Females.	Males.	Females.	Males.	Females.	
May	1–4/v/05	Off Lowestoft... ...	3–5	Shrimp Trawl	...	...	$7{\cdot}6^{96}$		$12{\cdot}4^{272}$		1
,,	9–12/v/05	**Leman Ground to the Texel.**	7–16	O. 301–309; B.* 300.	...	...	**$9{\cdot}4^{20}$**	**$10{\cdot}3^{15}$**	**$16{\cdot}2^{515}$**	**$16{\cdot}8^{432}$**	2
July–August	7–11/vii/04	Bridlington Bay ...	9–5½	Shrimp Trawl	$2{\cdot}8^{93}$		$9{\cdot}2^{40}$		$13{\cdot}8^{61}$		3
,,	7/vii/05	Bridlington Bay ...	3½–5	B. 345	...	...	...	...	$16{\cdot}2^{94}$		4
,,	2–7/viii/05	The Wash	1½–7	Shrimp Trawl	$5{\cdot}0^{10}$		$9{\cdot}6^{183}$		$14{\cdot}6^{86}$		5
,,	23–24/viii/05	Off Mablethorpe ...	3½–9	,,	...	...	$12{\cdot}0^{68}$		$17{\cdot}1^{70}$		6
,,	16/vii/04	Thames Estuary ...	7–10	,,	...	...	$9{\cdot}6^{54}$		$13{\cdot}5^{58}$		7
September	27–29/ix/04	Leman Ground ...	14–17	B. 213, 214, 220.	...	$10{\cdot}5^{1}$	...	...	$14{\cdot}5^{1}$	$22{\cdot}3^{12}$	8
,,	5–6/ix/05	Leman Ground ...	15½–17	O. 343–346; B.* 374–375.	...	...	$16{\cdot}7^{14}$	$15{\cdot}9^{20}$	$23{\cdot}2^{34}$	$24{\cdot}5^{31}$	9
,,	6–14/ix/05	Brown Bank Ground...	14–16	O. 347, 351. 352.	...	...	$18{\cdot}1^{5}$	$19{\cdot}2^{4}$	$21{\cdot}6^{96}$	$22{\cdot}8^{112}$	10
,,	13/ix/05	The Texel	7–14	O. 348–350; B.* 377.	...	...	$14{\cdot}5^{92}$	$14{\cdot}6^{67}$	$19{\cdot}1^{326}$	$19{\cdot}8^{329}$	11
,,	5–14/ix/05	**Leman Ground to the Texel.**	7–17	O. 343–352; B.* 374, 375, 377.	...	...	**$14{\cdot}9^{111}$**	**$15{\cdot}2^{91}$**	**$19{\cdot}9^{456}$**	**$20{\cdot}9^{472}$**	12†
October–March	12/x/05	Clay Deep edge of Dogger.	20–24	O. 360, 361	...	...	...	...	...	...	13
,,	11/x/05	Dogger Bank—South part.	10½–14	O. 358, 359	...	..	...	...	$29{\cdot}5^{1}$	$28{\cdot}5^{3}$	14
,,	22/i/05	,, ,,	11½–17	O. 270–272	...	...	...	...	...	...	15
,,	11/iii/04	,, ,,	9–17	O. 160–164, 166.	...	...	...	...	...	$23{\cdot}0^{2}$	16
,,	19–20/x/05	Flamborough Off Ground.	25–30	O. 362–366; B. 397.	...	...	...	...	$21{\cdot}7^{8}$	$28{\cdot}5^{2}$	17
,,	20/i/05	,, ,,	25½–26	O. 268	...	...	$19{\cdot}5^{2}$	...	$22{\cdot}5^{1}$	...	18
,,	13–14/i/05	,, Head Ground.	31–31	O. 266, 267	...	...	$20{\cdot}5^{1}$	...	$25{\cdot}5^{2}$	...	19
,,	25/i/05	Botney Ground—South part.	17½–20	O. 276	...	...	...	$16{\cdot}5^{1}$	$26{\cdot}5^{2}$	$27{\cdot}0^{2}$	20
,,	24/x/05	Leman Ground ...	12–17	O. 368	...	...	$19{\cdot}4^{8}$	$20{\cdot}0^{10}$	$24{\cdot}9^{32}$	$25{\cdot}3^{33}$	21
,,	28/xi/03	Brown Ridges—North part.	14–17	B. 93	...	...	...	...	$25{\cdot}9^{15}$		22
,,	1/xii/03	Off Egmond	10–11	B. 95	...	...	$16{\cdot}0^{14}$		$20{\cdot}2^{81}$		23
,,	1/xii/03	Off Ymuiden	9–10	B. 96	..	...	$15{\cdot}0^{10}$		$19{\cdot}0^{62}$		24
,,	29/xi/03	Off Ymuiden	8–9	B. 94	...	...	$13{\cdot}8^{87}$		$16{\cdot}4^{101}$		25
,,	26/xi/04	Off Sandette Light Vessel.	19–21	B. 247, 248	...	...	$21{\cdot}5^{4}$	—	$25{\cdot}1^{15}$	...	26
,,	11/xi/04	Teignmouth Bay (Channel.)	4½–7	B. 242, 243	...	...	$22{\cdot}2^{3}$	$23{\cdot}0^{2}$	$27{\cdot}3^{18}$	$28{\cdot}0^{13}$	27
,,	27/ii/04	Great West Bay (Channel.)	17–23	G. 159	...	...	$19{\cdot}2^{14}$	$18{\cdot}5^{8}$	$25{\cdot}1^{17}$	$26{\cdot}7^{28}$	28

† No. 12 = 9, 10 and 11 combined.

to the AVERAGE LENGTH (in centimetres) of PLAICE of different AGES in SAMPLES

particulars of the TRAWL HAULS in which the SAMPLES were obtained.

on which the averages in each case are based.

two continuous lines of trawlings between the Leman Banks and the Dutch Coast, the other in September, 1905.

Symbols denoting Gear.

O. = Otter Trawl of ss. *Huxley*.
B. = Beam ,, ,,
B.* = ,, ,, ,, with small mesh covering net.
N.B.—The actual courses of the particular hauls specified are shown on the Charts in Reports on "Trawling Investigations."

Reference No.	III.		IV.		V.		VI.		VII.		VIII.		IX.+		Total in Sample.		Total Caught.	Number of Hours Fishing.
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.		
1	$15{\cdot}2^{75}$		$20{\cdot}8^{3}$		...	...	...	...	...	...	...	...	...	...	446		...	...
2	$\mathbf{22{\cdot}2^{142}}$	$\mathbf{23{\cdot}6^{379}}$	$\mathbf{27{\cdot}2^{282}}$	$\mathbf{28{\cdot}3^{319}}$	$\mathbf{31{\cdot}6^{56}}$	$\mathbf{34{\cdot}3^{48}}$	$\mathbf{34{\cdot}8^{6}}$	$\mathbf{38\ 5^{6}}$	$\mathbf{37{\cdot}5^{2}}$	$\mathbf{42\ 6^{13}}$	$\mathbf{38{\cdot}0^{2}}$	$\mathbf{48{\cdot}8^{3}}$	...	$\mathbf{51{\cdot}6^{21}}$	**1325**	**1236**	**11502**	**39½**
3	$19{\cdot}5^{68}$		$24{\cdot}0^{38}$		$24{\cdot}9^{25}$		$26{\cdot}2^{3}$		...	...	...	...	...	...	328		...	...
4	$18{\cdot}6^{74}$		$22{\cdot}3^{12}$		$20{\cdot}5^{1}$		$24{\cdot}5^{2}$		...	...	...	...	...	...	183		...	...
5	$16{\cdot}6^{6}$		...	...	...	...	...	...	...	...	...	...	...	...	285		...	...
6	$20{\cdot}3^{27}$		...	...	...	...	...	...	...	...	...	...	...	...	165		...	...
7	$20{\cdot}1^{12}$		...	...	...	...	...	...	...	...	...	...	...	...	124		...	...
8	$28{\cdot}8^{19}$	$30{\cdot}5^{17}$	$31{\cdot}7^{24}$	$35{\cdot}0^{27}$	$33{\cdot}8^{6}$	$38{\cdot}8^{6}$	$34{\cdot}0^{2}$	$39{\cdot}1^{6}$	...	$44{\cdot}5^{1}$	...	$45{\cdot}5^{1}$	...	$48{\cdot}5^{3}$	52‡	74‡	120	11½
9	$26{\cdot}8^{61}$	$26{\cdot}6^{38}$	$30{\cdot}9^{44}$	$32{\cdot}4^{38}$	$35{\cdot}2^{4}$	$39{\cdot}2^{7}$	$35{\cdot}5^{1}$	$40{\cdot}2^{3}$	$37{\cdot}5^{1}$	$43{\cdot}8^{3}$	$36{\cdot}1^{3}$	$47{\cdot}0^{2}$	...	$46{\cdot}7^{4}$	163	166	335	20
10	$26{\cdot}1^{115}$	$26{\cdot}5^{113}$	$29{\cdot}1^{50}$	$30{\cdot}6^{57}$	$32{\cdot}2^{4}$	$34{\cdot}1^{3}$	$33{\cdot}5^{1}$	$42{\cdot}5^{2}$	...	...	...	...	...	...	269	292	567	13½
11	$23{\cdot}7^{97}$	$24{\cdot}6^{111}$	$27{\cdot}3^{28}$	$29{\cdot}2^{18}$	...	...	...	...	...	...	...	...	...	...	543	525	1345	12
12†	$\mathbf{25{\cdot}4^{274}}$	$\mathbf{25{\cdot}8^{282}}$	$\mathbf{29{\cdot}3^{122}}$	$\mathbf{30{\cdot}9^{113}}$	$\mathbf{33{\cdot}7^{8}}$	$\mathbf{37{\cdot}7^{10}}$	$\mathbf{34{\cdot}5^{2}}$	$\mathbf{41{\cdot}3^{5}}$	$\mathbf{37{\cdot}5^{1}}$	$\mathbf{43{\cdot}8^{3}}$	$\mathbf{36{\cdot}1^{3}}$	$\mathbf{47\ 0^{2}}$	...	$\mathbf{46{\cdot}7^{4}}$	**977**	**983**	**2247**	**45½**
13	$27{\cdot}3^{7}$	$28{\cdot}9^{10}$	$31{\cdot}6^{32}$	$32{\cdot}7^{54}$	$35{\cdot}6^{8}$	$40{\cdot}1^{10}$	...	$48{\cdot}2^{4}$	...	$51{\cdot}8^{3}$	...	...	...	...	47	81	129	10
14	$33{\cdot}5^{1}$	$28{\cdot}0^{4}$	$32{\cdot}9^{9}$	$33{\cdot}9^{10}$	$39{\cdot}2^{4}$	$44{\cdot}3^{6}$	...	$46{\cdot}5^{2}$	...	...	...	...	...	...	15	21	40	9
15	$29{\cdot}5^{8}$	$29{\cdot}6^{14}$	$33{\cdot}2^{6}$	$35{\cdot}2^{24}$	$35{\cdot}5^{1}$	$45{\cdot}0^{2}$	...	...	...	...	...	...	...	...	15	40	58	20
16	$30{\cdot}1^{12}$	$30{\cdot}4^{30}$	$35{\cdot}3^{17}$	$36{\cdot}9^{33}$	$38{\cdot}0^{2}$	$41{\cdot}9^{24}$	...	$45{\cdot}9^{15}$	...	$48{\cdot}5^{5}$	...	...	...	$55{\cdot}0^{6}$	31	135	328	30
17	$28{\cdot}2^{19}$	$30{\cdot}2^{18}$	$33{\cdot}3^{25}$	$36{\cdot}6^{62}$	$36{\cdot}0^{19}$	$41{\cdot}2^{19}$	$38{\cdot}0^{10}$	$43{\cdot}6^{7}$	$38{\cdot}0^{2}$	$48{\cdot}7^{4}$	...	...	...	$56{\cdot}1^{8}$	83	120	203	27½
18	$29{\cdot}6^{9}$	$29{\cdot}7^{5}$	$32{\cdot}9^{29}$	$35{\cdot}5^{2}$	$35{\cdot}5^{7}$	$39{\cdot}5^{3}$	$38{\cdot}5^{2}$	$36{\cdot}5^{3}$	$39{\cdot}5^{1}$	...	...	...	...	...	41	13	55	4
19	$30{\cdot}2^{6}$	$36{\cdot}0^{2}$	$36{\cdot}3^{16}$	$36{\cdot}2^{4}$	$38{\cdot}4^{29}$	...	$37{\cdot}6^{7}$	$42{\cdot}0^{2}$	$39{\cdot}4^{4}$	...	$44{\cdot}5^{1}$	...	...	...	66	8	151	10
20	$27{\cdot}9^{12}$	$28{\cdot}7^{26}$	$33{\cdot}8^{3}$	$32{\cdot}7^{7}$	...	$43{\cdot}8^{3}$	...	...	...	$39{\cdot}5^{1}$	...	$47{\cdot}5^{2}$	...	$48{\cdot}5^{2}$	17	44	70	5
21	$28{\cdot}4^{23}$	$30{\cdot}3^{25}$	$31{\cdot}7^{21}$	$33{\cdot}9^{48}$	$36{\cdot}2^{7}$	$37{\cdot}8^{10}$	$35{\cdot}5^{1}$	$42{\cdot}8^{3}$	...	$45{\cdot}0^{4}$	...	$47{\cdot}5^{2}$	...	$50{\cdot}5^{2}$	94	132	226	4
22	$27{\cdot}9^{16}$		$31{\cdot}7^{5}$		...	...	...	...	...	...	...	...	...	...	36		38	3
23	$27{\cdot}1^{3}$		$32{\cdot}5^{1}$		...	...	...	...	...	...	...	...	...	...	99		514	3
24	25.5^{6}		...	...	...	...	...	...	...	...	...	...	...	...	78		478	3
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	181		879	4
26	$28{\cdot}5^{39}$	$32{\cdot}1^{5}$	$32{\cdot}0^{54}$	$36{\cdot}5^{9}$	$34{\cdot}3^{12}$	$36{\cdot}5^{1}$	...	...	$38{\cdot}5^{1}$	...	...	$42{\cdot}5^{1}$	...	...	125	16	182	2
27	$32{\cdot}0^{4}$	$33{\cdot}1^{14}$	$33{\cdot}0^{2}$	$33{\cdot}2^{3}$	...	...	...	41.5^{1}	...	...	...	...	...	$51{\cdot}0^{2}$	27	35	64	4
28	$30{\cdot}0^{6}$	$32{\cdot}0^{12}$	$34{\cdot}5^{2}$	...	...	...	...	...	...	...	...	...	...	...	39	48	96	2½

‡ Six plaice from another haul (probably B. 265) have evidently been included in this sample.

TABLE I.—Measurements of Plaice with One White Otolith Ring (I. Group).

No.	Period of Year.	Date.	Gear and Reference Number of Hauls.	Locality.	Sex.	Centimetres.																				
						5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	May	1-4/v/05	Shrimp Trawl ..	Off Lowestoft	M. + F.	4	31	32	15	11	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	„	9-12/v/05	O. 301-309; B.* 300	**Leman Ground to the Texel** ..	M.	..	..	**1**	**6**	**8**	**4**	..	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	**1**	**1**	**4**	**3**	**5**	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..
3	July-August ..	7-11/vii/04 ..	Shrimp Trawl ..	Bridlington Bay	M. + F.	..	4	2	10	13	9	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	„ ..	2-7/viii/05 ..	Shrimp Trawl ..	The Wash	M. + F.	..	..	25	43	54	27	19	7	4	3	..	..	..	1	..	..	..	..	..	..	..
6	„ ..	23-24/viii/05 ..	Shrimp Trawl ..	Off Mablethorpe	M. + F.	..	..	1	1	9	11	13	13	9	6	3	..	2	..	..	..	..	..	..	..	..
7	„ ..	16/vii/04	Shrimp Trawl ..	Thames Estuary	M. + F.	..	3	12	14	9	3	2	5	3	..	..	2	1	..	..	..	..	..	..	..	..
9[1]	September ..	5/ix/05	O. 343, 344 ..	Leman Ground	M.	..	..	..	..	..	..	..	..	1	..	2	..	2	1	..	1	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	2	..	..	..	..	..	..
9[2]	„ ..	5/ix/05	O. 345	Leman Ground	M.	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..
9[3]	„ ..	6/ix/05	O. 346	Leman Ground	M.	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	1	2	1	1	1	..	..	..	..	..	..	..	..	..
9[4]	„ ..	6/ix/05	B.* 374, 375 ..	Leman Ground	M.	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	1	4	1	..	..	..	..	..	..	..	..	..	..
10[1]	„ ..	6/ix/05	O. 347	North of Brown Ridges	M.	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..
10[2]	„ ..	14/ix/05	O. 352	Brown Bank Ground	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
10[3]	„ ..	14/ix/05	O. 351	Brown Bank Ground	M.	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
11[1]	„ ..	14/ix/05	O. 350	Between Brown Bank and Texel Ground.	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
11[2]	„ ..	13/ix/05	O. 349	The Texel	M.	..	..	..	..	..	..	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..
11[3]	„ ..	13/ix/05	O. 348	The Texel	M.	..	..	..	..	..	..	..	..	1	6	7	3	2	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	1	..	..	2	5	4	1	..	..	..	..	..	..	..	..
11[4]	„ ..	13/ix/05	B.* 377	The Texel	M.	..	..	..	..	..	..	1	18	21	13	11	2	..	1	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	2	10	11	17	3	7	..	..	..	..	..	..	..	..	..
12	„ ..	5-14/ix/05	O. 343-352; B.* 374, 375, 377.	**Leman Ground to the Texel** ..	M.	..	..	..	..	..	..	**1**	**18**	**24**	**20**	**22**	**8**	**6**	**9**	**0**	**3**	..	..	..	..	..
					F.	..	..	..	..	..	..	**3**	**11**	**13**	**23**	**13**	**13**	**7**	**3**	**2**	**2**	**1**	..	..	..	..
18	October-March ..	20/i/05	O. 268	Flamborough Off Ground	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..
19	„ ..	13-14/i/05	O. 266, 267 ..	Flamborough Head Ground	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
20	„ ..	25/i/05	O. 276	Botney Ground—South Part	F.	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
21	„ ..	24/x/05	O. 368	Leman Ground	M.	..	..	..	..	..	..	..	..	..	..	..	..	1	3	1	2	1	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	3	1	1	..	..	..	..
23	„ ..	1/xii/03	B. 95	Off Egmond (10-11 fms.)	M. + F.	..	..	..	..	..	..	..	..	..	..	6	2	2	2	1	1	..	..	..	..	..
24	„ ..	1/xii/03	B. 96	Off Ymuiden (9-10 fms.)	M. + F.	..	..	..	..	..	..	..	..	..	2	5	1	1	..	1	..	..	..	..	..	..

| | | |

TABLE II.—MEASUREMENTS OF PLAICE WITH TWO WHITE OTOLITH RINGS (II. GROUP)—*continued.*

No.	Period of Year.	Date.	Gear and Reference Numbers of Hauls.	Locality.	Sex.	Centimetres. 7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
11[a]	September ..	13/ix/05	B.* 377	The Texel	M. ..	..	..	..	..	..	..	1	7	9	11	10	8	4	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
					F. ..	..	..	..	..	..	..	..	7	7	13	7	8	5	4	5	3	3	2	..	..	..	..	..	..	..	..	..	..	..	..
12	„ ..	5-14/ix/05	O. 343-352; B.* 374, 375, 377.	**Leman Ground to the Texel**	M. ..	..	..	..	..	..	..	**1**	**11**	**18**	**27**	**36**	**64**	**74**	**77**	**46**	**38**	**31**	**16**	**11**	**5**	**1**	..	..	..	..	..	..	..	..	..
					F. ..	..	..	..	..	..	..	..	**9**	**15**	**29**	**27**	**46**	**64**	**59**	**60**	**48**	**42**	**28**	**22**	**10**	**8**	**2**	**3**	..	..	..	..	..	..	..	..
14	October-March ..	11/x/05	O. 358, 359 ..	Dogger Bank—South Part	M. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
					F. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..
17	„ ..	19-20/x/05	O 362-366; B. 397	Flamborough Off Ground	M. ..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	..	2	1	..	..	..	..	1	..	..	..	..	..	..	..	..
					F. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..
18	„ ..	20/i/05	O. 263	Flamborough Off Ground	M. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	„ ..	13-14/i/05	O. 266, 267 ..	Flamborough Head Ground	M. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
20	„ ..	25/i/05	O. 276	Botney Ground—South Part	M. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..
					F. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
21	„ ..	24/x/05	O. 368	Leman Ground	M. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	4	7	4	5	1	4	1	2	1	..	..	..	..	..	..
					F. ..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	2	3	8	5	4	4	1	..	2	1	..	..	..	..	..	..
22	„ ..	28/xi/03	B 93	Brown Ridges	M. + F.	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	3	1	3	1	4	..	..	..	..	..	..	..	..	..	..
23	„ ..	1/xii/03	B. 95	Off Egmond (10-11 fms.)	M. + F.	..	..	..	..	..	..	..	..	1	3	14	14	9	11	8	5	8	8	..	..	..	..	..	..	..	..	..	..	..	..
24	„ ..	1/xii/03	B. 96	Off Ymuiden (9-10 fms.)	M. + F,	..	..	..	..	..	..	..	3	5	15	9	6	3	1	4	5	5	5	1	..	..	..	..	..	..	..	..	..	..	..
25	„ ..	29/xi/03	B. 94	Off Ymuiden (8-9 fms.)	M. + F.	..	..	..	..	..	..	6	14	32	26	7	5	4	1	1	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..
26	„ ..	26/xi/04	B. 247, 248 ..	Off Sandette Light Vessel	M. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	3	4	2	3	..	..	..	..	..	..	..	..	..	..
27	„ ..	11/xi/04	B. 343	Teignmouth Bay	M. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	6	3	2	2	1	..	1	..	..	..	..
					F. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	4	4	3	..	..	..	..	..	..	..	..
28	„ ..	27/ii/04	O. 159	Great West Bay	M. ..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	..	1	3	3	3	..	..	1	..	1	..	..	..	..	..
					F. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	2	3	2	4	3	3	3	3	1	1	1	1	..	..	..

TABLE III.—MEASUREMENTS OF PLAICE WITH THREE WHITE OTOLITH RINGS (III. GROUP).

No.	Period of Year.	Date.	Gear and Reference Numbers of Hauls.	Locality.	Sex.	Centimetres. 8	9	10	11	12	13	14	15	16	17*	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	May	1-4/v/05 ..	Shrimp Trawl	Off Lowestoft	M. + F.	..	2	4	3	4	7	16	11	10	6	8	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	„	9-12/v/05 ..	O. 301-309 and B.* 300.	**Leman Ground to the Texel.**	M. ..	..	..	..	..	**1**	**2**	**5**	**7**	**8**	**17**	**29**	**35**	**52**	**52**	**45**	**48**	**47**	**44**	**24**	**17**	**7**	**2**	..	..	..	..	..	..	..	..	..	..	..	..
					F. ..	..	..	..	..	..	..	..	**1**	**3**	**14**	**15**	**16**	**23**	**32**	**40**	**46**	**51**	**51**	**47**	**20**	**13**	**5**	**1**	..	**1**	..	..	..	..	..	..	..	..	..	..
3	July-August ..	7-11/vii/04 ..	Shrimp.. ..	Bridlington Bay	M. ..	..	..	..	..	1	..	..	1	2	7	8	3	7	5	2	1	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F. ..	..	..	..	..	..	..	..	2	2	3	5	7	1	5	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

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TABLE V.—MEASUREMENTS OF PLAICE WITH FIVE WHITE OTOLITH RINGS (V. GROUP).

No	Period of Year.	Date.	Gear and Reference Numbers of Hauls.	Locality.	Sex.	Centimetres.																														
						20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
2	May	9-12/v/05	O. 301-309; B.* 300	**Leman Ground to the Texel**	M.	..	..	..	..	**2**	**1**	**1**	**3**	**2**	**6**	**8**	**5**	**8**	**9**	**4**	**5**	**1**	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	**2**	**1**	..	2	**3**	**3**	**7**	**6**	**3**	**5**	**5**	**4**	**2**	**3**	**1**	**1**	..	..	..	..	..	..	..	..	..
3	July-August	7-11/vii/04	Shrimp Trawl	Bridlington Bay	M.	2	..	..	2	1	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	2	1	2	3	3	..	1	1	1	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	September	17-19/ix/04	B. 213, 214; B. 220	Leman Ground	M.	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	1	1	..	..	..	..	..	..	..	..	..	..
9[1]	„	5/ix/05	O. 343, 344	Leman Ground	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
9[2]	„	5/ix/05	O. 345	Leman Ground	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	2	..	..	..	..	..	..	..	..	..
9[3]	„	6/ix/05	O. 346	Leman Ground	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
10[1]	„	6/ix/05	O. 347	North of Brown Ridges	M.	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10[2]	„	14/ix/05	O. 351	Brown Bank Ground	M.	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
12	„	5-14/ix/05	O. 343-347, 351	**Leman Ground to the Texel**	M.	..	..	..	..	..	..	..	..	**1**	..	..	**1**	**1**	**1**	**1**	**1**	**1**	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	**2**	..	..	..	..	..	**2**	**2**	**2**	..	**2**	..	..	..	..	..	..	..	..	..
13	October-March	12/x/05	O. 360, 361	Clay Deep edge of Dogger	M.	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2	1	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2	1	1	..	1	..	..	1	1	..	1	..	..	..
14	„	11/x/05	O. 358-359	Dogger Bank—South part	M.	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	1	..	1	1	..	..	1	1	1	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1	..	..	1	1	1	..	..
15	„	22/i/05	O. 270-272	Dogger Bank—South part	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..
16	„	11/iii/04	O. 160-164, 166	Dogger Bank—South part	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	..	2	1	2	3	3	2	2	1	1	1	2	..	..
17	„	19-20/x/05	O. 362-366; B. 397	Flamborough Off Ground	M.	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	4	5	2	3	..	..	1	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	..	..	..	4	4	..	1	1	2	..	1	1	..	..
18	„	20/i/05	O. 268	Flamborough Off Ground	M.	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	1	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
19	„	13-14/i/05	O. 266, 267	Flamborough Head Ground	M.	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	1	6	4	3	1	2	6	2	1	..	..	..	..	..	..	..
20	„	25/i/05	O. 276	Botney Ground—South part	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	1	..	..	..
21	„	24/x/05	O. 368	Leman Ground	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	1	1	4	1	..	..	..	..	..	..	..	..	..	..
26	„	26/xi/04	B. 247, 248	Off Sandette Light Vessel	M.	..	..	..	..	..	..	..	..	..	..	1	..	3	2	3	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Table VI.—Measurements of Plaice with Six White Otolith Rings (VI. Group).

No.	Period of Year.	Date.	Gear and Reference Numbers of Hauls.	Locality.	Sex.	Centimetres.																											
						24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
2	May	9-12/v/05	O. 301-309, B.* 300	**Leman Ground to the Texel**	M.	..	..	..	..	..	..	..	**2**	..	..	..	**2**	**1**	..	**1**	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	**1**	..	..	..	**1**	**2**	..	..	**2**	..	..	..	..	..	..	..	..	..	..
3	July-August	7-11/vii/04	Shrimp Trawl	Bridlington Bay	M.	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	„	7/vii/05	Shrimp Trawl	Bridlington Bay	M. + F.	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	September	17-19/ix/04	B. 213, 214, 220	Leman Ground	M.	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	1	..	2	1	..	..	1	..	..	1	..	..	..	..	..	..	..
9^1	„	5/ix/05	O. 343, 344	Leman Ground	M.	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9^2	„	5/ix/05	O. 345	Leman Ground	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
9^3	„	6/ix/05	O. 346	Leman Ground	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
9^4	„	6/ix/05	B. 374, 375	Leman Ground	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
10^1	„	6/ix/05	O. 347	North of Brown Ridges	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..
10^2	„	14/ix/05	O. 352	Brown Bank Ground	M.	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	„	5-14/ix/05	O. 343-347, 352; B. 374, 375.	**Leman Ground to the Texel**	M.	..	..	..	..	..	..	..	..	..	**1**	..	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	**2**	**1**	..	**1**	..	**1**	..	..	..	..	..	..	..
13	October-March	12/x/05	O. 360, 361	Clay Deep edge of Dogger	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	2
14	„	11/x/05	O. 358, 359	Dogger Bank—South part	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..
16	„	11/iii/04	Q. 160-164, 166	Dogger Bank—South part	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4	..	1	..	2	2	4	..	1
17	„	19-20/x/05	O. 362-366; B. 397	Flamborough Off Ground	M.	..	..	..	..	..	..	..	1	..	..	..	1	..	2	2	1	1	2	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	1	..	..	..	..	..	1	2	..	..
18	„	20/i/05	O. 268	Flamborough Off Ground	M.	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	„	13-14/i/05	O. 266, 267	Flamborough Head Ground	M.	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	3	1	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..

Table VII.—Measurements of Plaice with Seven White Otolith Rings (VII. Group).

No.	Period of Year.	Date.	Gear and Reference Numbers of Hauls.	Locality.	Sex.	Centimetres.																								
						31½	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
2	May	9-12/v/05	O. 301-309; B.*300	**Leman Ground to the Texel**	M.	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	2	1	..	..	1	2	1	2	1	3	..	..	..	..	..	..	..	..	..	..
8	September	17-19/ix/04	B. 213, 214, 220	Leman Ground	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
9[1]	„	5/ix/05	O. 343, 344	Leman Ground	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
9[2]	„	5/ix/05	O. 345	Leman Ground	M.	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9[3]	„	6/ix/05	O. 346	Leman Ground	F.	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
12	„	5-6/ix/05	O. 343-346	**Leman Ground to the Texel**	M.	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..
13	October–March	12/x/05	O. 360, 361	Clay Deep Edge of the Dogger	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..
16	„	11/iii/04	O. 160-164, 166	Dogger Bank—South part	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	1	..	..	..	..	..
17	„	19-20/x/05	O. 362-366, B. 397	Flamborough Off Ground	M.	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..	..	..	1	..	..
18	„	20/i/05	O. 268	Flamborough Off Ground	M.	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	„	13-14/i/05	O. 266, 267	Flamborough Head Ground	M.	..	..	..	..	..	1	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	„	25/i/05	O. 276	Botney Ground—South part	F.	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	„	24/x/05	O. 368	Leman Ground	F.	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..
26	„	26/xi/04	B. 247, 248	Off Sandette Light Vessel	M.	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Table VIII.—Measurements of Plaice with Eight White Otolith Rings (VIII. Group).

No.	Period of Year.	Date.	Gear and Reference Numbers of Hauls.	Locality.	Sex.	Centimetres.														
						35.	36.	37.	38.	39.	40.	41.	42.	43.	44.	45.	46.	47.	48.	49.	50.
2	May	9-12/v/05	O. 301-309; B.*300	**Leman Ground to the Texel**	M.	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1
9[1]-9[4]	September	5-6/ix/05	O. 343-346; B.*374	**Leman Ground to the Texel**	M.	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
					F.	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
8	„	17-19/ix/04	B. 213, 214, 220	Leman Ground, &c.	F.	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
19	October–January	13-14/i/05	O. 266-267	Flamborough Off Ground	M.	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
20	„	25/i/05	O. 276	Botney Ground—South part	F.	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
21	„	24/x/05	O. 368	Leman Ground	F.	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
26	„	26/xi/05	B. 247, 248	Off Sandette Light Vessel	F.	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..

TABLE IX.—MEASUREMENTS OF PLAICE WITH MORE THAN EIGHT WHITE OTOLITH RINGS.

No.	Period of Year.	Date.	Gear and Reference Numbers of Hauls.	Locality.	Sex.	Centimetres.															
						43.	44.	45.	46.	47.	48.	49.	50.	51.	52.	53.	54.	55.	56.	57.	58.	64.
8	September ..	27-29/ix/04 ..	B. 213, 214, 220 ..	Leman Ground	F. ..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..
9	„ ..	5-6/ix/05	O. 343-345.. ..	Leman Ground	F. ..	..	1	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..
16	October-March	11/iii/04	O. 160-164, 166 ..	Dogger Bank - South part ..	F. ..	..	..	..	..	..	..	..	2	..	1	..	1	..	..	1	..	1
17	„ ..	19-20/x/05 ..	O. 362-366; B. 397	Flamborough Off Ground ..	F. ..	..	..	..	..	1	..	..	1	1	..	2	..	..	1	1	1	..
20	„ ..	25/i/05	O. 276	Botney Ground - South part ..	F. ..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
21	„ ..	24/x/05	O. 368	Leman Ground	F. ..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..
27	„ ..	11/xi/04	B. 242, 243.. ..	Teignmouth Bay	F. ..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..

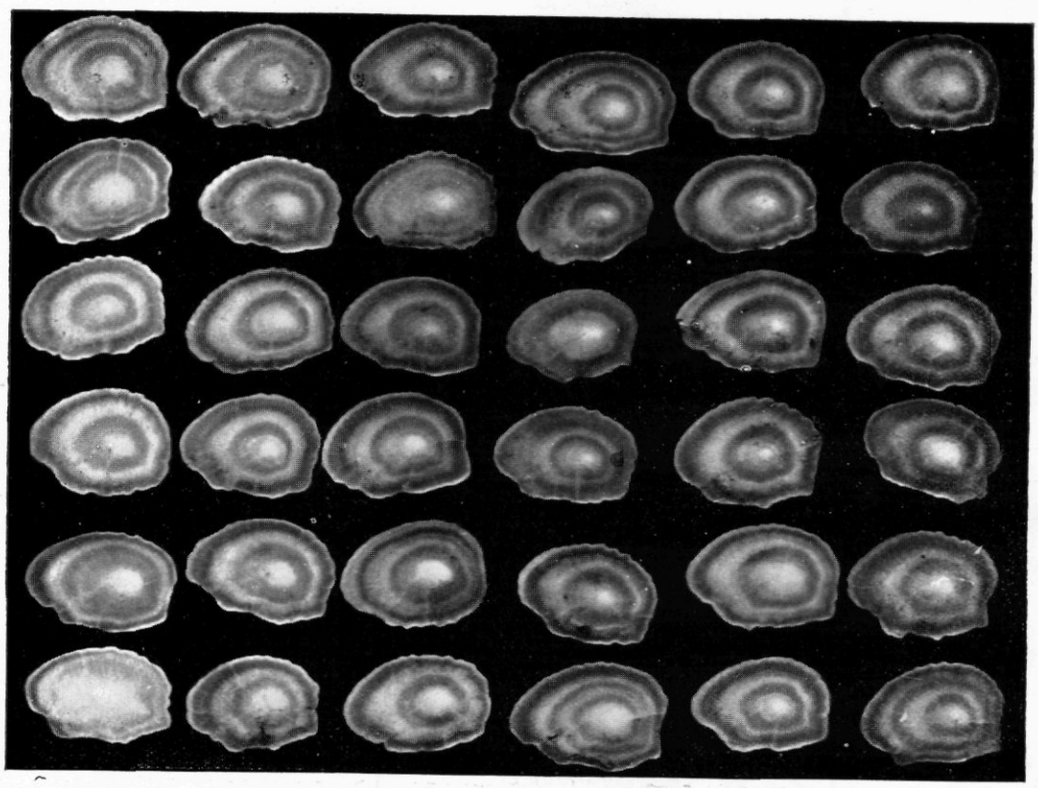


FIG. 1.

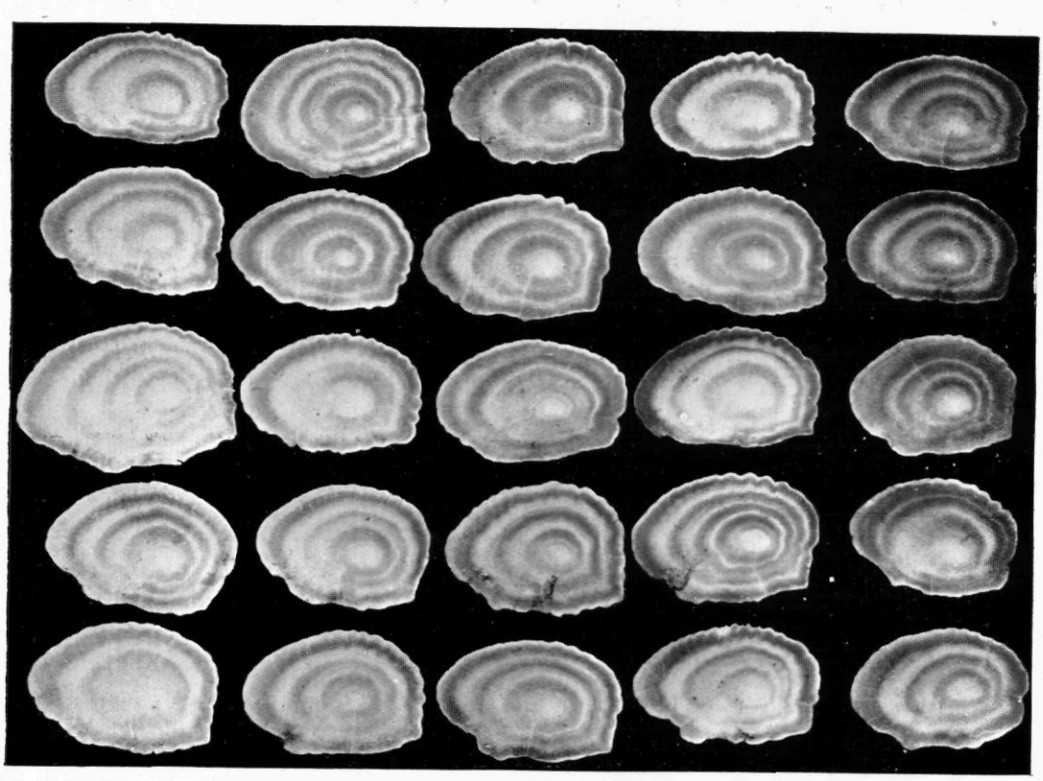
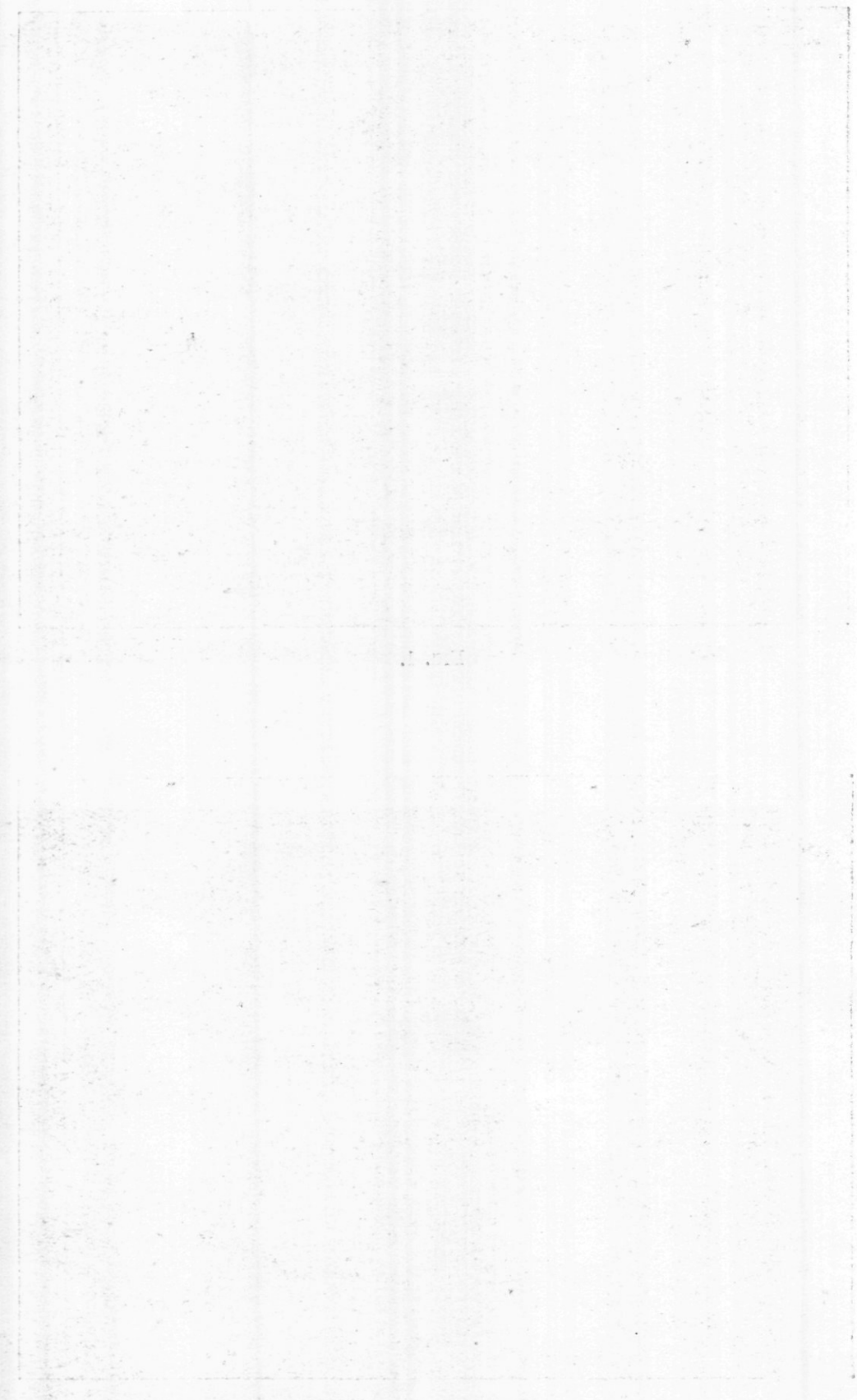


FIG. 2.

Wallace : Age and Growth Rate of Plaice. Photo. by R. A. Todd.



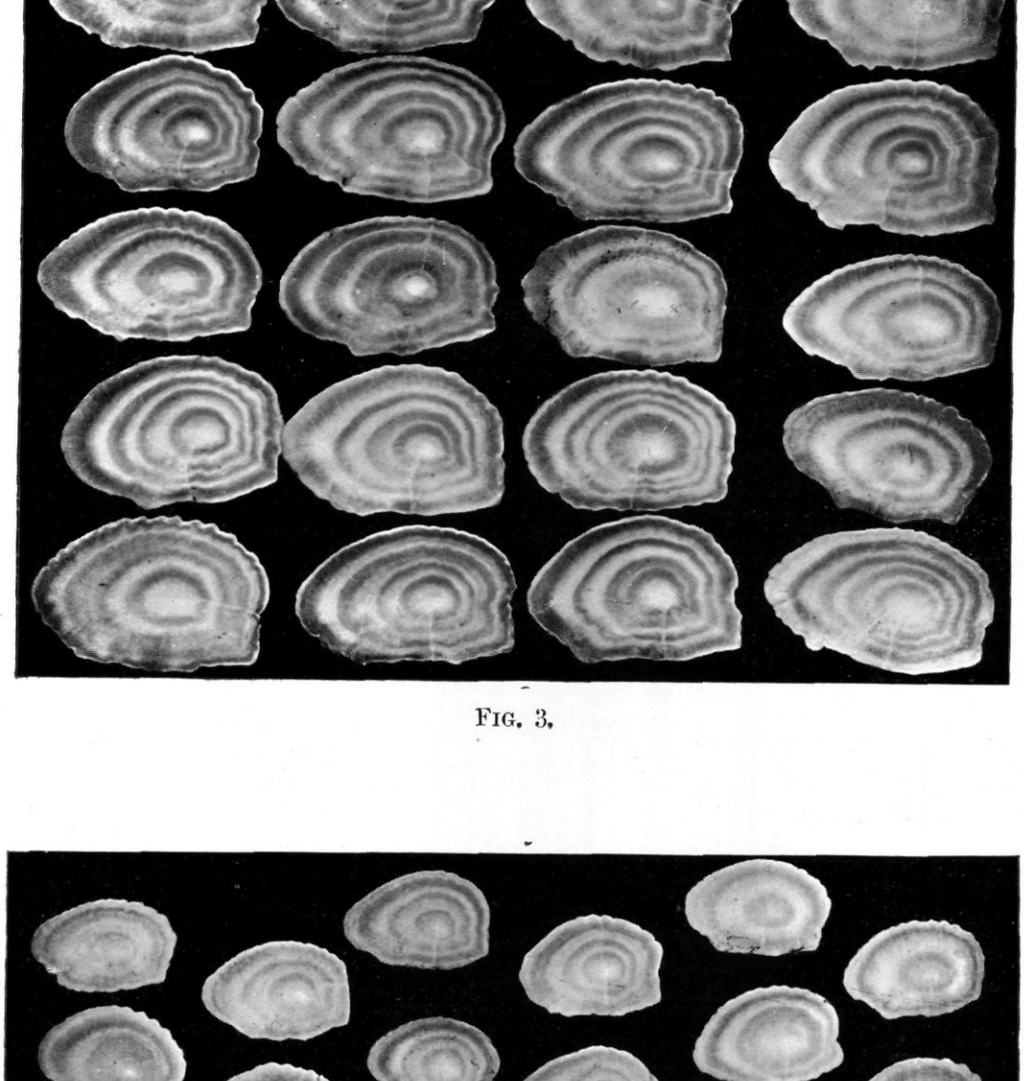


FIG. 3.

FIG. 4.

Wallace : Age and Growth Rate of Plaice. Photo. by R. A. Todd.

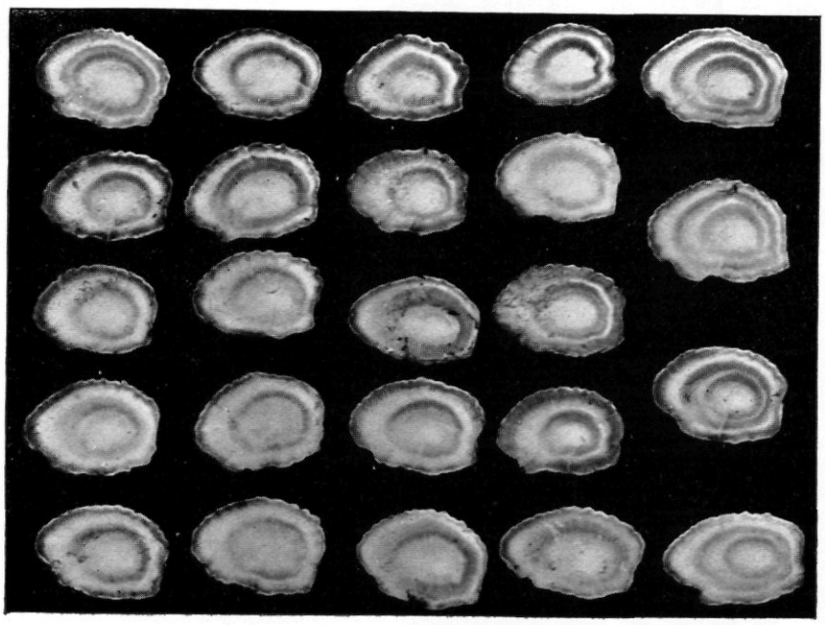


FIG. 5.

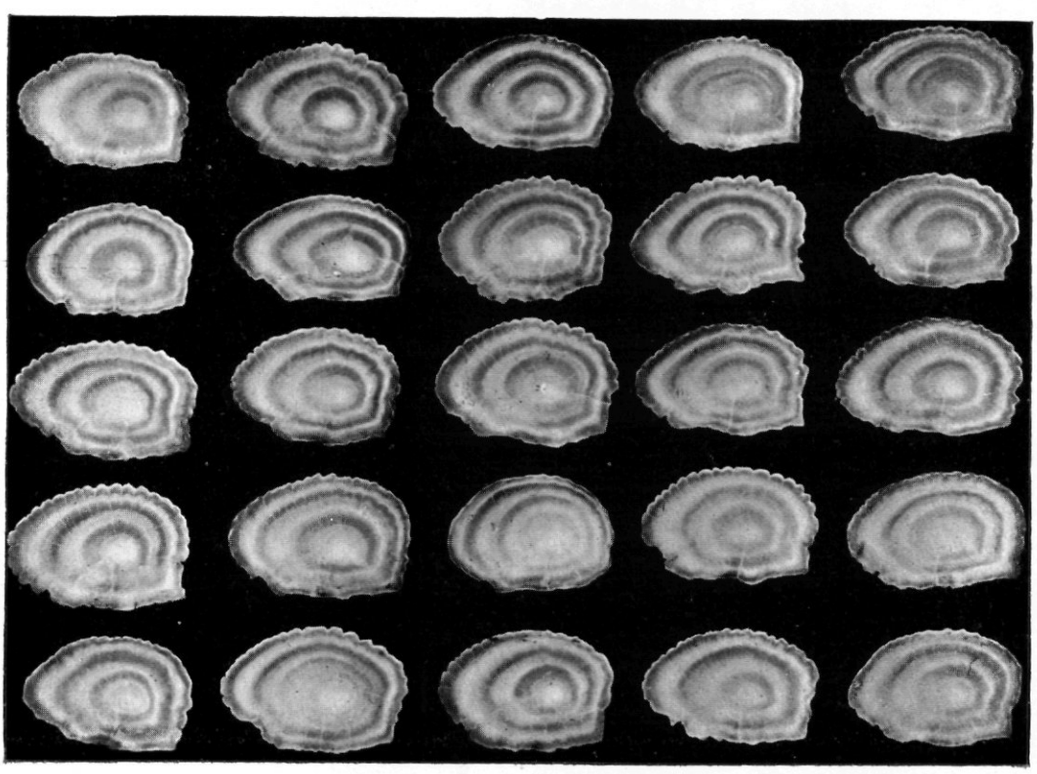


FIG. 6.

 Photo. by R. A. Todd.

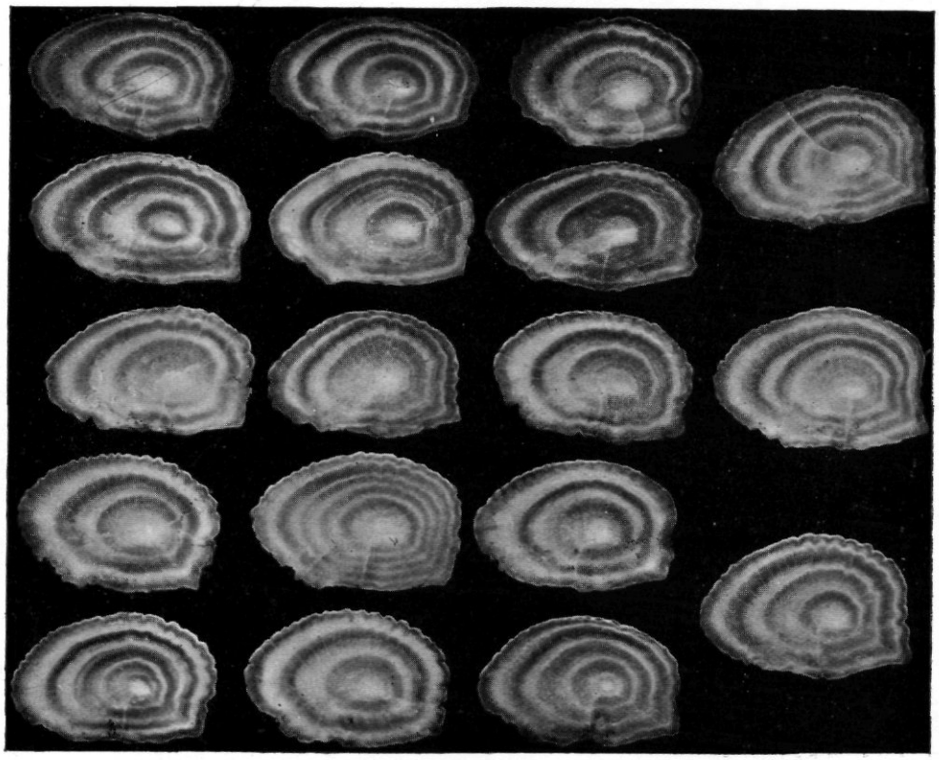


FIG. 7.

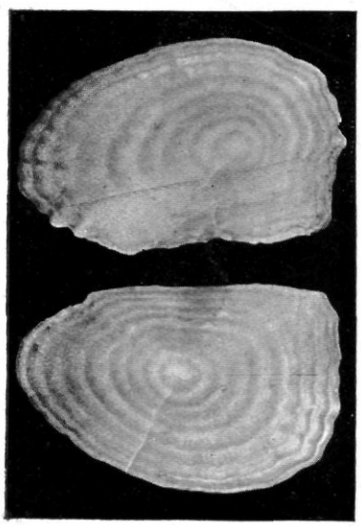


FIG. 8.

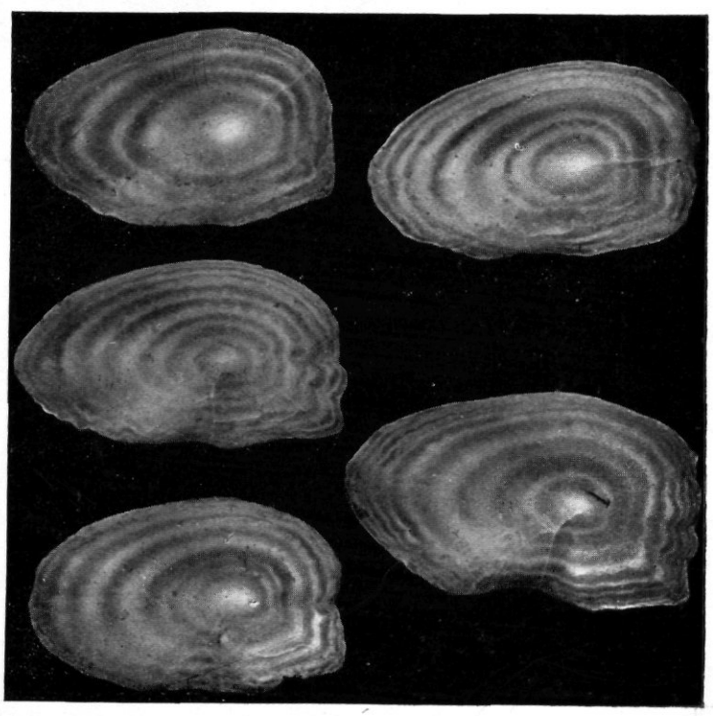
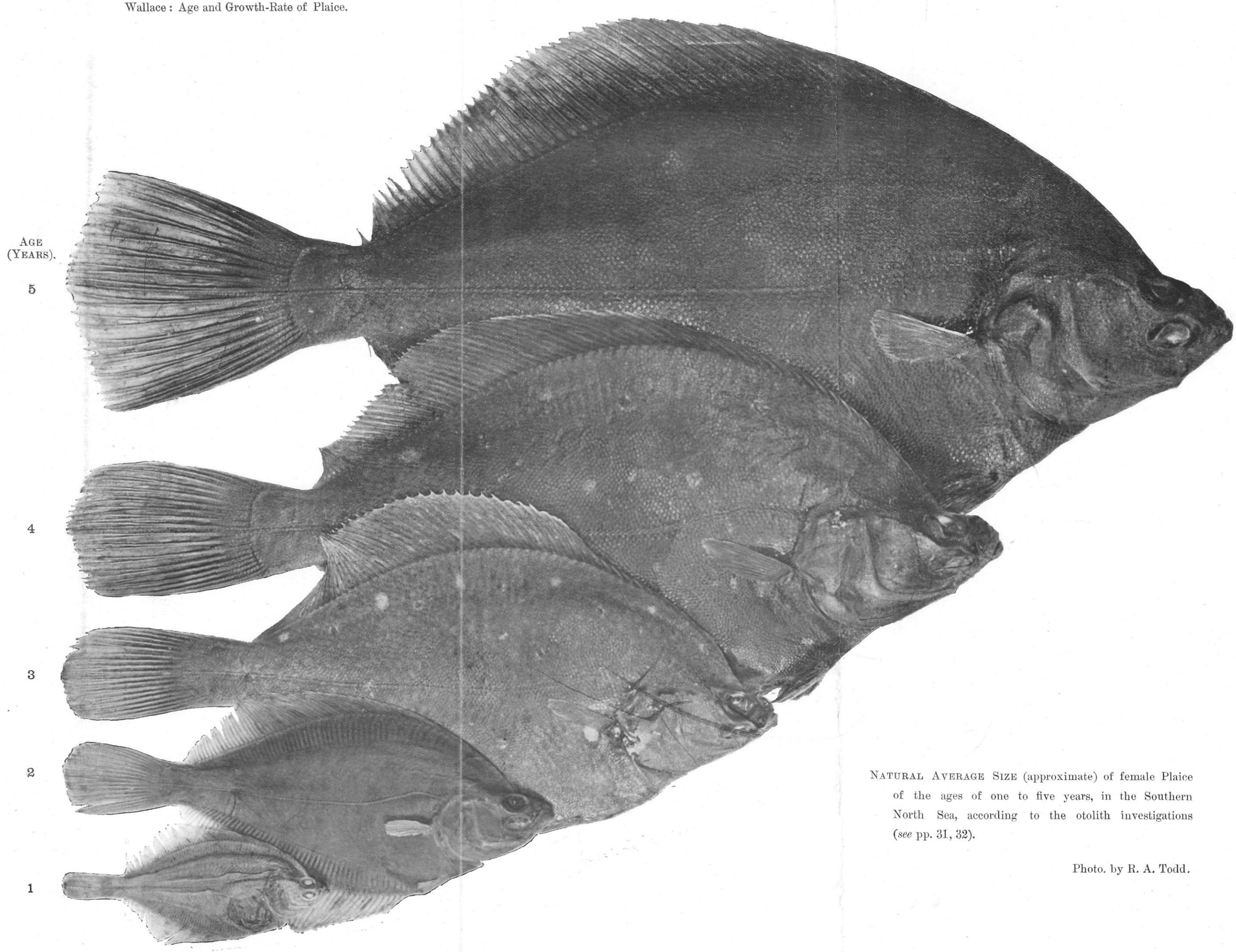


FIG. 9.



NATURAL AVERAGE SIZE (approximate) of female Plaice of the ages of one to five years, in the Southern North Sea, according to the otolith investigations (*see* pp. 31, 32).

Photo. by R. A. Todd.

SECOND REPORT

ON THE

FOOD OF FISHES (NORTH SEA, 1904-1905),

BY

R. A. TODD, B.Sc.,

Assistant Naturalist on the Staff.

WITH FIGURES 1–6 AND TABLES 1–63 IN THE TEXT, AND TABLES A–I AT THE END.

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SECOND REPORT

ON THE

FOOD OF FISHES (NORTH SEA, 1904–1905),

BY

R. A. TODD, B.Sc.,

Assistant Naturalist on the Staff.

I.—INTRODUCTION.

During 1904–5 the food of 6,190 fish belonging to 31 species was examined, making with those recorded in the first report a total of 9,826 specimens of 34 species. As before, the majority of the fish were gutted at sea, and the stomachs and intestines preserved in formalin for examination at the Laboratory, the sizes of the fish being noted in the majority of cases.

In each sample the general condition of the stomachs (*i.e.* empty, containing recognisable or unrecognisable food) was noted, and the number of stomachs containing each of the various food species was recorded together with the number of specimens present as far as possible.

The actual data on these points for each batch of stomachs are given in the detailed tables at the end, whilst in the text the general condition of the stomachs in a particular sample is given in percentages of the total examined, and the number of stomachs containing each organism as a percentage of those containing recognisable food, so that

$$\frac{\text{Number of specimens}}{\text{Number of stomachs}}\text{ (in the tables)} = \frac{\text{Number of specimens per 100}}{\text{Percentage of stomachs}}\text{ (in the text)}$$

= average number of specimens of a particular species or group present in the stomachs. In many instances, especially in the case of some Mollusca (*Tellina*, *Donax*, *Scrobicularia*, *Mactra*) the number of specimens present was estimated, as they were often too much broken to admit of actual counting.

In the case of the plaice, dab, cod and haddock an attempt has been made to show what are the principal changes which take place in the food of the fish as they increase in size, by combining the figures for the principal food groups, in each size group, from as many samples as possible irrespective of locality. These when plotted out, show in all, but particularly in the plaice, dab and cod, that the young as compared with the older fish have a marked predeliction for Crustacea, represented chiefly by Amphipods, Cumacea and Decapod larvæ. In the haddock the difference was not so marked, owing probably to the fact that the fish were divided into two groups only, viz., 15–30 cm. and 30 cm. +, whilst no fish of less than 15 cm. were examined; still in the smaller size group Crustacea were found in more stomachs than any other food-group, whilst in the larger fish they only came third in order of frequency (*see* pp. 66).

With regard to the competition for food between various fish, it seems probable that it is acute in the case of a few species only, viz., in Mollusca, *Solen ensis* and *S. siliqua* (between plaice, dabs and haddock), *Tellina fabula* (between plaice and haddock); in Crustacea, *Crangon Allmanni* (between whiting, cod and grey gurnard), *Eupagurus Bernhardus* (between dabs, whiting and cod), &c., &c. (*see* pp. 123).

Cessation of feeding in the winter months is apparent only in one or two flatfish, notably the plaice, in which species the number of empty stomachs observed during the winter months was 99 per cent. (November), 72 per cent. (December), 76 per cent. (January), 57 per cent. (February), whereas during the remainder of the year, March to October, the percentage of empty stomachs in each month never rose above 7 per cent.

In the flounder, owing to a paucity of records, the evidence is not conclusive, but all the stomachs but one of the fish examined in November and March (off Ymuiden and Egmont) were empty, whereas in April (off Covehithe) they were all full. In the sole also for the same reason, the evidence is not conclusive, although it points to a cessation of feeding in January-April. In the dab the cessation of feeding is not so marked as in the plaice and flounder, although the percentage of empty stomachs in November rises to 48 per cent., and in March to 21 per cent. In December and January, it was 0 and 7 per cent. respectively, whilst in February we have no observations.

As to the cause of this period of abstinence I am inclined to attribute it to the effects of the spawning period. In the plaice it certainly coincides with the time from when the fish are approaching ripeness to near the close of the spawning, *i.e.*, November to February inclusive, and is most marked on those grounds which are frequented by the fish for breeding purposes, *e.g.*, Sandettie (XLIV. 1, November; cf. Garstang, Cd. 2670, p. 96, and Wallace, this Volume, p. 30).

It appears to be characteristic of a spawning ground for plaice, in the spawning season, that the proportion of males to females caught should be markedly in excess of the normal (cf. 2nd Trawling Report: East Edge Deep Water, November, Stations XLIII. 1, 37 males, 13 females; XLIII. 5, 24 males, 15 females; Sandettie, November, XLIV. 1, 88 males, 10 females; XLIV. 3, 77 males, 7 females; Flamborough Off, January, XLVII. 2, 30 males, 10 females; XLVII, 3, 59 males, 16 females; XLVII. 4, 53 males, 23 females; XLVII. 5, 40 males, 15 females). Now, in samples from hauls XLVII. 26 (January), XLVIII. 2, 10 and 18 (February), and XXIII. 3 (December), the ratio $\frac{\text{number of males}}{\text{number of females}}$ was low and varied between 0·4 and 1·2 (average 0·9), whilst in the remaining winter samples XLVIII. 14, 18, 20 (February), XLVII. 2 and 5 (January) and XLIV. 1 (November) the ratio was high and varied from 1·4 to 8·8 (average 3·3). It is therefore interesting to note that in the first group the ratio $\frac{\text{number of empty stomachs}}{\text{number containing food}}$ was also low and varied between 0·1 and 1·3 (average 0·7), whilst in the second group it was high and varied between 2·7 and 37 : 0 (average 7·4). In other words, the greater the excess of males over females, the greater the proportion of empty stomachs.

It is difficult to realise the amount of destruction which can be wrought among molluscan and other fry by various fish. Several instances are given in the present report, *e.g.*, haddock and dabs eating *Solen* fry, plaice eating young *Mactra*, coal fish eating *Ammodytes* sp. juv., lesser weever eating *Megalopæ* (young crabs), &c. The most obvious instance, however, is not reported in the present report, as it was observed in April of the present year (1906). Four hundred and seventy-eight haddock were taken in a four-hour haul of the beam trawl in Clay Deep, and the food of 55 fish was examined. From the data thus obtained it was estimated the haddock caught in this haul had eaten no less than 1,210,000 *Mactra subtruncata* fry averaging 1·4 mm. in length. Taking the length of the haul as eight miles, and the length of the beam as 45 feet it will be seen that this is equivalent to about 20,000,000 *Mactra* fry destroyed by haddock per square sea mile, probably in one day, without taking into account the obvious fact that the beam trawl does not catch all the fish swimming over the ground which it covers.

As before, I am responsible for the identification of the majority of the food species, the exceptions being the Polychæta and a few Echinoderma, for the identification of which I am indebted to Dr. Allen and Mr. Borley respectively.

The nomenclature used throughout the present report is the same as in the first, *i.e.* :—

Pisces	Day, British Fishes.
Mollusca	Jeffreys, British Conchology.
Crustacea (in general) ...	Bell, British stalk-eyed Crustacea; and Sars, Crustacea of Norway.
Polychæta...	St. Joseph, Les Annélides Polychètes des Côtes de Dinard.
Echinoderma	Bell, Catalogue of British Echinoderms, British Museum.

II.—RESULTS OF THE EXAMINATION OF STOMACHS.

Father Lasher. (*Cottus scorpius.*)

Off Ymuiden. XXVIII. 24.* (B. 115.) March. 8–10 fathoms. f.s.

Twelve fish (70 per cent.) contained recognisable food. Pisces were found in 75 per cent. (92 specimens per 100 stomachs) consisting of *Clupea sprattus* 17 per cent. (33 per 100), *Gobius minutus* 8 per cent., and remains in 50 per cent.

Crustacea occurred in 58 per cent. (117 specimens per 100 stomachs) represented by *Crangon vulgaris* 50 per cent. (100 per 100), *Portunus holsatus* and *Eupagurus Bernhardus* each in 8 per cent.

Grey Gurnard. (*Trigla gurnardus.*)

One hundred and twenty eight stomachs from 10 stations were examined, of which 91 per cent. contained recognisable food, the remainder being empty. Crustacea formed the chief food in all but one sample being present in 93 per cent. of the total, and were represented principally by *Crangon* spp.; especially *C. Allmanni*. Pisces occurred in 15 per cent. and Mollusca in 1 per cent.

In the first report on Fish Food the percentages given were Crustacea 99 per cent., Pisces 5 per cent., Mollusca 7 per cent., and Nemertinea 1 per cent. for a total of 76 fish containing recognisable food. Together these give 192 fish containing recognisable food consisting of Crustacea in 95 per cent., Pisces 11 per cent., Mollusca 3 per cent., Nemertinea 0·5 per cent.

1. Hartlepool Ground. L. 9. (O. 281.) March. 14–25 fathoms. f.d.s.

Twelve fish (100 per cent.) contained recognisable food. They were feeding chiefly on Crustacea 67 per cent. (159 specimens per 100 stomachs) represented by *Crangon Allmanni* and *Nyctiphanes* each in 25 per cent. (50 per 100) and *Pandalus Montagui* in 17 per cent. (50 per 100.)

Pisces were present in 42 per cent. (58 per 100) represented by *Gadus merlangus* in 33 per cent. (50 per 100), and *Clupea* sp. in 8 per cent., whilst Mollusca were represented by *Sepiola atlantica* in 8 per cent. (50 per 100).

2. Whitby Ground. L. 17. (O. 285.) March. 35 fathoms. f.d.s.

Seven fish (58 per cent.) contained recognisable food, the remainder being empty. They were feeding chiefly on Pisces in 86 per cent. (114 per 100) represented by *Gadus merlangus* in 71 per cent. (100 per 100), and remains unidentified in 14 per cent. Crustacea were present in 43 per cent. represented by *Crangon* sp. and *Pandalus Montagui* each in 29 per cent.

3. Off Sutton (Lincolnshire). XL. 41. (B. 224.) October. 5–9 fathoms. s., g.l.

Fourteen fish (100 per cent.) contained recognisable food, which consisted entirely of Crustacea 100 per cent. (1,300 per 100) represented by *Crangon vulgaris* 57 per cent. (840 per 100), *Pandalus Montagui* 64 per cent. (364 per 100), and *Crangon Allmanni* 50 per cent. (93 per 100).

4. Leman Ground. XXVIII. 17. (B. 110.) March. 14–16 fathoms. f.s., f.d.s.

Six fish (100 per cent.) contained recognisable food, consisting solely of Crustacea, which were represented by *Crangon Allmanni* and a few *Pandalus Montagui*.

5. Leman Ground. XXVIII. 15. (B. 109.) March. 14–16 fathoms. f.s., f.d.s.

Three fish (100 per cent.) contained recognisable food, all Crustacea, represented by *Crangon Allmanni* in all (935 specimens per 100), and by *Crangon* sp. and *Pandalus Montagui* each in one.

* Note throughout: Voyages XXVI.–XLVI. were made in 1904 and XLVII.–LXVII. in 1905.

6. Off Haaks Light Vessel. XXX. 31. (B. 125.) April. 14–15 fathoms. f.s.

Twenty-seven fish (100 per cent.) contained recognisable food; all were feeding on Crustacea (378 per 100) represented by *Crangon Allmanni* in 89 per cent. (207 per 100), *Gastrosaccus spinifer* 37 per cent. (122 per 100), *Crangon trispinosus* 30 per cent. (37 per 100), and *Crangon vulgaris* 7 per cent. (11 per 100).

Pisces were present in 7 per cent. represented by *Ammodytes* sp. and unidentified remains each in 4 per cent.

7. Off East End of Great Silver Pit. LVI. 47. (O. 317.) June. 23–25 fathoms. s. & m., f.d.s.

Eleven fish (69 per cent.) of < 20 cm. contained recognisable food, the remainder being empty. Feeding exclusively on Crustacea, 100 per cent. (282 per 100), consisting of *Diastylis* sp. ? and *Ampelisca* sp. ? each in 36 per cent. (91 per 100), *Crangon bispinosus* 55 per cent. (73 per 100), and *Pandalus Montagui*, *Iphimedia* sp., and Mysidæ each in 9 per cent. (9 per 100).

8. Lower Scruff. XXIX. 10. (O. 175.) March. 24 fathoms. f.s.

Three fish were examined, of which one only contained food consisting of 3 *Portunus holsatus*.

9. Horn Reef Outer. XXXI. 16. (B. 136.) May. 26–27 fathoms. f.s. & m.

Twenty-six fish (100 per cent.) contained recognisable food, almost exclusively Crustacea represented solely by *Crangon Allmanni* 100 per cent. (231 per 100). The only other food present was *Pleuronectes limanda* in 4 per cent.

10. S.E. of Vyl Light Vessel. XXXI. 10. (B. 133.) May. 11 fathoms. f.s.

Nine fish (100 per cent.) contained recognisable food, chiefly Crustacea 100 per cent. (621 per 100) represented by *Crangon Allmanni* 100 per cent. (466 per 100), and *Gastrosaccus spinifer* and *Ampelisca* sp. each in 22 per cent. (78 per 100).

Pisces occurred in 44 per cent. represented by *Gobius minutus* 22 per cent. *Pleuronectes* sp. 11 per cent., and remains unidentified in 22 per cent.

Latchet. (*Trigla hirundo.*)

1. Winterton Shoal. XXXVII. 13. (B. 175.) August. 19–20 fathoms. g.br.s.

The only fish examined contained 17 *Ammodytes* sp. ?.

2. West of Middle Ground. LIV. 2. (O. 298.) April. 23–24 fathoms. g.br.s., gs.

A single *Callionymus lyra* constituted the food of the only fish examined

Red Gurnard. (*Trigla cuculus.*)

1. Knoll Deep. XXXVI. 53. (B. 167.) August. 21–23 fathoms. d.s., m. & s.

Eleven fish (100 per cent.) contained recognisable food, chiefly Crustacea 100 per cent. (236 per 100) consisting of *Crangon Allmanni* 82 per cent. (127 per 100), *Portunus holsatus* 27 per cent. (27 per 100), and *Gastrosaccus spinifer* 27 per cent. (82 per 100).

Pisces were present in 45 per cent., represented by *Ammodytes* sp. in 36 per cent. (64 per 100), and unidentified remains in 9 per cent.

Monk or Angler. (*Lophius piscatorius.*)

Twenty fish from eight stations were examined, of which 10 were empty and 10 contained recognisable food.

The food consisted of Pisces in all, with Echinoderma and Coelentera each in one.

1. Off Farn Island. LXV. 1. (O. 353.) October. 44–48 fathoms. m.

Eight fish examined, of which 6 were empty and 2 contained recognisable food, which consisted of two *Gadus æglefinus* in one and a Gadoid in the other.

2. Hartlepool. LIX. 56. (O. 339.) July. 23–24 fathoms. c.s., s. & m.

One fish of 61 cm. contained a *Gadus æglefinus* of 16 cm., a *G. merlangus* of 23 cm., and a piece of *Alcyonium digitatum*.

3. Bridlington Bay. LVI. 9. (O. 302.) May. 5–6 fathoms. f.d.s.

Two fish only were examined. One contained fish-remains, whilst the other was empty.

4. Lynn Deep. LVII. 21. (B. 324.) June. 9–16 fathoms. s. & m., c.s. & m.

The only fish examined contained fish-remains.

5. N.W. of Sandettie Light Vessel. XLIV. 3. (B. 248.) November. 21 fathoms. c.s.

One fish of 87 cm. contained 13 *Clupea harengus*.

6. Between Brown Ridges and Winterton Twenties. LVIII. 24. (B. 339.) June. 15–17 fathoms. f.g.s.

One fish of 60 cm. contained one *Gadus merlangus* and four *Trachinus vipera*.

7. W.N.W. of Brucey's Garden. LIX. 51. (O. 338.) July. 41–46 fathoms. f.s. & m.

Four fish were examined, of which three were empty, the remaining one (99 cm.) containing two *Gadus morrhua* (45 and 50 cm.), three *Gadus æglefinus* (21, 22, and 30 cm.), and fish-remains.

8. North of N.W. Part of Dogger. LIX. 44. (O. 336.) July. 36–43 fathoms. f.s. & m.

Two fish were examined. One contained a *Gadus æglefinus* (22 cm.) and a *Spatangus purpureus*, the other contained a *Raia radiata* (24 cm.) and fish-remains.

Greater Weever. (*Trachinus draco*.)

1. East of Swarte Bank. XXXV. 12. (O. 217.) July. 12–15 fathoms. f.g.s.

Six fish (46 per cent.) contained recognisable food

Feeding chiefly on Pisces, which occurred in five, consisting of *Ammodytes* sp. in two, *Solea lutea* in one, and remains in two.

Crustacea, the only other group represented, were present in two.

2. South of Brown Ridges. XLIII. 1. (B. 244.) November. 15–18 fathoms. f.d.s.

Twenty-seven fish (96 per cent.) were empty; the remaining one contained fish-remains.

Lesser Weever. (*Trachinus vipera*.)

1. N.N.E. of the South-West Patch of the Dogger. LIX. 12. (B. 344.) June. 14–15 fathoms. f.g.s. & sh.

Three fish were examined. They were feeding chiefly on Crustacea, represented by Megalopæ in all (one contained 130) and Amphipoda in two.

Polychæta, fish larvæ, and fish eggs each occurred in one only.

Lumpfish. (*Cyclopterus lumpus.*)

1. N.E. of the South-West Patch of the Dogger. XXIX. 7. (O. 172.) March. 9–11 fathoms. f.s.

The stomach of the only fish examined, a large nearly-ripe female, was distended with water and contained many fresh and semi-digested *Pleurobracheus pileus.*

Cat-Fish. (*Anarrhichas lupus.*)

Nine fish were examined, all containing recognisable food.

Mollusca and Crustacea each occurred in eight, and Polychæta and Echinoderma each in one.

These records combined with those in the first report give the following results for the 15 fish examined, viz.—Mollusca in 93 per cent., Crustacea in 93 per cent., Echinoderma 33 per cent. and Polychæta 13 per cent.

1. Hartlepool. LIX. 56. (O. 339). July. 23–24 fathoms. c.s., s. & m.

Two fish were examined, of 62 and 66 cm. respectively. Both contained many *Pecten opercularis* and several *Hyas coarctatus*, and in addition one contained a mass of *Ophiothrix fragilis* remains.

2. W.N.W. of Brucey's Garden. LIX 51. (O. 338). July. 41–46 fathoms. f.s. & m.

Five fish were examined. All were feeding chiefly on *Pecten opercularis* whilst three also contained *Eupagurus Bernhardus*, and one contained *Buccinum* and *Lithodes maia.*

3. Brucey's Garden. LIX. 40. (O. 334). July. 32 fathoms. f.s. & m.

One fish of 88 cm. contained four *Eupagurus Bernhardus* and one *Aphrodite aculeata.*

4. North of the Dogger Bank. LIX. 21. (O. 326). June. 38–40 fathoms. f.s. & m.

One fish of 97 cm. contained many *Eupagurus Bernhardus* and a few *Pecten opercularis.*

Cod. (*Gadus morrhua.*)

Four hundred and forty-three stomachs from 33 stations have been examined. Of these 402 (91 per cent.) contained recognisable food, whilst nine per cent. were empty.

The food consisted of Crustacea in 80 per cent., Pisces in 36 per cent., Polychæta in 13 per cent., Mollusca in 8 per cent., and Echinoderma and Gephyrea each in less than one per cent.

Including those recorded in the first report, 664 cod have been examined from 43 stations. Of these 614 contained recognisable food consisting of Crustacea in 83 per cent., Pisces in 35 per cent., Polychæta in 16 per cent., Mollusca in 9 per cent., Echinoderma and Gephyrea in less than 0·5 per cent.

In examining the stomachs included in the present report, note has been taken of the range of size of the fish from which they were obtained. The majority of the samples fall more or less into the following size groups, viz., <15 cm., 15–30 cm., 30–60 cm. and 60 cm. +.

The following table shows for each size group (i) the number of stomachs containing recognisable food, and (ii) the percentage of stomachs containing the four principal food groups.

TABLE I. Cod.

Size Groups.	<15 cm.	15-30 cm.	30-60 cm.	60 cm.+
Number of stomachs	24	122	113	85
	%	%	%	%
Pisces	0	11	52	67
Mollusca...	0	2	16	4
Crustacea	100	95	67	63
Polychæta	0	9	9	26

The following curves show the above table in a graphic form.

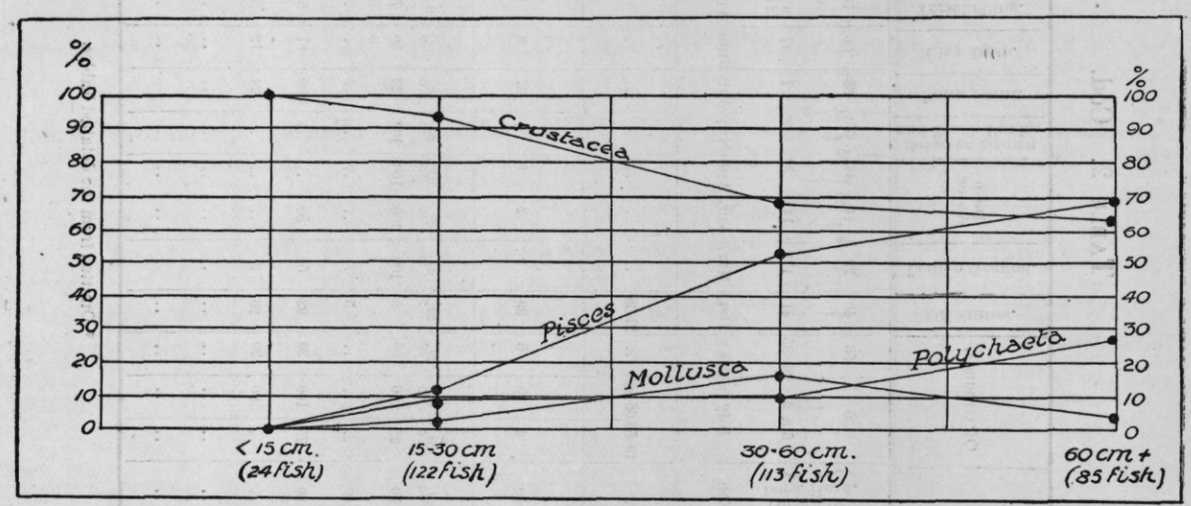

FIG. 1. COD. Change in food with increase in size.

It will be noticed that the cod of less than 15 cm. were feeding wholly on Crustacea, which also formed the chief food of the fish up to 60 cm. long, but in percentages decreasing with size.

Pisces were absent from the fish of the smallest size group, but were found in the other size groups in increasing quantities, until in the fish exceeding 60 cm. in length they were present in a larger percentage than Crustacea.

Mollusca and Polychæta were both absent from the fish of less than 15 c.m., but showed a rise in the other size groups, especially Polychæta, which were represented principally by *Aphrodite aculeata*. The slight rise in Mollusca, in the 30–60 cm. group, was due chiefly to the fish from XXIX, 8, of which 13 out of 14 had been feeding on *Buccinum*, *Mactra* and *Natica*.

For details, *see* Table A., of which the following is a summary :—

TABLE 2. Cod.

Region.	Off Farn Island.	Off Hartlepool.							Whitby.		Off Grounds.			Off Sutton.	Leman Ground.	Deep Water.		Between Brown and Black Banks.	Botney Gut.	Clay Deep.	Terschelling.	Sylt Outer.	Lower Scruff.		N. of Dogger.	Bruce's Garden.		Dogger Bank.								
Voyage	65	50	50	50	50	50	50		50	Off Flamboro. Head.	35		56	40	28	44	44	55	35	56	30	31	29		59	59	59	59		56		28	29	28	28	28	41	41
Station	1	8	6	7	5	4	9		13, 16 & 17.		5 & 6		33-35	41	17*	14*	3*	5*	7	47	19 & 24	20	10		17*	43*	40*	1		40		11*	8	7	10*	5*	20	19
Month	Oct	Mar.	Mar.	Mar.	Mar.	Mar.	Mar.		Mar.	Feb.	July		May	Oct.	Mar.	Apr.	Apr.	May	July	June	Apr.	May	Mar.		June	July	July	June		May		Mar.	Mar.	Mar.	Mar.	Mar.	Oct.	Oct.
Size of fish (cm.) ..	74+	29-63	7-12	8-10	9-11	9-10	<50	50+	..	..	19-53	65-80	..	21-26	..	..	..	..	..	..	..	74+	<62	62+	80	109	92	20+	30+	<32	45+	..	..	..	..	..	..	..
Stomachs containing recognisable food.	4	4	11	4	6	3	21	19	31	10	4	5	5	39	2	2	1	1	37	8	9	3	11	7	1	1	1	58	29	20	3	1	14	5	1	1	sev.	20
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Pisces	75	100	..	..	..	..	38	68	52	30	25	40	100	5	100	100	100	100	22	50	78	100	45	86	100	100	..	12	41	20	67	100	29	40	100	100	100	75
Mollusca	..	..	..	..	..	..	..	..	3	80	..	..	..	3	..	..	..	..	5	..	..	..	9	29	..	..	..	..	10	5	..	..	93	..	100	..	..	..
Crustacea	75	75	100	100	100	100	67	79	52	80	75	100	20	92	50	50	..	..	100	87	55	67	55	43	100	100	100	97	86	95	67	100	86	60	..	100	..	50
Polychæta	50	..	..	..	..	..	..	..	39	..	..	80	20	26	..	..	..	..	24	12	33	..	36	14	100	..	..	2	..	..	..	..	21	60	..	..	..	..
Echinoderma	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gephyrea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..	..	..

* Omitted from the detailed Tables.

1. Off Farn Island. LXV. 1. (O. 353.) October. 41–48 fathoms. m.

Four fish (80 per cent.) of 74 cm.+ contained recognisable food.

Three were feeding on Pisces represented by 9 Gadoids (*Gadus æglefinus*, *G. merlangus*, and *G. Esmarckii*) ; three on Crustacea, represented by 11 specimens of five species ; and two were feeding on Polychæta, represented by *Aphrodite aculeata*.

2. Off Hartlepool. L. 8. (B. 294.) March. 5–10 fathoms. c.s., f.s.

Four fish (80 per cent.) of 29–63 cm. contained recognisable food.

Pisces occurred in all, viz., five *Gadus merlangus* in three and four *Clupea harengus* in two.

Crustacea occurred in three, represented by four species.

3. Off Hartlepool. L. 6. (S.T. 406.) March. 4–5 fathoms. f.s.

Eleven fish (100 per cent.) of 7–12 cm. contained recognisable food.

Crustacea constituted the sole food in all (472 per 100), the principal representatives being *Paratylus Swammerdami* 91 per cent. (400 per 100).

4. Off Hartlepool. L. 7. (S.T. 408.) March. 5–8 fathoms. f.s.

Four fish (100 per cent.) of 8–10 cm. contained recognisable food.

All feeding on Crustacea (475 per 100), *Paratylus Swammerdami* in two stomachs (225 per 100) being the commonest species.

5. Off Hartlepool. L. 5. (S.T. 405.) March. 5–7 fathoms. f.s.

Six fish (100 per cent.) of 9–11 cm. contained recognisable food, exclusively Crustacea 100 per cent. (930 per 100), consisting chiefly of *Paratylus Swammerdami* 100 per cent. (832 per 100).

6. South of Mouth of the Tees. L. 4. (S.T. 404.) March. 5–6 fathoms. f.s.

Three fish (100 per cent.) of 9–10 cm. contained recognisable food, exclusively Crustacea 100 per cent. (600 per 100), chiefly *Paratylus Swammerdami* 67 per cent. (533 per 100).

7. Hartlepool Ground. L. 9. (O. 281.) March. 14–25 fathoms. f.d.s.

Forty fish (95 per cent.) divided into two groups, *i.e.*, < 50 cm. (21 fish) and 50 cm.+ (19 fish) contained recognisable food.

The following Table shows for each size group (i.) the percentage of stomachs containing the various food groups, and the dominant species, and (ii.) the total number of specimens found per 100 stomachs :—

Table 3. Cod.

Size in cm.	<50.		50+.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Crustacea	67	143	79	215	72	177
Crangon Allmanni	24	24	21	37	22	30
Pandalus Montagui... ...	33	52	...	...	17	27
„ *brevirostris* ...	10	14	21	32	15	22
Portunus pusillus	5	5	32	47	17	25
Eupagurus Bernhardus ...	14	14	16	16	15	15
Pisces	38	43	68	174	52	105
Gadus merlangus	19	24	21	53	20	37
Clupea sp.	10	10	16	32	12	20
Echinoderma...	...	...	5	5	2	2

The smaller fish were feeding chiefly on a varied assortment of Crustacea with a few Pisces whilst the larger were feeding more or less equally on both.

8. Whitby Ground. L. 13, 16 and 17. (O. 283, 284, and 285). March. 34–35 fathoms. f.d.s.

Thirty-one fish (58 per cent.) contained recognisable food, the remainder being empty.

Feeding on Pisces 52 per cent. (71 per 100) chiefly *Pleuronectes limanda* 29 per cent (35 per 100), Crustacea 52 per cent. (74 per 100), represented by five species in from 6 per cent. to 23 per cent., and Polychæta 39 per cent. (68 per 100), represented solely by *Aphrodite aculeata*. Mollusca occurred in 3 per cent. only.

9. Off Flamboro' Head. February.

A sample of 10 cod caught off Flamboro' Head by lines all contained recognisable food.

Mollusca occurred in 80 per cent. (540 per 100) represented by feet of *Buccinum undatum* in 80 per cent. (530 per 100). Crustacea occurred in 80 per cent. (330 per 100), represented by seven species, chief amongst which was *Hyas coarctatus* 60 per cent. (120 per 100). Pisces were present in 30 per cent. and Echinoderma in 10 per cent.

10. Flamboro' Off Grounds. XXXV. 5 and 6. (O. 215. B. 156). July. 30–35 fathoms. f.d.s. & m.

Nine fish (82 per cent.) contained recognisable food.

Crustacea occurred in 89 per cent., represented chiefly by *Corystes* and *Eupagurus Bernhardus* in 33 per cent. and 22 per cent. respectively. Polychæta (*Aphrodite*) were present in 45 per cent. and Pisces in 33 per cent.

11. Flamboro' Off Grounds. LVI. 33–35. (B. 317, 318. O. 312). May. 25–27 fathoms. c.d.s., f.d.s.

Five fish (100 per cent.) contained recognisable food, chiefly Pisces, 100 per cent. (1080 per 100) represented almost entirely by *Ammodytes* sp. 100 per cent (940 per 100). Crustacea and Polychæta occurred in 20 per cent. only.

12. Off Sutton, Lincolnshire. XL. 41. (B. 224). October. 5–9 fathoms. s. & gl.

Thirty-nine fish (97 per cent.) of 21–26 cm. contained recognisable food, almost entirely Crustacea, 92 per cent. (236 per 100) consisting chiefly of *Pandalus Montagui* 64 per cent. (123 per 100), *Eupagurus Bernhardus* 41 per cent. (49 per 100), and *Portunus holsatus* 18 per cent. (26 per 100).

Polychæta remains occurred in 26 per cent., Pisces in 5 per cent. and Mollusca in 3 per cent.

13. Leman Ground. XXVIII. 17. (B. 110.) March. 14–16 fathoms. f.s., f.d.s.

Two fish were examined.†

Both were feeding principally on Pisces, consisting of *Pleuronectes limanda* in both. *Callionymus lyra* in one, and *Clupea harengus* in one (13 fish 21–23 cm. long). Crustacea occurred in one only.

14. Edge of Deep Water. XLIV. 14. (B. 251.) April. 19 fathoms. s.m. & gl.

Two fish were examined,† the smallest measuring 62 cm. in length.

Both were feeding on Pisces (*Ammodytes* sp. and *Clupea* sp.) whilst Crustacea occurred in one.

15. West of Middle Ground. LIV. 3. (O. 299.) April. 20–21 fathoms. g.br.s. & sh.

One fish examined, 109 cm. in length.†

It contained one *Pleuronectes platessa*, one *Pleuronectes* sp. ? one *P. limanda* and one *Solea lutea*.

† Omitted from the detailed tables.

16. Between Brown and Black Banks. LV. 5. May. 13–15 fathoms. f.d.s.

One fish of 102 cm. contained five *Pleuronectes limanda* and one *Gadus merlangus*.†

17. Botney Gut. XXXV. 7. (O. 216.) July. 31–32 fathoms. m.

Thirty-seven fish (95 per cent.) contained recognisable food, chiefly Crustacea 100 per cent. (354 per 100) represented in 89 per cent. by *Nephrops norvegicus* (276 per 100).

Pisces occurred in 22 per cent. (46 per 100). Polychæta (*Aphrodite aculeata*) in 24 per cent. (46 per 100) and Mollusca in 5 per cent. (11 per 100).

18. Off East End of Great Silver Pit. LVI. 47. (O. 317.) June. 23–25 fathoms. s. & m., f.d.s.

Eight fish (73 per cent.) contained recognisable food, chiefly Crustacea, 87 per cent. (338 per 100) represented by *Portunus holsatus* 75 per cent. (87 per 100). *Corystes cassivelaunus* 37 per cent. (212 per 100), &c. Pisces occurred in 50 per cent. (62 per 100), and Polychæta in 12 per cent.

19. North West of Terschelling. XXX. 19 & 24. (O. 186, 187). April. 19–21 fathoms. m., s. & m.

Nine fish (100 per cent.) contained recognisable food, the chief of which consisted of Pisces 78 per cent. (111 per 100), represented in 44 per cent. by *Gadus merlangus* (44 per 100). Crustacea occurred in 56 per cent. (145 per 100), *Eupagurus Bernhardus* 56 per cent. (67 per 100) being the commonest species. Polychæta (*Aphrodite*) were present in 33 per cent. (44 per 100).

20. Sylt Outer. XXXI. 20. (B. 139). May. 10–11 fathoms. f.s.

Three fish (100 per cent.) of 74 cm. + contained recognisable food.

Pisces, represented by *Ammodytes* sp. and *Solea lutea*, occurred in all, whilst Crustacea occurred in two, represented by *Corystes cassivelaunus* in both, and *Crangon* in one.

21. Lower Scruff. XXIX. 10. (O. 175). March. 24 fathoms. f.s.

Eighteen fish (95 per cent.) contained recognisable food. They were divided into two size groups, viz. : <62 cm. (11 fish) and 62 cm. + (seven fish).

Table showing for each size group (i) the percentage of stomachs containing the various food groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 4. Cod.

Size in cm.	<62		62+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Pisces	45	63	86	114	61	83
Pleuronectes sp.	9	27	28	43	17	33
Gadus sp.	9	9	28	28	17	17
Crustacea	55	55	43	43	50	50
Eupagurus Bernhardus ...	27	27	43	43	33	33
Polychæta (*Aphrodite*) ...	36	63	14	57	28	61
Mollusca (*Buccinum*) ...	9	9	28	28	17	17

Thus the smaller fish were feeding about equally on Pisces, Crustacea and Polychæta, whilst the larger fish were feeding chiefly on Pisces.

22. North of the Dogger. LIX. 17. (O. 325.) June. 44 fathoms. s. & m.

The only fish examined † (of 80 cm.) contained single specimens of *Lumpenus lampetriformis*, *Pleuronectes limanda*, and *Crangon* sp., and two *Aphrodite aculeata*.

23. Brucey's Garden. LIX. 43. (O. 335.) July. 32 fathoms. f.s. & m.

One fish of 109 cm.† contained *Callionymus lyra* (1), *Gadus æglefinus* (1), *Pleuronectes limanda* (1), *Drepanopsetta limandoides* (2), *Portunus holsatus* (13), and *Eupagurus Bernhardus* (1).

24. Brucey's Garden. LIX. 40. (O. 334.) July. 32 fathoms. f.s. & m.

One cod of 92 cm.† contained three *Portunus holsatus*, and two *Corystes cassivelaunus*.

25. Dogger Bank—North of the South-West Patch. LIX. 1. (O. 318.) June. 9–15 fathoms. f.s., f.s. & sh.

Eighty-seven fish (95 per cent.) divided into two groups, viz., 20–30 cm. (58 fish), and 30 cm. + (29 fish), contained recognisable food.

Table showing for each size group (i) the percentage of stomach containing the various food groups, and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 5. Cod.

Size in cm.	20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Crustacea	96	169	86	155	93	164
Eupagurus Bernhardus ...	81	88	59	73	74	83
Portunus pusillus	28	67	28	55	28	63
Pisces	12	19	41	48	22	29
Ammodytes	7	9	41	48	18	22
Mollusca	—	—	10	10	3	3
Polychæta	2	2	—	—	1	1
Gephyrea	2	2	3	—	2	2

Thus the smaller fish were feeding chiefly on Crustacea, and the larger fish, whilst still feeding principally on that group, were feeding to a larger extent on Pisces compared with the 20–30 cm. fish.

26. Dogger Bank—North of the South-west Patch. LVI. 40. (O. 314.) May. 10–14 fathoms. f.g.s. & sh.

Twenty-three fish (100 per cent.) contained recognisable food.

Feeding chiefly on Crustacea 91 per cent. (200 + per 100), represented principally by *Eupagurus Bernhardus* 74 per cent. (78 per 100). *Portunus pusillus* 22 per cent. (87 per 100). Pisces occurred in 26 per cent. (48 per 100). *Ammodytes* sp. 13 per cent. (30 per 100), being the commonest species. Mollusca occurred in 4 per cent.

27. Dogger Bank—East of South-west Patch. XXVIII. 11. (O. 164.) March. 10–13 fathoms. f.s.

The only fish examined contained fish remains and *Crangon Allmanni*.†

28. Dogger Bank—N.E. of South-west Patch. XXIX. 8. (O. 173.)
March. 11–14 fathoms. f.s. & sh.

Fourteen fish (100 per cent.) contained recognisable food.

This was chiefly Mollusca 93 per cent. (985 per 100) consisting principally of *Mactra* sp. 57 per cent. (580 per 100) and *Buccinum undatum* 50 per cent. (335 per 100). Crustacea were present in 86 per cent. (193 per 100) represented by *Eupagurus Bernhardus* 78 per cent. (122 per 100), and *Portunus holsatus* 43 per cent. (57 per 100). Pisces occurred in 29 per cent. (36 per 100), and Polychæta (*Phyllodoce grœnlandica*) in 21 per cent. (21 per 100).

29. Dogger Bank—East of South-west Patch. XXVIII. 7. (O. 161.)
March. 9–11 fathoms. f.s. & sh.

Five fish (100 per cent.) contained recognisable food.

Crustacea and Polychaeta each occurred in three, and Pisces in two.

30. Dogger Bank—East of South-west Patch. XXVIII. 10. (O. 163.)
March. 12–15 fathoms. f.s.

One fish contained fish remains and *Buccinum*, whilst the other was empty.†

31. Dogger Bank—East Part of South-west Patch. XXVIII. 5. (O. 160.)
March. 9–13 fathoms. f.s.

One cod of 83 cm. contained three *Solea lutea*, four *Eupagurus Bernhardus*, and one *Portunus holsatus*.†

32. Dogger Bank—South of South-west Patch. XLI. 20. (O. 249.)
October. 17–18 fathoms. s. & gl., g.s.

Several fish examined, all feeding chiefly on herring spawn.

33. Dogger Bank—South of South-west Patch. XLI. 19. (O. 248.)
October. 17–18 fathoms. g.s. & sh., s. & gl.

Twenty fish (100 per cent.) contained recognisable food.

Pisces formed the chief food, occurring in 75 per cent., and represented in 60 per cent. by Herring spawn.

Crustacea occurred in 50 per cent. (140 per 100) represented chiefly by *Portunus holsatus*, 30 per cent. (95 per 100), and *Eupagurus Bernhardus*, 25 per cent. (30 per 100).

Haddock. (*Gadus æglefinus.*)

Six hundred and thirty-four stomachs from 24 stations have been examined. Of these, 628 contained recognisable food, whilst the contents of six were unrecognisable.

The food consisted of Mollusca in 62 per cent., Crustacea in 54 per cent., Polychæta in 39 per cent., Echinoderma in 37 per cent., Pisces in 13 per cent., Coelentera in one per cent., with Nemertinea and Gephyrea each in less than 0·5 per cent.

Including those recorded in the first report a total of 1,766 have been examined, 1,738 of which contained recognisable food, consisting of Mollusca in 64 per cent., Polychæta in 49 per cent., Echinoderma in 44 per cent., Crustacea in 36 per cent., Pisces in 5 per cent., whilst Tunicata, Nemertinea, Gephyrea, and Coelentera were present in less than 0·5 per cent.

Of the 634 haddock stomachs recorded in the present report 204 were from fish of less and 362 from fish greater than 30 cm., whilst the length of the remaining 68 was not recorded.

The following table shows the percentage of fish above and below 30 cm. which had been feeding on the various food groups taking those hauls only from which fish of both size-groups were examined :—

TABLE 6. Haddock.

Size Group.	15–30 cm.	30 cm.+
Number of Fish	200	128
	%	%
Pisces...	6	15
Mollusca	46	83
Crustacea	53	45
Polychæta	23	34
Echinoderma	38	54

It will be observed that with increase in size there was an increase in the number of stomachs containing Mollusca, Echinoderma, Polychæta, and Pisces, especially the first, whilst a slight decrease was shown in Crustacea. It is highly probable that in haddock of less than 15 cm. Crustacea would be the chief food.

Two samples of stomachs from North of the South-west Patch of the Dogger (LIX. 1 and LXV. 7) are interesting in that they show (i) the amount of destruction which can be effected among young Mollusca by small haddock and (ii) the rate of growth of *Solen* sp.

From the first station (June 27th) 21 fish of less than 26 cm. were examined, and seven of these contained about 3,500 *Solen* of 1–2 mm. in length. The total number of small haddock caught in the haul was about 400, so that if the proportions of fish feeding on *Solen* fry and the number eaten by them were the same in the remainder of the catch we have a total of 56,500 *Solen* fry eaten by the small haddock caught in a haul of $12\frac{1}{8}$ miles with an otter trawl of 86 ft. head-line.

Taking the spread of the trawl as 60 feet it will be seen that the total area covered by the trawl was approximately $\frac{1}{8}$ of a square sea mile. This gives 532,000 young *Solen* eaten by small haddock in one square mile in, say, one day (we have, however, no information regarding the time food takes to pass through the intestines of the haddock). This number is probably far below the actual figure for the occasion in question seeing that large numbers of small haddock probably escaped through the meshes of the trawl.

Three months later, on the same ground (LXV. 7. October 12), both large and small haddock were feeding on *Solen* about 25 mm. long (showing a growth of about 23 mm. in 107 days). The total number eaten by the haddock caught in this haul was approximately 5,000, which yields an average of 40,000 per square sea mile.

Supposing that the number of *Solen* eaten by haddock uniformly decreased from 532,000 per day (June 27) to 40,000 per day (October 12) per square mile, it will be seen that the total eaten in that period (107 days) by haddock alone was

$$\frac{532{,}000 + 40{,}000}{2} \times 107 = 30{,}602{,}000 \text{ per square mile}$$

all of which were less than 25 mm. in length.

As large numbers of small haddock probably escaped and dabs were also feeding on the small *Solen* (cf. Dabs. LIX. 1), it will be seen that a very large number of *Solen* are destroyed before reaching even 25 mm.

Whether the small *Solen* (2 mm. in length) were still in the pelagic state or not, I am unable to say. It seems probable, however, seeing that very little extraneous matter was found with them in the stomachs, that they were about to settle on the bottom preparatory to burrowing.

For details *see* Table B, of which the following is a summary :—

TABLE VII. Haddock.

Region.	W.N.W. of Brucey's Garden.	Off Grounds.					Hills.	Clay Deep.		Lower Scruff	Eastern Grounds.		Dogger Bank.																					
Voyage	59	59			56		49	56		41	29	31	29	41	41	65		59		56		47	29	31	28	56		56		29	47	38	59
Station	51	30			35		26	47		23	10	20	15	20	19	7		1		40		12	20	30	7	45		43		8	18	3	8
Month	July	July			May		Mar.	June		Oct.	Mar.	May	Mar.	Oct.	Oct.	Oct.		June		May		Jan.	Mar.	May	Mar.	May		May		Mar.	Jan.	Aug.	June
Size of Fish (cm.) ...	...	10+	20+	30+	<26	30+	30+	<28	30+	...	30+	30+	30+	...	...	<30	30+	<26	30+	18–22	30+	30+	30+	30+	30+	16–23	35+	17–22	30+	30+	30+	30+	...
Stomachs containing recognisable food ...	16	17	15	23	34	11	20	25	11	23	23	27	19	sev.	16	30	23	21	9	22	12	25	20	13	29	16	20	20	19	8	22	26	13
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Pisces	...	6	...	4	32	55	...	...	...	4	...	26	...	100	94	3	43	...	11	...	8	...	55	...	7	...	...	...	...	...	27	27	...
Mollusca	19	6	13	91	53	82	95	12	36	78	44	100	47	...	19	93	96	81	78	50	50	8	85	93	83	6	90	55	100	100	59	77	92
Crustacea	87	6	20	17	74	45	65	28	73	61	35	67	32	...	25	47	57	38	33	100	67	96	25	31	76	37	20	100	63	62	55	96	23
Polychæta	25	...	40	39	21	27	85	28	45	57	61	59	21	...	25	20	17	33	11	18	8	64	30	15	65	37	40	20	95	12	96	46	23
Nemertinea	...	...	...	...	...	...	...	...	...	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gephyrea	...	...	...	...	...	...	...	...	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Echinoderma	12	94	93	91	15	45	40	100	100	91	100	...	100	...	6	...	4	...	89	...	8	28	...	8	17	100	100	...	11	...	...	12	15
Coelentera	...	...	...	...	...	...	...	...	...	...	9	...	...	...	6	...	...	..	...	...	...	...	...	15	3	...	...	...	...	...	...	...	...
Foraminifera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

NOTE—Voyages 26 to 46 inclusive were in 1904; voyages 47 to 67 in 1905.

1. W.N.W. of Brucey's Garden. LIX. 51. (O. 338.) July. 41–46 fathoms. f.s.m.

Sixteen fish (100 per cent.) contained recognisable food.

Feeding chiefly on Crustacea 87 per cent., represented by Amphipoda in 81 per cent., each stomach containing many specimens.

Polychæta occurred in 25 per cent. (31 per 100), Mollusca in 19 per cent. (25 per 100), and Echinoderma in 12 per cent. (12 per 100).

2. Flamboro' Off Grounds. LIX. 30. (O. 329.) July. 29–36 fathoms. f.s., f.d.s.

Fifty-five fish (96 per cent.) divided into three size groups, i.e., 10–20 cm. (17 fish), 20–30 cm. (15 fish), and 30 cm. + (23 fish), contained recognisable food.

The following Table shows for each size group (i.) the percentage of stomachs containing the various food groups and the dominant species and (ii.) the total number of specimens found per 100 stomachs :—

Table 8. Haddock.

Size in cm.	10–20.		20–30.		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Echinoderma	94	1,203	93	815	91	970	93	1,000
Echinocyamus pusillus	88	1,179	87	800	87	870	87	926
Ophiura sp.	18	18	7	7	30	48	20	27
Mollusca	6	6	13	13	91	117	44	55
Polychæta	...	...	40	40	39	39	27	27
Crustacea	6	59	20	20	17	39	15	40
Pisces	6	6	...	...	4	4	4	4

Echinoderma (especially *Echinocyamus*) formed the chief food in the two smaller size groups and with Mollusca the chief food of the larger fish.

3. Flamboro' Off Grounds. LVI. 35. (O. 312.) May. 27 fathoms. f.d.s.

Forty-five fish (98 per cent.) divided into two groups, i.e., <26 cm. (34 fish) and 26 cm. + (11 fish) contained recognisable food.

The following Table shows for each size group (i.) the percentage of stomachs containing the various food groups and the dominant species, and (ii.) the total number of specimens found per 100 stomachs :—

Table 9. Haddock.

Size in cm.	<26		26+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Crustacea	74	410	45	82	67	329
Bathyporeia sp. ?	74	352	27	64	62	282
Mollusca	53	68	82	227	60	107
Scrobicularia prismatica ...	21 (?)	21	73	173	33	58
Solen sp.	12	12	27	27	16	16
Pisces (*Ammodytes* sp.) ...	32	44	55	191	38	80
Polychæta	21	24	27	164	22	58
Echinoderma (*Echinocyamus pusillus*).	15	21	45	154	22	53

Crustacea (especially *Bathyporeia*) formed the chief food of the smaller fish, whilst the larger were feeding principally on Mollusca (*Scrobicularia*), Pisces (*Ammodytes*), Echinoderma (*Echinocyamus*), and Polychæta (chiefly *Ophelia limacina*).

4. The Hills. XLIX. 26. (O. 280.) March. 15–27 fathoms. f.g.s., f.d.s., f.s.

Twenty fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca 95 per cent. (245 per 100), especially *Solen pellucidus* 80 per cent. (200 per 100), Polychæta 85 per cent. (360 per 100), *Ophelia limacina* 60 per cent. (230 per 100), Crustacea 65 per cent. (310 per 100), *Ampelisca* sp. 40 per cent. (150 per 100), *Gastrosaccus spinifer* 25 per cent. (50 per 100).

Echinoderma occurred in 40 per cent. (190 per 100) represented chiefly by *Echinocyamus pusillus* 40 per cent. (185 per 100).

5. Off East End of Great Silver Pit. LVI. 47. (O. 317.) June 23–25 fathoms. s. & m., f.d.s.

Thirty-six fish (100 per cent.) divided into two groups. i.e., <28 cm. (25 fish) and 30 cm.+ (11 fish) contained recognisable food.

The following Table shows for each size group (i.) the percentage of stomachs containing the various food groups and the dominant species, and (ii.) the total number of specimens found per 100 stomachs :—

Table 10. Haddock.

Size in cm.	<28		30+		Total.	
	St. 100	Sp. (all full)	St. 100	Sp. (all full)	St. 100	Sp. (all full)
Echinoderma (*Amphiura filiformis*).	28	28	73	73	42	42
Crustacea	24	24	...	...	17	17
Ampelisca sp.	...	...	36	36	11	11
Callianassa subterranea ...	28	28	45	63	33	39
Polychæta	24	24	36	36	28	28
Lagis Koreni...	12	16	36	45	19	25
Mollusca	...	...	9	9	3	3
Gephyrea						

The chief food in all cases was Echinoderma represented solely by *Amphiura*.

6. Clay Deep. XLI. 23. (O. 252.) October. 20–22 fathoms. f.g.s.

Twenty-three fish (100 per cent.) contained recognisable food.

Feeding chiefly on Echinoderma 91 per cent., the stomachs in all cases being more or less full of *Amphiura filiformis*.

Mollusca were present in 78 per cent. (186 per 100) represented by eight species in 4–35 per cent.

Crustacea occurred in 61 per cent. (152 per 100) represented chiefly by *Nika edulis* 35 per cent. (87 per 100), whilst Polychæta were present in 56 per cent. (61 per 100), and Pisces in 4 per cent.

7. Lower Scruff. XXIX. 10. (O. 175.) March. 24 fathoms. f.s.

Twenty-three fish (100 per cent.) contained recognisable food.

All were feeding chiefly on Echinoderma represented by *Amphiura filiformis*.

Polychæta occurred in 61 per cent. (104 per 100), Mollusca in 43 per cent. (52 per 100), Crustacea in 35 per cent. (87 per 100), and Coelentera in 9 per cent.

8. Sylt Outer Ground. XXXI. 20. (B. 139.) May. 10–11 fathoms. f.s.

Twenty-seven fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca 100 per cent. (660 per 100) represented principally by *Tellina fabula* 93 per cent. (570 per 100), and *Solen* sp. 44 per cent. (59 per 100).

Crustacea occurred in 67 per cent. (900 per 100), *Bathyporeia* sp. 56 per cent. (852 per 100) being the chief species.

Polychæta were present in 59 per cent. (70 per 100), Pisces (*Ammodytes* sp.) 26 per cent. (30 per 100), and Nemertinea in 4 per cent.

9. West of Horn Reef. XXIX. 15. (O. 179.) March 22–23 fathoms. f.s. & oz.

Nineteen fish (95 per cent.) contained recognisable food.

Feeding principally on Echinoderma, 100 per cent., especially *Amphiura filiformis*, of which all the stomachs were full.

Mollusca were present in 47 per cent. (68 per 100), Crustacea in 32 per cent. (37 per 100), and Polychæta in 21 per cent. (21 per 100).

10. Dogger Bank—South of South-west Patch. XLI. 20. (O. 249.) October. 17–18 fathoms. s. & gl., g.s.

Several fish were examined, all full of herring spawn.

11. Dogger Bank—South of South-west Patch. XLI. 19. (O. 248.) October. 17–18 fathoms. g.s. & sh., s. & gl.

Sixteen fish (100 per cent.) contained recognisable food.

Feeding chiefly on Pisces, 94 per cent., represented in 81 per cent. by herring spawn (all full).

Polychæta and Crustacea each occurred in 25 per cent., Mollusca in 19 per cent. Echinoderma and Coelentera each in 6 per cent.

12. Dogger Bank—N.N.E. of South-West Patch. LXV. 7. (O. 358.) October. 10–14 fathoms. f.g.s.

Fifty-three fish (100 per cent.), divided into two groups, *i.e.*, <30 cm. (30 fish) and 30 cm. + (23 fish), contained recognisable food.

The following Table shows for each size group (i) the percentage of stomachs containing the various food groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 11. Haddock.

Size in cm.	<30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	93	1,013	95	1,024	94	1,018
Solen sp.	87	1,000 ca.	83	870 ca.	85	945 ca.
Crustacea	47	223	56	61	51	153
Portunus holsatus	33	100	22	22	28	66
Eupagurus Bernhardus ...	10	10	35	35	21	21
Polychæta	20	30	17	30	19	30
Phyllodoce grœnlandica ...	10	20	17	30	13	24
Echinoderma	...	...	4	4	2	2
Pisces	3	40	43	?	21	?
Herring spawn	...	...	22	(full)	9	(full)

Both size groups were feeding chiefly on *Solen* sp. about 25 mm. long. Crustacea, represented by *Eupagurus* and *Portunus*, were also fairly common in each size group, whilst 22 per cent. of the larger fish were nearly full of herring spawn.

13. Dogger Bank—North of South-west Patch. LIX. 1. (O. 318.) June. 9–15 fathoms. f.s., f.s. & sh.

Thirty fish (94 per cent.), divided into two groups is, <26 (21 fish), and 30 cm. + (9 fish), contained recognisable food.

The following Table shows for each size group (i), the percentage of stomachs containing the various food groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 12. Haddock.

Size in cm.	<22		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	81	17,000 ca.	78	390	80	13,000 ca.
Mactra (*subtruncata ?*) fry	29	95	55	333	37	166
Solen sp. ? fry	33	16,670 ca.	...	...	23	11,650 ca.
Crustacea	38	38	33	33	37	37
Polychæta	33	33	11	11	27	27
Echinoderma (*Amphiura filiformis*).	...	..	89	890	27	267
Pisces	...	...	11	11	3	3
Foraminifera...	5	?	...	...	3	?

The smaller fish were feeding chiefly on Mollusca, consisting in 29 per cent. of the fry of *Mactra*, about 6 mm. long, and in 33 per cent. of young *Solen* sp. about 2 mm. long, one stomach, taken at random, containing no less than 509 specimens. In October of the same year, cf. the preceding station, LXV. 7, young *Solen* of apparently the same brood were about 25 mm. long, showing a growth of 23 mm. in about $3\frac{1}{2}$ months.

The larger fish were feeding on *Mactra* fry and *Amphiura filiformis*.

14. Dogger Bank—North of South-west Patch. LVI. 40. (O. 314.) May. 10–14 fathoms. f.g.s. & s.h.

Thirty-four fish (100 per cent.) divided into two groups, *i.e.*, 18–22 cm. (22 fish) and 30 cm. + (12 fish), contained recognisable food.

The following Table shows for each size group (i), the percentage of stomachs containing the various food groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 13. Haddock.

Size in cm.	18–22		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Crustacea	100	930	67	583	88	809
Bathyporeia sp.	100	910	...	...	65	590
Cheirocratus sp.	...	...	50	416	18	147
Portunus sp....	5	5	33	158	15	59
Mollusca	50	50	50	250	50	121
Solen sp.	5	5	25	25	12	12
Tellina fabula	...	...	42	167	15	59
Polychæta	18	18	8	17	15	18
Pisces	...	...	8	33	3	12
Echinoderma	...	...	8	8	3	3

The smaller fish were all feeding chiefly on Crustacea (*Bathyporeia*), whilst the larger were feeding chiefly on Crustacea (*Cheirocratus* sp. and *Portunus*) and Mollusca (*Tellina fabula*).

15. Dogger Bank—South Part. XLVII. 12. (O. 270.) January. 15–17 fathoms. f.s.

Twenty-five (100 per cent.) contained recognisable food.

Feeding chiefly on Crustacea, 96 per cent. (776 per 100), represented principally by *Callianassa subterranea*, 96 per cent. (744 per 100).

Polychæta occurred in 64 per cent. (76 per 100). Echinoderma in 28 per cent. (172 per 100), represented solely by *Amphiura filiformis*, whilst Mollusca were present in eight per cent. only.

16. Dogger Bank—East of South-west Patch. XXIX. 20. (O. 184.) March. 11–14 fathoms. f.s.

Twenty fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca, 85 per cent. (370 per 100), consisting principally of *Tellina fabula*, 45 per cent. (75 per 100), *Mactra* sp. ? 30 per cent. (180 per 100) and *Solen* sp. 45 per cent. (85 per 100). Pisces were present in 55 per cent. (150 per 100) represented chiefly by *Gobius minutus*, 55 per cent. (125 per 100).

Polychæta occurred in 30 per cent. (40 per 100), the principal representative being *Nephthys* sp. in 30 per cent. (30 per 100), whilst Crustacea occurred in 25 per cent. (25 per 100).

17. Dogger Bank—Between East and West Shoals. XXXI. 30. (B. 143.) May. 11–12 fathoms. f.g.s., f.d.s.

Thirteen fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca, 92 per cent. (246 + per 100), *Solen* sp., 69 per cent. (108 per 100), and *Mactra* sp. 54 per cent. (62 per 100) being the principal representatives.

Crustacea occurred in 31 per cent. (46 per 100), Polychæta in 15 per cent. (15 per 100), Echinoderma in 8 per cent., and Coelentera in 15 per cent.

18. Dogger Bank—East of South-west Patch. XXVIII. 7. (O. 161.) March. 14–17 fathoms. f.s. & sh.

Twenty-nine fish (100 per cent.) contained recognisable food.

The chief food consisted of Mollusca, 83 per cent. (189 per 100), represented by *Solen* sp. 38 per cent. (41 per 100), and *Tellina fabula* 31 per cent. (76 per 100), Crustacea 76 per cent. (186 per 100), chiefly Amphipoda 41 per cent. (110 per 100), and *Callianassa subterranea* 21 per cent. (21 per 100).

Polychæta occurred in 65 per cent. (100 per 100), represented by six species, Echinoderma in 17 per cent. (24 per 100), Pisces in 7 per cent., and Coelentera in 3 per cent.

19. Dogger Bank—North Part of Hospital. LVI. 45. (O. 316.) May. 18–19 fathoms. f.d.g.s.

Thirty-six fish (92 per cent.) divided into two groups, viz., 16–23 cm. (16 fish) and 35 cm. + (20 fish) contained recognisable food.

The following Table shows for each size group (i) the percentage of stomachs containing the various food groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 14. Haddock.

Size in cm.	16–23		35+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Echinoderma	100	940	100	many	100	many
Amphiura filiformis ...	100	940	100	many	100	many
Mollusca	6	6	90	500	53	280
Montacuta ferruginosa ...	—	—	35	150	19	83
„ *bidentata* ...	6	6	65	300	39	170
Polychæta	37	50	40	50	39	50
Lagis Koreni	25	25	20	20	22	22
Crustacea	37	37	20	20	28	28
Ampelisca	19	19	10	10	14	14

Echinoderma, represented by *Amphiura filiformis*, formed the principal food in all the fish. The larger fish had also been feeding largely on *Montacuta* spp.

20. DOGGER BANK—N.E. OF SOUTH WEST PATCH. LVI. 43. (O. 315.) May. 11–16 fathoms. f.g.s. & sh., f.d.g.s.

Thirty-nine fish (100 per cent.) divided into two groups, viz., 17–22 cm. (20 fish), and 30–45 cm. (19 fish) contained recognisable food.

The following Table shows for each size group (i.) the percentage of stomachs containing the various food groups and the dominant species, and (ii.) the total number of specimens found per 100 stomachs :—

TABLE 15. Haddock.

Size in cm.	17–22.		30–45.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	55	90	100	2,420	77	1,225
Tellina fabula	30	40	95	1,315	61	660
Montacuta ferruginosa ...	5	20	100	1,050	51	520
Solen sp.	25	25	32	32	28	28
Crustacea	100	520	63	110	82	320
Bathyporeia sp.	95	500	37	?	67	?
Polychæta	20	25	95	215	56	118
Sigalion mathildae	...	...	53	68	26	33
Goniada maculata	5	5	53	79	28	41
Lagis Koreni	...	...	32	32	15	15
Echinoderma	...	...	11	11	5	5

The smaller fish were feeding chiefly on Crustacea (especially *Bathyporeia*), whilst the larger fish were feeding on Mollusca (chiefly *Tellina*, *Montacuta* and *Solen*), and Polychæta.

21. Dogger Bank—N.E. of South West Patch. XXIX. 8. (O. 173.) March. 11–14 fathoms. f.s. & sh.

Eight fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca 100 per cent. (623 per 100), the principal representatives being *Mactra subtruncata* ? feet, 100 per cent. (500 per 100). Crustacea occurred in 62 per cent. (75 per 100), and Polychæta in 12 per cent. (12 per 100).

22. Dogger Bank—Eastern Shoal. XLVII. 18. (O. 272.) January. 11–12 fathoms. f.s.

Twenty-two fish (100 per cent.) contained recognisable food.

Feeding chiefly on Polychæta 96 per cent. (300 per 100) represented in 91 per cent. by *Phyllodoce grœnlandica* (282 per 100).

Mollusca occurred in 59 per cent. (82 per 100), *Solen* sp. 55 per cent. (64 per 100) being the chief representative.

Crustacea were present in 55 per cent. (82 per 100), represented by *Eupagurus Bernhardus* in 32 per cent. (32 per 100), whilst Pisces occurred in 27 per cent. (*Gobius minutus* 23 per cent.).

23. Dogger Bank—South Part of Eastern Shoal. XXXVIII. 3. (B. 185.) August. 10–17 fathoms. f.g.s. & sh.

Twenty-six fish (100 per cent.) contained recognisable food.

The chief food consisted of Mollusca 77 per cent. (675 per 100), represented by *Tellina fabula* 65 per cent. (500 per 100) and *Montacuta ferruginosa* 31 per cent. (134 per 100).

Crustacea 96 per cent. (415 per 100), represented chiefly by *Portunus holsatus* 50 per cent. (269 per 100), and *Ampelisca* 31 per cent. (100 per 100).

Polychæta were present in 46 per cent. (88 per 100), *Nephthys* sp. 23 per cent. (35 per 100), and *Goniada maculata* 23 per cent. (38 per 100) being the chief representatives.

Pisces occurred in 27 per cent. (69 per 100) represented in 27 per cent. by *Gobius minutus* (65 per 100), whilst Echinoderma occurred in 12 per cent.

24. Dogger Bank—N.N.E. of South West Patch. LIX. 8. (O. 321.) June. 16–17 fathoms. f.s. & sh., f.g.s.

Thirteen fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca 92 per cent. (439 per 100), *Solen* sp. 69 per cent. (177 per 100), and *Tellina fabula* 38 per cent. (231 per 100) being the principal representatives.

Crustacea occurred in 23 per cent. (23 per 100), Polychæta in 23 per cent. (46 per 100), and Echinoderma in 15 per cent. (85 per 100).

Whiting. (*Gadus merlangus.*)

Two hundred and ninety-three stomachs from 15 stations have been examined belonging to the following size groups. <20 cm., 18 fish; 20–30 cm., 63 fish; 30 cm. + 36 fish; length not recorded, 176 fish.

Recognisable food was found in 206, and consisted of Crustacea in 63 per cent., Pisces in 38 per cent., Polychæta in 6 per cent., Mollusca in 4 per cent., Echinoderma in 2 per cent., and Coelentera in 0·5 per cent.

Including those recorded in the first report, 394 stomachs have been examined, of which 302 contained recognisable food, consisting of Crustacea in 67 per cent., Pisces in 40 per cent., Polychæta in 6 per cent., Mollusca in 4 per cent., Echinoderma in 1 per cent., and Coelentera in 0·3 per cent.

For details, *see* Table C., of which the following is a summary :—

TABLE 16. Whiting.

Region.	Wash.		Leman Ground.			Knoll Deep.		E. Deep Water.		W. of Horn Reef.	Lower Scruff.	Clay Deep.	Dogger.	
Voyage	33	57	47	28	28	61		43		29	29	56	56	41
Station	10	18	26	17	15	59–62		5		15	10	47	45	20
Month	June	June	Jan.	Mar.	Mar.	Aug.		Nov.		Mar.	Mar.	June	June	Oct.
Size in cm.	...	...	...	...	...	15+	25+	20+	30+	...	...	...	...	...
Stomachs containing recognisable food ...	11	14	11	4	6	38	38	4	5	17	21	18	19	sev.
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Pisces	27	57	91	25	33	18	18	75	40	88	52	22	32	100
Mollusca	36	...	...	...	...	...	...	...	...	...	5	...	16	...
Crustacea	91	50	9	100	100	82	89	25	60	12	43	56	63	...
Polychæta	9	14	...	...	17	5	...	...	40	...	5	11	11	...
Echinoderma ...	...	...	...	...	...	...	...	...	...	...	10	11	...	...
Coelentera	...	...	...	...	...	...	...	...	...	6	...	...	...	...

1. BOSTON DEEP. XXXIII. 10. (S.T. 182.) June. 5–6 fathoms. f.s.

Eleven fish (73 per cent.) contained recognisable food.

Feeding chiefly on Crustacea, 91 per cent., represented by *Crangon vulgaris* and Amphipoda, each in 45 per cent.

Pisces occurred in 27 per cent., Mollusca (*Sepiola atlantica*) in 36 per cent., and Polychæta in 9 per cent.

2. LYNN DEEP. LVII. 18. (S.T. 488.) June. 5–8 fathoms. s.m., sh.gl.

Fourteen fish (100 per cent.) contained recognisable food.

Feeding chiefly on Pisces, 57 per cent., represented in 43 per cent. by *Ammodytes* sp.

Crustacea occurred in 50 per cent. (71 per 100), the commonest species being *Gastrosaccus spinifer*, 29 per cent. (43 per 100), whilst Polychæta were present in 14 per cent.

3. EAST OF LEMAN GROUND. XLVII. 26. (O. 276.) January. 17–20 fathoms. f.s. & m.

Eleven fish (37 per cent.) contained recognisable food.

Feeding almost entirely on Pisces, 91 per cent., represented by *Clupea* sp. in 82 per cent. (82 per 100). Crustacea occurred in 9 per cent.

4. LEMAN GROUND. XXVIII. 17. (B. 110.) March. 14–16 fathoms. f.s., f.d.s.

Four fish (100 per cent.) contained recognisable food.

Feeding almost exclusively on Crustacea, represented solely by *Crangon Allmanni* 100 per cent. (475 per 100). Pisces occurred in 25 per cent. only.

5. Leman Ground. XXVIII. 15. (B. 109.) March. 14–16 fathoms. f.d.s., f.s.

Six fish (100 per cent.) contained recognisable food.

Feeding almost entirely on Crustacea (*Crangon Allmanni*), 100 per cent. (750 per 100). Pisces and Polychæta were present in 33 and 17 per cent. respectively.

6–9. Knoll Deep. LXI. 59–62. (B. 367–370.) August. 21–26 fathoms. Soil variable.

Seventy-six fish (73 per cent.) divided into two groups, *i.e.*, 15–24 cm. (38 fish), and 25–34 cm. (38 fish) contained recognisable food.

Table showing for each size group (i.) the percentage of stomachs containing the various food groups and the dominant species, and (ii.) the total number of specimens found per 100 stomachs.

Table 17. Whiting.

Size in cm.	15–24		25–34		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Crustacea	81	92	90	108	85	100
Crangon Allmanni	76	82	45	58	60	70
Gastrosaccus spinifer ...	5	5	24	29	14	17
Pisces	18	18	18	18	18	18
Ammodytes sp.	16	16	16	16	16	16
Polychæta	5	5	—	—	3	3

Crangon Allmanni and *Ammodytes* sp. formed the chief food in both size groups, whilst *Gastrosaccus spinifer* were more common in the larger than in the smaller fish.

10. Eastern Deep Water. XLIII. 5. (B. 245.) November. 18 fathoms. f.s., cl.sh., spk.s.

Nine fish (69 per cent.) contained recognisable food.

Pisces occurred in five, Crustacea in four, and Polychæta in two.

11. West of Horn Reef. XXIX. 15. (O. 179.) March. 22–23 fathoms. f.s. & oz.

Seventeen fish (71 per cent.) contained recognisable food.

Feeding principally on Pisces, 88 per cent., *Clupea* sp. 23 per cent., and *Gadus* sp. in 6 per cent. being the only ones identified.

Crustacea in 12 per cent. and Coelentera in 6 per cent. formed the remainder of the food.

12. Lower Scruff. XXIX. 10. (O. 175.) March. 24 fathoms. f.s.

Twenty-one fish (57 per cent.) contained recognisable food.

Feeding on Pisces, 52 per cent. (57 per 100). *Solea lutea* and *Clupea* sp. each in 5 per cent. being the only ones identified. Crustacea were present in 43 per cent. (81 per 100), represented by 6 species, whilst Mollusca and Polychæta each occurred in 5 per cent., and Echinoderma in 10 per cent.

13. Off East End of Great Silver Pit. LVI. 47. (O. 317.) June. 23–25 fathoms. s. & m., f.d.s.

Eighteen fish (100 per cent.) contained recognisable food.

Feeding on Crustacea, 55 per cent. (83 per 100). *Eupagurus Bernhardus*, 33 per cent. (33 per 100), being the commonest species.

Pisces occurred in 22 per cent. (33 per 100), Polychæta in 11 per cent. (22 per 100), and Echinoderma in 11 per cent. (11 per 100).

14. Dogger Bank—North Part of Hospital. LVI. 45. (O. 316.) June. 18–19 fathoms. f.d.g.s.

Nineteen fish (68 per cent.) contained recognisable food.

Feeding chiefly on Crustacea, 63 per cent. (84 per 100). *Eupagurus Bernhardus*, 47 per cent. (47 per 100), and *Callianassa subterranea*, 32 per cent. (32 per 100), being the commonest species.

Pisces occurred in 32 per cent. (32 per 100), Mollusca in 16 per cent. (16 per 100), and Polychæta in 11 per cent. (11 per 100).

15. Dogger Bank—South of South-west Patch. XLI. 20. (O. 249.) October. 17–18 fathoms. s. & gl., g.s.

Several fish were examined, all of which were feeding chiefly on Herring spawn.

Coal Fish. (*Gadus virens.*)

1. N.W. of the North-west Part of the Dogger. LIX. 46. (O. 337.) 40–43 fathoms. f.s. & m.

The only fish examined contained two Gadoids, and one *Pleuronectes* sp. ?

2. Flamborough Off Grounds. LVI. 35. (O. 312.) May. 27 fathoms. f.d.s.

The only fish examined contained 30 *Ammodytes* sp. ?

3. East Part of the Dogger. XXXI. 25. (B. 142.) May. 16–21 fathoms. f.s.

One fish examined, contained 113 *Ammodytes* sp., 3–6 cm. long, one *Pleuronectes limanda* (3·5 cm.), three *Loligo Forbesii* of 5 cm., and one *Crangon trispinosus*.

Pout. (*Gadus luscus.*)

1. N.W. of Sandettie Light Vessel. XLIV. 3. (B. 248.) November. 21 fathoms. c.s.

Twenty fish (100 per cent.) contained recognisable food.

Feeding almost entirely on Crustacea 100 per cent. (620 per 100), consisting of *Pandalus Montagui* 80 per cent. (225 per 100), *Galathea intermedia* 35 per cent. (155 per 100), *Eupagurus Bernhardus* 35 per cent. (35 per 100), *Crangon Allmanni* 30 per cent. (30 per 100), *Porcellana longicornis* 30 per cent. (45 per 100), *Portunus holsatus* 20 per cent. (35 per 100), and *Stenorhynchus phalangium*, *S. longirostris*, *Portunus pusillus*, *Nika edulis*, *Crangon vulgaris*, *Pandalus brevirostris*, *Hippolyte varians*, and *Gastrosaccus spinifer* in 5–15 per cent. (5–20 per 100).

Pisces occurred in 30 per cent. represented by *Ammodytes* sp. and *Callionymus lyra* each in 5 per cent., and remains in 25 per cent., whilst Mollusca were present in 20 per cent. represented by *Buccinum* feet in 15 per cent., and *Sepiola atlantica* in 5 per cent.

Ling. (*Molva vulgaris.*)

1. W.N.W. of Brucey's Garden. LIX. 51. (O. 338.) July. 41–46 fathoms. f.s. & m.

Examined five fish, all of which were empty.

2. Hartlepool. LIX. 56. (O. 339.) July. 23–24 fathoms. c.s., s. & m.

Examined two fish of which one was empty, whilst the other (85 cm. long) contained a *Gadus morrhua* of 23 cm. and two *Gadus minutus* of 23 cm. and 24 cm. respectively.

3. Flamborough Off Grounds. LVI. 35. (O. 312.) May. 27 fathoms. f.d.s.

The only fish examined contained single specimens of *Gadus æglifinus* and *G. merlangus.*

Long Rough Dab. (*Drepanopsetta limandoides.*)

1. Horn Reef Outer. XXXI. 16. (B. 136.) May. 26–27 fathoms. f. s. & m.

Fourteen fish (100 per cent.) contained recognisable food.

Feeding chiefly on Crustacea 86 per cent., represented in all cases by *Nika edulis.*

Polychæta occurred in 29 per cent., *Ampharete Grubei* 7 per cent. being the only species identified, whilst Pisces were present in 7 per cent. represented by *Pleuronectes* sp. ?

2. Horn Reef Outer. XXXI. 18. (B. 137.) May. 26–27 fathoms. f., s. & m.

Twenty-one fish (100 per cent.) contained recognisable food.

Feeding chiefly on Crustacea 86 per cent. (138 ? per 100), represented by *Nika edulis* 57 per cent. (71 per 100), *Crangon Allmanni* 29 per cent. (38 per 100), *Portunus holsatus* 14 per cent. (24 per 100), Amphipoda 5 per cent., and Amphipod tubes ? 57 per cent.

Polychæta unidentified occurred in 33 per cent., and Mollusca in 29 per cent., represented by *Cardium* sp. 5 per cent., *Mactra solida* 19 per cent. (43 per 100), and *Scrobicularia alba*, 5 per cent., whilst Pisces remains occurred in 14 per cent.

Turbot. (*Rhombus maximus.*)

Twenty-six fish from 10 stations were examined, of which 14 contained recognisable food, whilst the remainder were empty.

The food in all cases consisted solely of Pisces.

1. Flamborough Off Grounds. LVI. 34. (B. 318.) May. 26–27 fathoms. f.d.s.

Four fish were examined, and all contained recognisable food, consisting solely of Pisces.

Gadus æglefinus occurred in two, *Ammodytes* in three, *Callionymus lyra* in one, and two *Pleuronectes limanda* in one.

2. Flamborough Off Grounds. LVI. 35. (O. 312.) May. 27 fathoms. f.d.s.

The only fish examined contained 30–40 *Ammodytes* sp.

3. Flamborough Off Grounds. XXXI. 43. (B. 145.) May. 26–31 fathoms. f.d.s.

The fish contained a single *Callionymus lyra* of 13 cm.

4. North Part of Winterton Shoal. LXI. 55. (B. 364.) August. 22 fathoms. f.s.

The only fish examined contained a *Trigla gurnardus* of 27 cm.

5. Brown Bank. LXI. 45. (B. 355.) August. 13–15 fathoms. f.g.s.

Two fish were examined, of these one was empty, whilst the other contained a single *Trachinus vipera.*

6. S.W. of Helgoland. XXXI. 3. (B. 129.) May. 18–19 fathoms. s. & oz.

Six fish were examined, of which five were empty, whilst the remaining one contained a *Pleuronectes limanda* and a *Pleuronectes* sp. ?

7. Off East End of Great Silver Pit. LVI. 47. (O. 317.) June. 23–25 fathoms. s. & m., f.d.s.

Six fish were examined, of which five were empty, whilst the remaining one contained a *Gadus merlangus* of 18 cm.

8. Dogger Bank—South of the South-West Patch. XXXI. 42. (B. 144.) May. 19–21 fathoms. f.s.

The only fish examined contained two *Pleuronectes limanda* of 9 and 14 cm.

9. Dogger Bank—East of the South-West Patch. XXVIII. 10. (O. 163.) March. 12–16 fathoms. f.s.

The only fish examined contained a *Gadus merlangus.*

10. Dogger Bank—East of the South-West Patch. XXVIII. 7. (O. 161.) March. 14–17 fathoms. f.s.

Three fish were examined, one of which was empty, whilst the other two contained respectively a *Gadus merlangus* and fish remains.

Brill. (*Rhombus lævis.*)

S.W. of Helgoland. XXXI. 3. (B. 129.) May. 18–19 fathoms. s. & oz.

Two fish only were examined, of which one was empty, whilst the other contained *Ammodytes* sp.

Plaice. (*Pleuronectes platessa.*)

Two thousand nine hundred and eighty-two stomachs from 86 hauls have been examined. Of these 2,167 were divided into size groups, *i.e.*, < 20 cm. (515), 20–30 cm. (845), 30–40 c.m. (738), 40 cm. + (69), whilst the sizes of the remaining 815 were not noted.

Of the total examined, 475 (16 per cent.) were empty, 189 (6 per cent.) contained unrecognisable food, and 2,318 (78 per cent.), contained recognisable food.

The principal food groups were Mollusca in 77 per cent., and Polychæta in 45 per cent., whilst Crustacea occurred in 15 per cent., Echinoderma in 12 per cent., Pisces in 4 per cent., Polyzoa, Nemertinea, and Coelentera each in 1 per cent., and Tunicata, Gephyrea, and Porifera each in less than 0·5 per cent.

Including those recorded in the first report, 4,073 stomachs from 109 stations have been examined, 3,180 of which contained recognisable food, which consisted of Mollusca in 77 per cent., Polychæta in 42 per cent., Crustacea in 15 per cent., Echinoderma in 13 per cent., Pisces in 3 per cent., none of the remaining food groups being present in more than 1 per cent.

Change of food with increase in size was well marked, as the following table and curve show.

Table showing for each size group (i) the number of fish containing recognisable food, and (ii) the percentage of (i) containing the various food groups.

TABLE 18. Plaice.

Size Group.	<10 cm.	10–20 cm.	20–30 cm.	30 cm.+
Number of fish containing recognisable food ...	65*	322†	692‡	700§
	%	%	%	%
Pisces	...	1	5	5
Mollusca	17	66	76	84
Crustacea	57	16	13	11
Polychæta	38	37	51	42
Echinoderma	...	20	13	6

The above table is shown below in a graphic form.

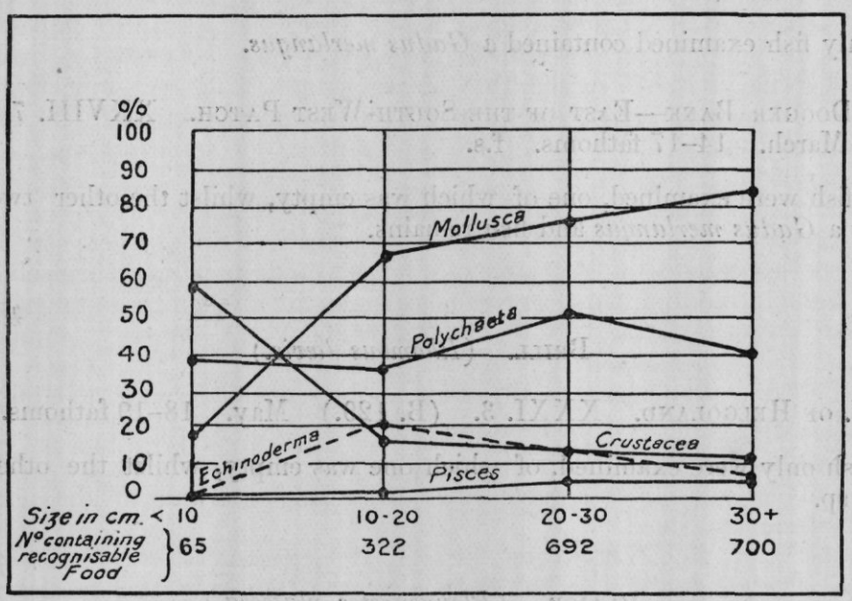

FIG. 2. PLAICE.

It will be observed that the smallest plaice (<10 cm.) were feeding chiefly on Crustacea and Polychæta, with Mollusca in 17 per cent. only. Pisces and Echinoderma were absent. In the 10–20 cm. group Mollusca had risen to 67 per cent. and had become the chief food whilst Polychæta remained stationary, Crustacea had become fourth in position, being lower than Echinoderma, and Pisces were present in 1 per cent.

In the 20–30 cm. and 30 cm. + groups Mollusca and Pisces showed a steady rise in importance, and Echinoderma and Crustacea a fall; whilst Polychæta showed a rise in the 20–30 cm. fish (due chiefly to the fish from the Dutch Coast to the Brown Ridges) and a drop in 30 cm. +.

The statement made in the first report, that plaice do not appear to feed to any extent in the winter, is well shown by the following curve, which gives the percentage of

* All from the Wash.
† Including 50 from the Wash, and 121 from the Dutch Coast.
‡ 146 from the Leman, 249 from Dutch Coast, 161 from Knoll Deep—Winterton Shoal.
§ 200 from the Dogger, 165 from Leman, 117 from Dutch Coast, 89 from Knoll Deep—Winterton Shoal and 54 from Flamboro' Off and Hills.

empty stomachs found in each month from July to June, including those recorded in the first report. The index numbers show the total number examined in each month.

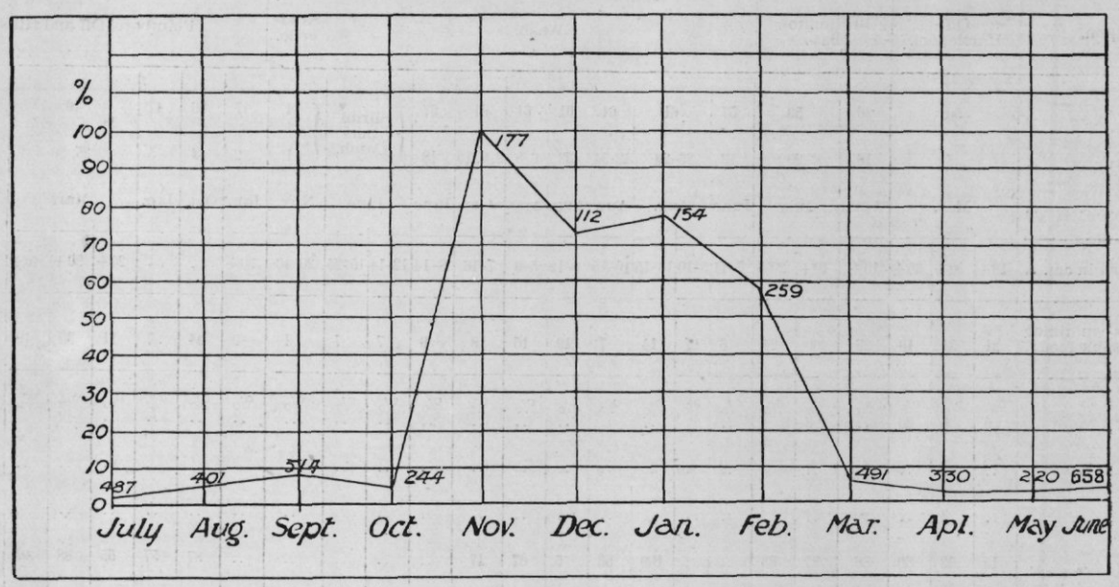

FIG. 3. PLAICE —Percentage of Empty Stomachs.

From March to October inclusive the percentage of empty stomachs is seen to have varied from 2–7 per cent., the average being about 4 per cent. In November, according to our observations the plaice ceases to feed almost altogether, but a few feed in December, January and February, in which months the percentage of empty stomachs is seen to have dropped to 72 per cent., 76 per cent. and 57 per cent. respectively. In March they apparently start feeding regularly again, the percentage of empty stomachs falling to 5 per cent. (cf. p. 54).

Apart from the difference in the percentages of empty stomachs in the winter (November–February) and summer (March–October) periods, there is a marked difference in the appearance of the empty stomachs and intestines themselves ; those taken during the winter are much cleaner and paler in colour than those taken during the summer period, and the latter, although destitute of food, generally contain a small amount of glair with flocculent matter in suspension.

The chief food of the plaice in the areas under consideration (including the first report) may be briefly summarised as follows :—

(i) Dogger Bank.—Chiefly *Solen* sp., especially on the South Dogger and Hospital Grounds, and *Mactra subtruncata*, especially on and to the north of the Easternmost Shoal.
On the N.W. side of the bank.—*Solen*, *Mactra subtruncata*, *Pecten opercularis*, *Solen pellucidus*, and on the east end of the Dogger,—*Mactra subtruncata*.

(ii) Hartlepool Ground.—*Solen pellucidus* and *Lagis* (*Pectinaria*) *Koreni*.
Whitby Ground.—Chiefly *Mactra subtruncata* and *Solen pellucidus*.

(iii) Flamboro' Off Ground and the Hills.—*Solen pellucidus*, *Solen* sp., *Mactra subtruncata*.

(iv) Leman Banks.—Chiefly *Tellina fabula*.
Leman to Hasbro'.—*Mactra*, *Scrobicularia*, and *Ophelia limacina*.
Leman Ground.—*Solen*, *Tellina fabula*, *Lagis Koreni*, *Donax vittatus*.

(v) Knoll Deep and Winterton Twenties.—Chiefly *Lagis Koreni*.

(vi) Brown Ridges and Brown Bank Ground.—Chiefly *Donax vittatus*, with *Ophelia limacina*, *Tellina fabula*, and *Solen* sp.

(vii) Texel Ground.—*Lagis Koreni*, *Donax vittatus*, *Solen* sp., and *Tellina fabula*.

(viii) Sylt Outer Ground.—*Tellina fabula*.

(ix) North of Horn Reef.—*Tellina fabula*, *Scrobicularia alba*, *Mactra solida*.
South of Horn Reef.—*Tellina fabula*, *Solen pellucidus*.
Off Fanö.—*Scrobicularia alba*.

(x) Inshore Grounds.—
Off Hartlepool and Bridlington Bay.—Mollusca, various.
Off Saltfleet.—*Scrobicularia alba*.
The Wash.—*Cardium edule* fry and Amphipods (in small plaice).
Off Sheringham.—*Modiolaria discors*.

For details, *see* Table D, of which the following is a summary :—

TABLE 19. Plaice.

Region.	Off Hartlepool.			Bridlington Bay.			Wash.										Sandettie.	Flamboro' Off and Hills.							
Voyage	50			30	59		57	61		61	61	61	61	57	Shrimpers' Catch.		44	47	66	47	49		56	31
Station	8			16	29		13	26-29		32-34	23	6, 8	3, 9, 10	18			1	2	4	5	25, 26		38	43
Month	Mar.			April	July		June	Aug.		Aug.	Aug.	Aug.	Aug.	June	June		Nov.	Jan.	Oct.	Jan.	Mar.		May	May
Size of Fish in cm. ..	10+	20+	30+	10+	10+	20+	7-11	5-10	10-15	10-15	6-12	5-9	7-16	8-14	12-14	15-25	20-40	30+	..	..	20+	30+	40+	..	..
Stomachs containing recognisable food..	21	31	10	26	30	24	6	17	14	7	19	15	18	6	7	7	1	0	24	7	11	35	19	31	26
Pisces	% 5	% 6	% 20	% ..	% 3	% 4	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% 9	% ..	% 32	% 23
Tunicata	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Polyzoa	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mollusca	19	32	30	88	87	83	..	..	100	86	5	67	17	..	..	..	..	..	87	57	55	88	95	84	85
Crustacea	38	32	60	19	3	4	..	53	..	..	79	40	61	83	..	..	100	..	..	..	27	11	..	13	..
Polychæta	86	87	50	23	50	46	..	76	21	29	26	13	50	17	71	100	..	..	25	86	55	57	32	42	23
Nemertinea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..
Gephyrea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Echinoderma ..	..	3	10	15	10	8	..	..	14	..	..	..	..	..	..	..	..	..	25	14	..	9	10	19	27
Coelentera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29	..	..	..	..	..	55	34	..	3	..
Porifera	..	..	..	..	..	..	100	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Region.	Knoll Deep to Winterton Shoal.											W. of Brown Ridges.		Brown Ridges.														Dutch			
Voyage	48	61		58	64		58	49				58		58	58	58		58		48	58			30		28		30		
Station	2	59-62		28	20		26	2				8		16	18	10		12		20	20			39		21		31		
Month	Feb.	Aug.		June	Sep.		June	Mar.				June		June	June	June		June		Feb.	June			April		Mar.		April		
Size of Fish in cm. ..	..	20+	30+	20+	30+	20+	20+	30+	<20	20+	30+	20+	30+	..	..	20+	30+	<20	20+	30+	..	<20	20+	30+	20+	30+	20+	30+	10+	20+
Stomachs containing recognisable food..	26	17	26	32	26	26	36	31	18	50	6	27	16	60	33	33	18	8	40	27	11	9	33	20	32	23	16	7	20	24
Pisces	% ..	% ..	% ..	% 6	% ..	% ..	% ..	% 3	% 6	% 36	% ..	% ..	% 6	% 2	% ..	% ..	% ..	% ..	% 2	% ..	% ..	% ..	% ..	% ..	% 16	% 48	% ..	% ..	% ..	% ..
Tunicata	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Polyzoa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mollusca	12	76	65	66	54	46	94	100	72	62	50	100	100	97	100	94	89	75	82	78	64	67	100	100	91	95	100	86	100	100
Crustacea	..	..	..	13	15	23	6	10	28	34	..	7	12	10	3	9	..	..	12	22	..	22	3	15	..	22	6	29	5	21
Polychæta	98	76	85	69	88	65	36	26	33	46	67	67	56	72	48	76	72	75	72	67	45	78	49	50	66	52	31	29	45	37
Nemertinea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..	..	..	..	..	..	8
Gephyrea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Echinoderma ..	..	..	..	16	23	12	11	3	33	38	17	19	25	13	..	9	..	..	17	11	..	11	3	5	3	4	..	..	..	..
Coelentera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Porifera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

TABLE 19. Plaice.

Markham's Hole.	Leman Ground and Neighbourhood.																										New Zealand.		
49	49	40		66			28	49			64	28		63		40	48	47	48	63		63		63			48		
10	6	13		8			17	5			22	15		1		14	10	26	8	5		7		9			14		
Mar.	r.	Sep.		Oct.			Mar.	Mar.			Sep.	Mar.		Sep.		Sep.	Feb.	Jan.	Feb.	Sep.		Sep.		Sep.			Feb.		
..	..	<31	31+	20+	30+	40+	..	<20	20+	30+	30+	20+	30+	20+	30+	25-40	..	..	..	20+	30+	20+	30+	20+	30+		10+	20+	30+
44	40	20	31	26	29	9	sev.	5	11	11	31	6	7	18	20	34	30	28	2	12	6	16	2	37	19		1	9	9
% 16	% 30	% ..	% 3	% 4	% 10	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% 7	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..		% ..	% ..	% ..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		..	..	..
84	97	65	74	92	76	78	100	80	91	100	45	67	86	100	100	91	67	21	100	92	83	56	100	92	100		..	11	22
41	17	5	13	4	10	22	..	..	9	9	16	33	29	..	..	9	30	21	..	..	17	..	..	5	10		..	..	..
50	40	35	42	65	45	..	..	..	18	64	74	17	43	6	..	32	47	71	100	25	..	50	..	24	16		100	100	89
2	..	..	..	..	..	..	..	..	..	..	..	..	14	..	..	..	..	..	..	..	..	..	..	..	..		..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		..	..	..
25	42	50	29	23	14	33	..	20	27	27	32	..	..	17	15	3	13	7	50	..	..	12	..	3	..		..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		..	..	..

Coast.						Borkum.		Eastern Grounds.						Clay Deep.	Dogger Bank.															
30	48	63		63		41		31	60	31				56	59	59	65	65	59	59	59	65	28		31	28		56	31	41	31
31	18	12		11		27		20	3	12				47	35	38	5	6	8	6	4	7	11		30	7		45	42	19	25
April	Feb.	Sep.		Sep.		Oct.		May	July	May				June	June	June	Oct.	Oct.	June	June	June	Oct.	Mar.		May	Mar.		May	May	Oct.	May
30+	..	10+	20+	10+	20+	20+	30+	20+	30+	10+	10+	20+	30+	..	29+	..	28+	..	30+	30+	30+	..	20+	30+	30+	20+	30+	..	30+	..	29+
6	20	51	25	33	19	22	11	10	28	30	20	13	16	25	16	9	sev.	8	19	34	20	27	13	21	14	17	49	17	12	22	15
% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% 10	% 46	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..	% ..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	..	..	10	6	..	..	..	..	..	6	8	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	53	10	..	..	..	..
100	90	41	80	67	42	73	64	80	89	90	90	100	100	80	94	100	100	100	89	85	100	100	77	86	93	47	98	88	92	95	93
17	35	8	16	36	10	59	55	..	..	3	15	..	..	28	12	..	..	..	16	9	..	4	..	19	..	23	12	29	8	41	..
17	95	28	48	18	42	86	55	10	25	20	15	15	19	81	56	11	..	..	26	18	10	..	46	38	14	23	31	82	50	5	47
..	..	..	..	..	..	..	9	..	..	..	..	..	..	12	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	15	57	12	42	26	23	..	20	..	7	..	..	..	44	6	11	..	..	..	3	..	..	..	..	..	6	2	12	..	..	..
..	..	12	..	..	..	..	..	..	..	..	..	..	..	..	6	11	..	..	5	..	..	..	..	5	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

1. North of Hartlepool. L. 8. (B. 294.) March. 5–10 fathoms. f.s., c.s.

Sixty-two fish (87 per cent.), divided into three groups, *i.e.*, 10–20 cm. (21 fish), 20–30 cm. (31 fish) and 30 cm. + (10 fish) contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 20. Plaice.

Size of fish in cm.	10–20		20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Polychæta	86	110	87	126	50	70	80	110
Nephthys sp.	33	33	26	35	10	10	26	30
Owenia fusiformis	19	29	16	16	10	10	16	19
Lagis Koreni	5	5	6	6	10	10	6	6
Crustacea	38	67	32	39	60	100	39	58
Amphipoda	29	52	23	29	30	70	26	43
Portunus holsatus	10	10	3	3	30	30	10	10
Mollusca...	19	48	32	32	30	30	27	27
Pisces (*Ammodytes*)	5	5	6	6	20	20	8	8
Echinoderma	...	...	3	3	10	10	3	3

Polychæta formed the chief food of the two smaller size-groups, whilst Crustacea (especially *Portunus holsatus*) and Pisces were found more frequently in the larger fish.

2. Bridlington Bay. XXX. 16. (B. 124.) April. 5 fathoms. f.g.s.

Twenty-six fish (100 per cent.) of 10–20 cm., contained recognisable food.

Feeding chiefly on Mollusca in 88 per cent. (116 specimens per 100 stomachs), consisting of *Scrobicularia* sp. ? in 23 per cent., *Solen* sp. in 35 per cent., *Solen pellucidus* in 11 per cent. (15 specimens per 100 stomachs), and remains in 38 per cent.

Crustacea occurred in 19 per cent., Polychæta in 23 per cent., and Echinoderma in 15 per cent.

3. Bridlington Bay. LIX. 29. (B. 345.) July. 3½–5 fathoms. f.d.s.

Fifty-four fish (95 per cent.), divided into two groups, *i.e.*, 10–20 cm. (30 fish) and 20–30 cm. (24 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 21. Plaice.

Size in cm.	10–20		20–30		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	87	87	83	134	85	108
Remains	73	73 ?	33	33 ?	55	55 ?
Tellina fabula	7	7	21	21	13	13
Nucula sp.	7	7	8	8	7	7
Polychæta	50	84	46	92	48	87
Nephthys sp.	40	67	12	12	28	43
Goniada maculata	13	13	33	67	22	37
Echinoderma	10	10	8	8	9	9
Crustacea	3	3	4	4	4	4
Pisces	3	3	4	4	4	4

Mollusca were the chief food in each size group, with Polychæta next in frequency; but whereas the 10–20 cm. fish were feeding chiefly on *Nephthys*, the 20–30 cm. contained more *Goniada maculata*.

4. The Wash—Boston Deep. LVII. 13. (S.T. 483.) June. 8 fathoms. cs.gl. & sh., f.s.

Six fish (43 per cent.) of 7–11 cm. contained recognisable food.

Feeding solely on sponges, *Leucosolenia* sp. ?, which was the only food found. Probably those containing unrecognisable food (57 per cent.) had been feeding on the same organism.

5–11. The Wash—Boston Deep. XLI. 26–29, 32–34. (Ag. & S.T. 575–578, 581–583.) August. 2–7 fathoms. f.s.

Thirty-eight fish (70 per cent.), divided into two groups, viz., 5–10 cm. (17 fish), and 10–15 cm. (21 fish) contained recognisable food.

The 5–10 cm. fish were feeding chiefly on Polychæte larvae, in 76 per cent., and Crustacea (chiefly Amphipoda) in 53 per cent.

The 10–15 cm. fish were feeding chiefly on Mollusca (consisting wholly of *Cardium edule* fry), which occurred in 95 per cent., and averaged 1,200 specimens per 100 stomachs.

Polychæta occurred in 24 per cent., represented by *Nephthys* sp. in 14 per cent., whilst Echinoderma were present in 10 per cent.

12. The Wash—Boston Deep. LXI. 23. (Ag. 572.) August. 1 fathom. f.s.

Nineteen fish (95 per cent.) of 3–12 cm. contained recognisable food.

Crustacea in 79 per cent. formed the chief food, and were represented by Amphipoda in 68 per cent. Polychæta occurred in 26 per cent. and Mollusca in 5 per cent.

13–14. The Wash—Gat Channel. LXI. 6 & 8. (Ag. 555 & 557.) August. 1–3 fathoms. f.s.

Fifteen fish (62 per cent.) of 5–9 cm. contained recognisable food.

Mollusca, represented solely by *Cardium edule* fry (670 specimens per 100 stomachs), occurred in 67 per cent., Crustacea in 40 per cent., represented by *Crangon* sp. ?, and Polychæta in 13 per cent.

15–17. The Wash—Gat Channel—Lynn Deep. LXI. 3, 9 & 10. August. 3–9 fathoms. f.s.

Eighteen fish (55 per cent.) of 7–16 cm. contained recognisable food.

Feeding chiefly on Crustacea (in 61 per cent.), Amphipoda and *Crangon vulgaris*, each in 22 per cent. Polychæta occurred in 50 per cent., represented by *Sabellaria* in 17 per cent. Mollusca, represented by *Cardium edule* fry (55 specimens per 100), were present in 17 per cent.

18. The Wash—Lynn Deep. LVII. 18. June. (S.T. 488.) 5–8 fathoms. s.m., sh., s.gl.

Six fish (55 per cent.) of 8–14 cm. contained recognisable food.

Crustacea, represented solely by Amphipoda, occurred in five, and Polychæta in one.

19. The Wash—Shrimpers' Catch. June.

Fourteen fish (42 per cent.), divided into two groups, *i.e.*, 12–14 cm. (seven fish) and 15–25 cm. (seven fish), contained recognisable food.

The chief food consisted of Polychæta, in five and seven stomachs respectively, the principal representative being *Lanice conchilega* in two (two specimens) and six (ten specimens) respectively.

Hydroids occurred in two and one respectively.

20. Off Sandettie Light Vessel. XLIV. 1. (B. 247.) November. 19–20 fathoms. gl.

Ninety-six fish of 20–40 cm. were examined; of these 95 were empty, whilst the remaining one contained a single *Pandalus Montagui* (cf. pp. 54 and 81).

21. Flamboro' Head Ground. XLVII. 2. (B. 277.) January. 31 fathoms. f.d.s.

Thirty-seven fish, 30 cm.+, were examined: all were found to be quite empty (cf. pp. 54 and 81).

22. Flamboro' Off Grounds. LXVI. 4. (O. 364.) October. 26–30 fathoms. f.g.s.

Twenty-four fish (86 per cent.) contained recognisable food.

Mollusca occurred in 87 per cent. (200 specimens per 100 stomachs), represented chiefly by *Mactra subtruncata* in 42 per cent. (50 per 100 stomachs), *Scrobicularia alba* in 21 per cent. (50 per 100 stomachs), and *Solen* sp. in 21 per cent. (37 per 100 stomachs).

Polychæta occurred in 25 per cent. (50 per 100 stomachs), *Owenia fusiformis*, 12 per cent., being the chief representative.

Echinoderma were present in 25 per cent. (29 per 100 stomachs), represented chiefly by *Ophiura* sp.? in 17 per cent.

23. Flamboro' Off Grounds. XLVII. 5. (O. 268.) January. 25–26 fathoms. f.s.

Fifty-three fish were examined, of these 45 (85 per cent.) were empty, whilst six (11 per cent.) contained recognisable food.

Polychæta occurred in six (*Owenia fusiformis* in three), Mollusca in four, and Echinoderma in one.

24–25. The Hills. XLIX. 25 & 26. (O. 279 & 280.) March. 15–30 fathoms. f.s., f.d.s., f.g.s.

Sixty-five fish (94 per cent.), divided into three groups, *i.e.*, 20-30 cm. (11 fish), 30–40 cm. (35 fish), and 40 cm.+ (19 fish), contained recognisable food.

The following table shows for each size-group (i) the percentage of stomachs containing the various food-groups and dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 22. Plaice.

Size in cm.	20-30		30-40		40+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	55	118	89	454	95	326	85	360
Solen sp....	...	...	49	74	79	270	49	118
Tellina fabula	27	82	54	257	5	5	35	154
Scrobicularia prismatica	...	...	34	83	10	10	21	48
Polychæta	55	100	57	94	32	37	49	78
Owenia fusiformis	27	64	29	46	16	16	25	40
Coelentera (*Cerianthus*)	55	55+?	34	34+?	...	...	28	28+?
Crustacea	27	27	11	11	...	...	11	11
Echinoderma	...	...	9	9	10	10	8	8
Pisces	...	...	9	9	...	...	5	5
Gephyrea	...	...	3	3	...	...	2	2

It will be noticed that with an increase in size there was an increase in the relative number of fish feeding on Mollusca. This is mainly due to the increasing importance of *Solen* in the food of the growing fish. The Mollusca eaten by the smallest fish were chiefly *Tellina fabula* ; these remained dominant in the next size-group though *Solen* and *Scrobicularia prismatica* were added ; while *Solen* became the dominant food among the largest fish and *Scrobicularia* and *Tellina* fell to insignificant proportions.

There was a marked decrease in the number of Polychæta, Crustacea and Coelentera present with increase in size, the two latter being absent from the largest fish, whilst Echinoderma were present in the two larger size-groups only and Gephyrea and Pisces only in the 30–40 cm. fish.

26. South of the Hills. LVI. 38. (O. 313.) May. 27–29 fathoms. f.g.s.

Thirty-one fish (88 per cent.) contained recognisable food.

Feeding chiefly on Mollusca, 84 per cent. (225 per 100 stomachs), the principal representatives being *Solen pellucidus* 23 per cent. (74 per 100), *Solen* sp. 26 per cent. (61 per 100), with 12 other species in 3–19 per cent.

Polychæta occurred in 42 per cent. (45 per 100), Pisces, represented by *Ammodytes*, in 32 per cent. (55 per 100), Crustacea in 13 per cent., Echinoderma in 19 per cent., and Coelentera in 3 per cent.

27. Flamborough Off Grounds. XXXI. 43. (B. 145.) May. 26–31 fathoms. f.d.s.

Twenty-six fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca, 85 per cent. (273 per 100), *Solen* sp. 38 per cent. (65 per 100), *Scrobicularia* sp. 31 per cent. (69 per 100), *Tellina fabula* 19 per cent. (46 per 100), being the chief representatives.

Echinoderma occurred in 27 per cent., Polychæta in 23 per cent., *Owenia fusiformis* 15 per cent., and Pisces, represented by *Ammodytes* only, occurred in 23 per cent., (35 per 100).

28. Markham's Hole. XLIX. 10. (B. 292.) March. 19–33 fathoms. f.s., s. s., s. & m.

Forty-four fish (94 per cent.) contained recognisable food.

Feeding chiefly on Mollusca, 84 per cent. (535 per 100), the chief representatives being *Scrobicularia prismatica* 64 per cent. (410 per 100), and *Solen* sp. 36 per cent. (43 per 100).

Polychæta were present in 50 per cent. chiefly *Lagis Koreni* 30 per cent. (84 per 100) ; Echinoderma occurred in 25 per cent. (41 per 100) ; Pisces in 16 per cent. (23 per 100), represented by *Amphioxus* and *Ammodytes*.

Crustacea occurred in 41 per cent. (93 per 100), represented chiefly by *Ampelisca* sp. 32 per cent. (68 per 100).

29. Leman Ground. XLIX. 6. (B. 291.) March. 12–13 fathoms. f.bl.spk.s., f.d.s.

Forty fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca, 97 per cent. (2,750 per 100), *Donax vittatus* 72 per cent. (2,500 per 100), *Tellina fabula* 55 per cent. (200 per 100), and *Solen* sp. ? 15 per cent. (17 per 100), being the chief representatives.

Echinoderma occurred in 42 per cent., *Echinocardium* 27 per cent., *Amphiura filiformis* 22 per cent.

Polychæta were present in 40 per cent., represented chiefly by *Lagis Koreni* 20 per cent.

Pisces, consisting solely of *Ammodytes*, occurred in 30 per cent. (52 per 100), and Crustacea in 17 per cent.

30. Leman Ground—E.N.E. of Swarte Bank. XL. 13. (B. 220.) September. 12–15 fathoms. f.d.s., f.spk.s.

Fifty-one fish (85 per cent.), divided into two groups, <31 cm. (20 fish) and 31 cm. + (31 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs :—

Table 23. Plaice.

Size in cm.	<31		31+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	65	85	74	148	71	124
Solen sp.	20	20	35	61	29	45
Venus gallina	25	35	10	13	16	21
Polychæta	35	50	42	55	39	53
Nephthys sp.	30	40	6	10	16	22
Echinoderma	50	50+ ?	29	29+ ?	37	37+ ?
Echinocardium sp.	40	40+ ?	29	29+ ?	33	33+ ?
Crustacea	5	5	13	13	10	10
Pisces	...	...	3	3	2	2

Echinoderma were more common in the smaller fish than in the larger, whereas the reverse was the case with the other groups, especially Mollusca. In the latter group *Solen* replaced *Venus gallina* as the dominant species among the larger fish.

31. Leman Ground. LXVI. 8. (O. 368.) October. 12–17 fathoms. gl., f.s.

Sixty-four fish (97 per cent.), divided into three groups, *i.e.*, 20–30 cm. (26 fish), 30–40 cm. (29 fish), 40 cm. + (9 fish), contained recognisable food.

The following table shows for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number present per 100 stomachs :—

Table 24. Plaice.

Size in cm.	20-30		30-40		40+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	92	400	76	845	78	600	83	630
Tellina fabula	42	268	52	760	22	222	44	484
Solen sp.	23	23	14	28	67	255	25	58
Polychæta	65	154	45	48	...	...	47	84
Nephthys sp.	31	31	7	7	...	...	16	16
Lagis Koreni	27	108	...	...	...	...	...	...
Echinoderma	23	280	14	35	33	78	20	142
Echinocyamus pusillus	11	270	7	14	...	...	...	...
Crustacea	4	4	10	10	22	22	9	9
Pisces	4	4	10	10	...	...	6	6

The 20–30 cm. fish were feeding chiefly on *Tellina fabula*, *Lagis Koreni* and *Echinocyamus*, the 30–40 cm. on *Tellina fabula*, and the 40 cm. + on *Solen* sp. and *Tellina fabula*.

32. LEMAN GROUND. XXVIII. 17. (B. 110.) March. 14–16 fathoms. f.s., f.d.s.

Several plaice examined, all of which were feeding on *Solen* sp.

33. LEMAN GROUND—EAST OF WELL BANK. XLIX. 5. (B. 290.) March. 15–17 fathoms. f.d.s., f.g.s.

Twenty-seven fish (82 per cent.) divided into three groups, *i.e.*, < 20 cm. (5 fish), 20–30 cm. (11 fish), and 30 cm. + (11 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number found per 100 stomachs.

TABLE 25. Plaice.

Size in cm.	<20		20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	80	1,000	91	930	100	1,540	93	1,180
Donax vittatus	80	1,000	82	910	55	1,360	70	1,110
Polychæta	...	...	18	36	63	320	33	144
Lagis Koreni	...	...	9	27	63	320	30	140
Echinoderma	20	20	27	36	27	27	26	30
Crustacea	...	...	9	9	9	9	7	7

Mollusca (especially *Donax vittatus*) formed the chief food in all the size-groups, and were practically the sole food in the smallest. Polychæta were most numerous among the larger fish, whilst Echinoderma were more or less constant throughout.

34. LEMAN GROUND—SOUTH PART. LXIV. 22. (B. 389.) September. 17 fathoms. f.g.s.

Thirty-one fish (91 per cent.) of 30 cm. + contained recognisable food.

Feeding chiefly on Polychæta, 74 per cent. (130 per 100), represented principally by *Lagis Koreni*, 58 per cent. (97 per 100).

Mollusca occurred in 45 per cent. (74 per 100), *Scrobicularia alba*, 13 per cent., *Mactra solida* (?) 16 per cent.

Echinoderma were present in 32 per cent. (42 per 100), *Ophiura* sp. 13 per cent., *Echinocyamus pusillus*, 16 per cent., whilst Crustacea were found in 16 per cent., *Thia polita*, 6 per cent.

35. LEMAN GROUND. XXVIII. 15. (B. 109.) March. 14–16 fathoms. f.d.s., f.s.

Thirteen fish (81 per cent.) divided into two groups, *i.e.*, 20–30 cm. (6 fish) and 30 cm + (7 fish), contained recognisable food.

The smaller contained single specimens of four species of Mollusca, two of Crustacea and one of Polychæta.

The larger had been feeding chiefly on Mollusca, 85 per cent. (670 per 100), *Tellina fabula*, 57 per cent. (430 per 100), and *Solen* sp., 28 per cent. (100 per 100).

Polychæta occurred in 43 per cent. (57 per 100), Crustacea in 28 per cent. and Nemertinea in 14 per cent.

36. LEMAN GROUND. LXIII. 1. (O. 343.) September. 15½–17 fathoms. f.g.s.

Thirty-eight fish (72 per cent.) divided into two groups, *i.e.*, 20–30 cm. (18 fish) and 30 cm. + (20 fish), contained recognisable food.

The following table shows for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 26. Plaice.

Size in cm.	20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	100	416	100	1,145	100	800
Donax vittatus	67	305	85	1,100	76	723
Echinoderma	17	?	15	?	16	?
Polychæt	6	6	...	...	3	3

Mollusca, represented chiefly by *Donax vittatus*, was the principal food in each group, the average number of specimens being about three times as numerous in the 30 cm. + group as in the 20–30 cm.

37. LEMAN GROUND. XL. 14. (B. 221.) September. 14–17 fathoms. f.d.s.

Thirty-four (100 per cent.) of 25–40 cm. contained recognisable food.

Feeding chiefly on Mollusca, 91 per cent. (153 per 100), represented principally by *Solen* sp., 41 per cent. (56 per 100), with nine other species in 3–18 per cent.

Polychæta occurred in 32 per cent. (32 per 100), the commonest species being *Nephthys* sp. 21 per cent.

Crustacea and Echinoderma occurred in 9 per cent. and 3 per cent. respectively.

38. LEMAN GROUND—EAST PART. XLVIII. 10. (B. 281.) February. 16–17 fathoms. f.s., f.d.s.

Thirty fish (86 per cent.) contained recognisable food.

Feeding chiefly on Mollusca, 67 per cent. (90 per 100), represented by *Solen* sp., 20 per cent. (27 per 100), *Solen pellucidus*, 17 per cent. (20 per 100), *Scrobicularia alba*, 20 per cent. (20 per 100), and four other species in 3–7 per cent.

Polychæta were present in 47 per cent. (53 per 100), *Lanice conchilega*, 23 per cent., being the chief representative.

Crustacea occurred in 30 per cent. (37 per 100), represented by *Corystes*, *Callianassa* and *Hippomedon* in 10 per cent., 3 per cent. and 17 per cent. respectively, whilst Echinoderma were present in 13 per cent. and Pisces in 7 per cent.

39. LEMAN GROUND—EAST OF LEMAN GROUND. XLVII. 26. (O. 276.) January. 17½–20 fathoms. f.s. & m.

Twenty-eight fish (44 per cent.) contained recognisable food, the remainder being empty.

Feeding chiefly on Polychæta, 71 per cent. (250 per 100), represented principally by *Lagis Koreni*, 50 per cent. (232 per 100). Mollusca and Crustacea each occurred in 21 per cent., and Echinoderma in 7 per cent.

40. LEMAN GROUND—SOUTH-EAST PART. LVIII. 8. (B. 280.) February. 16–18 fathoms. f.s.

Twenty-four fish examined, of these two contained recognisable food, whilst the remainder (92 per cent.) were empty (cf. pp. 54 and 81).

The two fish had each been feeding on Mollusca and Polychæta, and one of them had also eaten Echinoderma.

41. LEMAN GROUND. LXIII. 5. (O. 346.) September. 15–16 fathoms. f.d.g.s.

Eighteen fish (38 per cent.) divided into two groups, *i.e.*, 20–30 cm. (12 fish) 30 cm. + (6 fish), contained recognisable food, whilst 17 (34 per cent.) were empty.

The following table shows for each size group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs :—

TABLE 27. Plaice.

Size in cm.	20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	92	315	83	300	89	311
Donax vittatus	58	250	50	250	56	250
Polychæta	25	57	...	...	17	39
Crustacea	...	...	17	17	6	6

Both groups had been feeding chiefly on Mollusca, especially *Donax vittatus*, whilst in addition the smaller group had eaten Polychæta, and the larger group contained Crustacea.

42. LEMAN GROUND. LXIII. 7. (B. 374.) September. 15–16 fathoms. f.d.s., f.s.

Eighteen fish (46 per cent.) contained recognisable food, and 18 contained unrecognisable food, the remainder (8 per cent.) being empty.

Feeding principally on Mollusca 61 per cent. (94 per 100), *Solen* sp. 17 per cent. (39 per 100) being the chief representative, with five other species in 6-11 per cent.

Polychæta, represented by four species, occurred in 44 per cent., and Echinoderma in 11 per cent.

43. NORTH OF BROWN RIDGES. LXIII. 9. (O. 347.) September. 15–16 fathoms. f.d.g.s., f.s.

Fifty-six fish (94 per cent.) divided into two groups, *i.e.*, 20–30 cm. (37 fish) and 30 cm. + (19 fish), contained recognisable food.

The following table shows for each size-group (i) the percentage of stomachs containing the various food groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs :—

TABLE 28. Plaice.

Size in cm.	20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	92	450	100	935	95	616
Donax vittatus	54	324	79	788	62	483
Solen sp.	40	49	63	126	48	75
Polychæta	24	24	16	16	21	21
Crustacea	5	5	10	10	7	7
Echinoderma	3	3	...	...	2	2

Mollusca formed the chief food in both groups, the two principal species being relatively more numerous in the larger fish, both in percentage of stomachs containing them and in actual average frequency.

44. SOUTH-WEST PART OF NEW ZEALAND GROUND. XLVIII. 14. (B. 283.) February. 14–15 fathoms. f.s., f.d.s.

Nineteen fish (27 per cent.) divided into three groups, *i.e.*, 10–20 cm. (1 fish), 20–30 cm. (9 fish), and 30 cm. + (9 fish), contained recognisable food, whilst the remainder (73 per cent.) were empty.

The two larger groups of fish were feeding chiefly on Polychæta, 94 per cent. (205 per 100), represented principally by *Lanice conchilega*, 83 per cent. (189 per 100), with Mollusca in 17 per cent., *Solen* sp. being present in 17 per cent. (28 per 100).

The single fish of 10–20 cm. contained unidentified Polychæta remains.

45. Off Smith's Knoll Light Vessel. XLVIII. 2. (B. 278.) February. 22–24 fathoms. s. & m., s. & ross.

Twenty-six fish (76 per cent.) contained recognisable food.

Feeding almost entirely on Polychæta 96 per cent. (2,500 per 100) represented solely by *Lagis Koreni*. Mollusca occurred in 12 per cent. only.

46–49. Knoll Deep. LXI. 59–62. (B. 267–270.) August. 23–26 fathoms. Soil variable.

Forty-three fish (78 per cent.) divided into two groups, *i.e.*, 20–30 cm. (17 fish) and 30 cm. + (26 fish), contained recognisable food, the remainder, 22 per cent., being empty.

The following table shows for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs :—

Table 29. Plaice.

Size in cm.	20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Polychæta	76	94	85	270	81	200
Lagis Koreni	76	94	85	270	81	200
Mollusca	76	247	65	69 ?	70	140 ?
Scrobicularia alba	59	235	...	...	23	93
Remains, unidentified ...	6	6 ?	61	61 ?	40	40 ?

The smaller fish were feeding chiefly on Mollusca (especially *Scrobicularia alba*), whilst the larger ones were feeding principally on Polychæta (*Lagis Koreni*).

50. Winterton Twenties. LVIII. 28. (B. 341.) June. 19–22 fathoms. f.g.s.

Fifty-eight fish (95 per cent.) divided into two groups, *i.e.*, 20–30 cm. (32 fish) and 30 cm. + (26 fish), contained unrecognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 30. Plaice.

Size in cm.	20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Polychæta	69	163	88	587	78	353
Lagis Koreni	34	94	77	539	53	293
Ophelia limacina	19	28	12	15	16	22
Mollusca	66	320	54	238	60	282
Tellina fabula	19	44	23	100	21	69
Donax vittatus	50	250	19	50	36	160
Echinoderma	16	19	23	46+ ?	19	31+ ?
Crustacea	12	16	15	15	14	15
Pisces	6	9	...	...	3	5

The larger fish were feeding chiefly on *Lagis Koreni* and *Tellina fabula*, the smaller on *Donax vittatus* and *Lagis Koreni*.

51. East Part of Knoll Deep. LXIV. 20. (B. 388.) September. 22–24 fathoms. f.g.s., blk. clay.

Twenty-six fish (81 per cent.) of 20–30 cm. contained recognisable food.

Feeding chiefly on Polychæta, 65 per cent. (88 per 100), the principal representatives being *Lagis Koreni*, 31 per cent. (50 per 100), and *Nephthys* sp., 23 per cent. (23 per 100).

Mollusca occurred in 46 per cent. (58 per 100) consisting chiefly of *Scrobicularia* sp., 12 per cent. (15 per 100), and unidentified remains in 27 per cent. Crustacea occurred in 23 per cent., represented solely by *Gastrosaccus spinifer* (54 per 100), whilst Echinoderma were present in 12 per cent.

52. Winterton Twenties. LVIII. 26. (B. 340.) June. 17–20 fathoms. f.g.s.

Sixty-seven fish (100 per cent.) divided into two groups, 20–30 cm. (36 fish) and 30–40 cm. (31 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 31. Plaice.

Size in cm.	20-30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	94	1,124	100	1,700	97	1,395
Donax vittatus	75	695	84	967	79	820
Tellina fabula	56	389	58	612	57	492
Solen sp.	19	25	42	77	30	49
Polychæta	36	119	26	39	31	82
Lagis Koreni	14	97	23	26	18	64
Crustacea	6	6	10	10	7	7
Echinoderma	11	17	3	3	7	10
Pisces	...	...	3	6	1	1

Donax vittatus and *Tellina fabula* formed the bulk of the food in both groups, *Solen* sp., as is usually the case, were present in greater numbers in the larger size-group.

Lagis Koreni, although present in a smaller percentage of stomachs in the 20-30 cm. group, was more abundant in point of numbers than in the larger group.

53. Winterton Shoal. XLIX. 2. (B. 289.) March. 16–19 fathoms. blk. spk.s.

Seventy-four fish (93 per cent.) divided into three groups, *i.e.*, < 20 cm. (18 fish), 20–30 cm. (50 fish), and 30 cm. + (6 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food groups, and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 32. Plaice.

Size in cm.	<20.		20-30.		30+.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	72	305	62	110	50	100	63	157
Donax vittatus	61	211	20	30	17	17	30	73
Solen sp.	17	17	12	12	17	17	13	13
Mactra sp.	22	22	8	8	17	17	12	12
Polychæta	33	33	46	66	67	183	45	66
Lagis Koreni	...	...	26	42	67	166	23	42
Echinoderma	33	33	38	42+?	17	17	35	38+?
Crustacea	28	44	34	58	...	...	30	50
Gastrosaccus spinifer	22	33	24	42	...	...	22	36
Pisces (*Ammodytes*)	6	6	36	48	...	...	26	34

The smallest fish had been feeding chiefly on Mollusca (*Donax vittatus*) the medium on Mollusca, Polychæta and Pisces (*Ammodytes*), and the large on *Lagis Koreni*.

54. BETWEEN WINTERTON TWENTIES AND BROWN RIDGES. LVIII. 8. (B. 331.) June. 19–20 fathoms. f.g.s. & sh.

Forty-three fish (100 per cent.) divided into two groups, *i.e.*, 20–30 cm. (27 fish) and 30 cm.+ (16 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 33. Plaice.

Size in cm.	20-30.		30+.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	100	962	100	1,430	100	1,135
Donax vittatus	85	670	62	563	77	627
Tellina fabula	33	186	69	688	46	371
Scrobicularia sp.	26	30	31	31	28	30
Solen sp.	33	40	69	118	46	70
Polychæta	67	115	56	125	63	118
Sthenelais limicola	37	37	12	12	28	28
Ophelia limacina	37	66	19	31	30	53
Echinoderma	18	22+?	25	25	21	23
Crustacea	7	7	12	19	9	12
Pisces	...	...	6	6	2	2

The small fish were feeding chiefly on *Donax vittatus* with *Tellina fabula* and *Ophelia limacina*, whilst the food of the large ones consisted principally of *Tellina* and *Donax* with *Solen* sp.

55. South Part of Middle Brown Ridge. LVIII. 16. (B. 335.) June. 15–18 fathoms. f.g.s., sh.

Sixty fish (100 per cent.) contained recognisable food.

Feeding principally on Mollusca, 97 per cent. (588 per 100), consisting of *Donax vittatus*, in 77 per cent. (333 per 100), *Solen* sp., 78 per cent. (122 per 100), *Tellina fabula*, 30 per cent. (100 per 100).

Polychæta occurred in 72 per cent. (226 per 100), represented chiefly by *Ophelia limacina*, 58 per cent. (183 per 100).

Echinoderma were present in 13 per cent., Crustacea in 10 per cent. and Pisces in 2 per cent.

56. Between the Eastern Brown Ridges. LVIII. 18. (B. 336.) June. 15–17 fathoms. f.g.s.

Thirty-three fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca 100 per cent. (712 per 100), represented by *Donax vittatus* 91 per cent. (455 per 100), *Tellina fabula* 33 per cent. (152 per 100), and *Solen* sp. 70 per cent. (97 per 100).

Polychæta were present in 48 per cent. (142 per 100), *Ophelia limacina* in 39 per cent. (121 per 100) being the chief representative.

Crustacea occurred in 3 per cent.

57. North Part of the West Brown Ridge. LVIII. 10. (B. 332.) June. 15–21 fathoms. f.d.s., f.g.s.

Fifty-one fish (100 per cent.) divided into two groups, *i.e.*, 20–30 cm. (33 fish) and 30 cm. + (18 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups, and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 34. Plaice.

Size in cm.	20–30.		30+.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	94	835	89	1,080	92	920
Donax vittatus	73	665	72	890	72	744
Tellina fabula	21	100	61	94	35	98
Solen sp.	21	21	55	72	33	39
Scrobicularia sp.	30	36	22	22	27	31
Polychæta	76	310	72	200	75	272
Ophelia limacina	51	242	33	72	45	182
Crustacea	9	12	...	...	6	8
Echinoderma	9	73	...	...	6	47

Both groups feeding chiefly on Mollusca (especially *Donax*) and Polychæta (especially *Ophelia*).

58. Between the Western Brown Ridges. LVIII. 12. (B. 333.) June, 15–20 fathoms. f.g.s., f.g.s. and sh.

Seventy-five fish (100 per cent.) divided into two groups, *i.e.*, < 20 cm. (8 fish), 20–30 cm. (40 fish), and 30 cm. + (27 fish), contained recognisable food.

Table showing for each group (i) the percentage of stomachs containing the various food groups, and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 35. Plaice.

Size in cm.	<20.		20–30.		30+.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	75	400	82	553	78	778	80	620
Donax vittatus	50	312	65	474	67	667	64	525
Solen sp.	37	37	27	27	41	55	33	39
Scrobicularia sp.	25	37	15	15	18	18	17	19
Polychæta	75	137	72	250	67	300	71	255
Ophelia limacina	37	50	47	132	33	63	41	98
Lagis Koreni	...	...	12	35	30	196	17	89
Crustacea	...	..	12	12	22	22	15	15
Echinoderma	..	...	17	20	11	15	13	16
Pisces	..	...	2	2	...	...	1	1

The fish of each size group were feeding chiefly on Mollusca (especially *Donax*) and Polychæta (especially *Ophelia* in the two smaller, and *Lagis* in the largest group.)

59. BROWN RIDGES. XLVIII. 20. (B. 286.) February. 14–17 fathoms. f.g.s., f.br.s.

Eleven fish (16 per cent,) contained recognisable food, the remaining 57 (84 per cent.) being empty (cf. pp. 54 and 81).

Mollusca occurred in 64 per cent. (*Solen* sp. 55 per cent.), Polychæta in 45 per cent. and Echinoderma in 9 per cent.

60. EASTERMOST BROWN RIDGE. LVIII. 20. (B. 337.) June. 14–18 fathoms. f.g.s.

Sixty-two fish (98 per cent.) divided into three groups, *i.e.*, < 20 cm. (9 fish), 20 cm. + (33 fish), and 30 cm. + (20 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 36. Plaice.

Size in cm.	<20.		20–30.		30 +.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	67	146	100	830	100	565	95	644
Donax vittatus	55	100	67	515	50	250	60	370
Solen sp.	22	33	61	106	75	85	60	89
Tellina fabula	...	...	24	182	65	200	34	161
Polychæta	78	111	48	115	50	100	53	110
Ophelia limacina	56	78	45	97	25	40	40	76
Nephthys sp.	11	11	15	15	20	20	16	16
Crustacea	22	22	3	3	15	15	10	10
Echinoderma	11	11	3	3	5	5	5	5

The qualitative differences in the food of the three size-groups were slight in this collection. *Donax vittatus* was the commonest mollusc in each size group, whilst *Solen* occurred in a greater proportion of stomachs in the larger fish than in the smaller. *Tellina fabula*, though absent from the smallest fish, formed an appreciable item of the food of the larger. *Ophelia* was present in all size groups, but was most frequent in the smallest. Crustacea and Echinoderma were both more common in the smallest and largest fish than in the medium.

61. North-east Part of Brown Ridges. XXX. 39. (B. 126.) April. 15 fathoms. f.s.

Fifty-five (100 per cent.) divided into two groups, *i.e.*, 20–30 cm. (32 fish) and 30 cm. + (23 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 37. Plaice.

Size in cm.	20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	91	659	96	900	93	760
Donax vittatus	87	500	82	465	85	486
Tellina fabula	47	131	43	260	45	185
Solen sp.	12	12	65	161	35	75
Polychæta	66	100	52	65	60	85
Nephthys sp.	25	40	22	22	24	33
Ophelia limacina	22	22	9	9	16	16
Pisces (*Ammodytes*)... ...	16	28	48	78	29	49
Crustacea	...	...	22	22	9	9
Echinoderma	3	3	4	4	4	4

Donax, *Tellina* and Polychæta formed the chief food of the smaller fish whilst the 30 cm. + fish had in addition been feeding more largely on *Solen* sp. and *Ammodytes*.

62. Broad Fourteens. XXVIII. 21. (B. 113.) March. 12–16 fathoms. f.g.s.

Twenty-three fish (85 per cent.) contained recognisable food.

Feeding chiefly on Mollusca 96 per cent. (348 per 100), principally *Solen* sp., 74 per cent. (152 per 100), and *Tellina fabula* 17 per cent. (178 per 100).

Polychæta occurred in 30 per cent. (226 per 100), chiefly *Ophelia limacina* 17 per cent. (213 per 100), and Crustacea in 13 per cent.

63. Off Haaks Light Vessel. XXX 31. (B. 125.) April. 14–15 fathoms. f.s.

Fifty fish (100 per cent.) divided into three groups, *i.e.*, 10–20 cm. (20 fish), 20–30 cm. (24 fish), and 30 cm. + (6 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 38. Plaice.

Size in cm.	10–20		20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	100	770	100	1,280	100	1,780	100	1,136
Donax vittatus...	100	650	100	895	100	1,280	100	844
Tellina fabula	30	50	67	254	50	366	50	186
Solen sp.	60	65	29	46	33	116	42	62
Polychæta	45	55	37	37	17	17	38	42
Ophelia limacina	40	40	17	17	17	17	26	26
Crustacea	5	5	21	25	17	17	14	16
Nemertinea	...	...	8	8	...	...	4	4

Mollusca formed the major portion of the food of all the size-groups, *Donax* being the chief representative in all, whilst *Tellina* was most common in the two larger groups, and *Solen* sp. in the largest.

64. OFF THE HAAKS LIGHT VESSEL. XLVIII. 18. (B. 285.) February. 16 fathoms. f.g.s.

Twenty fish (74 per cent.) contained recognisable food.

Feeding chiefly on Polychæta 95 per cent. (470 per 100) represented principally by *Lagis Koreni* 90 per cent. (430 per 100).

Mollusca occurred in 90 per cent. (220 per 100), *Solen* sp. being present in 55 per cent. (55 per 100), *Scrobicularia alba* in 30 per cent. (100 per 100), and *Solen pellucidus* in 30 per cent. (30 per 100).

Crustacea occurred in 35 per cent. (110 per 100), represented chiefly by *Nika edulis* 25 per cent. (105 per 100), whilst Echinoderma were present in 15 per cent.

65. OFF CAMPERDOWN. LXIII. 12. (B. 376.) September. 7–10 fathoms. c.s., f.g.spk.s.

Seventy-six (91 per cent.) divided into two groups, *i.e.*, 10–20 cm. (51 fish) and 20 cm. + (25 fish) contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 39. Plaice.

Size in cm.	10–20		20+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	41	47	80	364	54	151
Tellina fabula	...	...	72	312	34	102
Remains	20	20 ?	...	...	13	13 ?
Scrobicularia sp.	8	8	28	44	14	20
Polychæta	27	27	48	60	34	38
Nephthys sp.	18	18	4	4	13	13
Lagis Koreni	4	4	40	40	16	16
Echinoderma	57	61+ ?	12	12+ ?	42	45+ ?
Echinocardium sp.	57	57+ ?	12	12+ ?	42	42+ ?
Coelentera (*Chondractinia*)	12	16	...	...	8	10
Crustacea	8	8	16	16	10	10

The smaller fish were feeding chiefly on *Echinocardium*, and the larger on *Tellina fabula*.

66. Off Camperdown. LXIII. 11. (O. 348.) September. 8-12 fathoms. f.g.s.

Fifty-two fish (67 per cent.) divided into two groups, *i.e.*, 10–20 cm. (33 fish) and 20 cm. + (19 fish), contained recognisable food, and 21 (27 per cent.) unrecognisable food, the remainder being empty.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 40. Plaice.

Size in cm.	10–20.		20 +.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	67	185	42	105	58	156
Mactra sp. young	48	152	...	...	31	96
Tellina fabula	...	...	37	100	13	36
Polychæta	18	24	42	42	27	31
Crustacea	36	106	10	10	27	71
Gastrosaccus spinifer ...	33	100	...	...	21	63
Echinoderma	42	42	26	26	36	36
Echinocardium sp.	30	30	16	16	25	25
Ophiura sp.	12	12	10	10	12	12

The smaller fish were feeding chiefly on *Mactra* sp. young (about 5 mm. long) and *Gastrosaccus spinifer* and the larger on *Tellina fabula*.

67. Off Borkum. XLI. 27. (O. 256.) October. 20 fathoms. f.g.s. and m.

Thirty-three fish (91 per cent.) divided into two groups, *i.e.*, 20–30 cm. (22 fish) and 30 cm. + (11 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 41. Plaice.

Size in cm.	20–30.		30 +.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Polychæta	86	332	55	55	76	240
Lagis Koreni	41	136	18	18	33	97
Scalibregma inflatum ...	55	136	...	...	36	91
Mollusca	73	241	64	73	70	185
Nucula nitida	36	55	18	18	30	42
Solen pellucidus	41	118	9	9	30	82
Scrobicularia alba	23	50	18	18	21	39
Crustacea	59	136	55	109	57	127
Nika edulis	41	104	55	109	45	106
Ampelisca sp.	23	23	...	...	15	15
Echinoderma	23	23	...	...	15	15
Nemertinea	...	...	9	9	3	3

The smaller fish were feeding chiefly on Polychæta (*Lagis* and *Scalibregma*), Mollusca (*Solen pellucidus*) and Crustacea (*Nika edulis*), whilst the larger were feeding chiefly on *Nika edulis* with a varied assortment of Mollusca and Polychæta.

68. Sylt Outer. XXXI. 20. (B. 139.) May. 10–11 fathoms. f.s.

Thirty-eight fish (92 per cent.) divided into two groups, *i.e.*, 20–30 cm. (10 fish) and 30 cm. + (28 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 42. Plaice.

Size in cm.	20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	80	420	89	614	87	564
Tellina fabula	80	400	82	590	81	540
Solen sp.	10	10	25	29	21	24
Polychæta	10	10	25	39	21	31
Pisces (*Ammodytes*)... ...	10	10	46	50	37	39
Echinoderma	20	20	...	...	5	5

Both size-groups were feeding chiefly on *Tellina fabula*, whilst *Solen* sp., Polychæta and *Ammodytes* were more common in the larger, and Echinoderma in the smaller fish.

69. South Bight of Horn Reef. LX. 3. (O. 342.) July. 9–10 fathoms. f.d.s. & sh.

Thirty fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca, 90 per cent. (323 per 100), represented principally by *Tellina fabula*, 30 per cent. (134 per 100), *Solen pellucidus*, 27 per cent. (80 per 100), and *Scrobicularia alba*, 20 per cent. (53 per 100).

Polychæta occurred in 20 per cent., Echinoderma in 7 per cent., and Crustacea in 3 per cent..

70. Norman Deep. XXXI. 12. (B. 134.) May. 7–11 fathoms. f.d.s.

Forty-nine fish (91 per cent.), divided into three groups, *i.e.*, 10–20 cm. (20 fish), 20–30 cm. (13 fish), and 30 cm. + (16 fish), contained recognisable food.

Table showing for each size group (i) the percentage of stomachs containing the various food groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 43. Plaice.

Size in cm.	10–20		20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	90	190	100	408	100	319	96	289
Tellina fabula	20	35	85	315	62	181	51	157
Scrobicularia alba	65	150	23	92	69	106	55	121
Polychæta	15	15	15	15	19	19	16	16
Lagis Koreni	5	5	...	...	19	19	8	8
Crustacea	15	15	...	...	...	...	6	6

All groups were feeding chiefly on Mollusca, represented almost entirely by *Tellina* and *Scrobicularia*.

71. Off East End of Great Silver Pit. LVI. 47. (O. 317.) June. 23–25 fathoms. s. & m., f.d.s.

Twenty-five fish (100 per cent.) contained recognisable food.

Mollusca, 80 per cent. (188 per 100), represented by *Cylichna cylindracea*, 72 per cent. (144 per 100), and *Solen* sp., 20 per cent. (20 per 100), and Polychæta, 84 per cent. (160 per 100), represented by *Nephthys* sp., 60 per cent. (100 per 100), and *Ophelia limacina*, 16 per cent. (40 per 100) formed the chief food, whilst Echinoderma occurred in 44 per cent. (160 per 100), represented solely by *Amphiura filiformis*. Gephyrea were present in 40 per cent. (64 per 100), Crustacea in 28 per cent. (56 per 100), and Nemertinea in 12 per cent.

72. Dogger—North Ground. LIX. 35. (O. 331.) June. 16–27 fathoms. f.d.g.s.

Sixteen fish (89 per cent.), 29 cm. + in length, contained recognisable food.

Feeding chiefly on Mollusca, 94 per cent. (444 per 100), consisting principally of *Solen* sp., 37 per cent. (69 per 100), *Solen pellucidus*, 44 per cent. (131 per 100), and *Psammobia ferröensis*, 19 per cent. (75 per 100).

Polychæta occurred in 56 per cent. (169 per 100), represented chiefly by *Owenia fusiformis*, 37 per cent. (125 per 100).

Crustacea were present in 12 per cent., Echinoderma and Coelentera each in 6 per cent.

73. Dogger—North Ground. North Part. LIX. 38. (O. 332.) June. 25–27 fathoms. f.d.g.s.

Nine fish (100 per cent.) contained recognisable food.

Feeding chiefly on Mollusca, 100 per cent. (700 per 100). *Solen pellucidus*, 78 per cent. (500 per 100), and *Solen* sp., 67 per cent. (144 per 100), being the principal representatives.

Polychæta, Echinoderma, Coelentera and Tunicata each occurred in one stomach only (11 per cent.)

74. Dogger—North-west Rough. South East Part. LXV. 5. (O. 356.) October. 13–17 fathoms. f.g.s. ; gl.

Several plaice of 28 cm. + were examined, all contained recognisable food, which consisted chiefly of Mollusca, *i.e.*, many *Pecten opercularis* and a few *Solen* sp.

75. Dogger—North-west Rough. East Part. LXV. 6. (O. 357.) October. 17–18 fathoms. gl., c.s.

Eight fish (89 per cent.) contained recognisable food.

Feeding exclusively on Mollusca, 100 per cent. (1,545 per 100), represented by three species only. *Pecten opercularis*, 37 per cent. (620 per 100). *Solen* sp., 87 per cent. (875 per 100), and *Psammobia ferröensis*, 25 per cent. (50 per 100).

76. Dogger—N.N.E. of South-west Patch. LIX. 8. (O. 321.) June. 16–17 fathoms. f.s. & sh., f.g.s.

Nineteen fish (91 per cent.) of 30 cm. + contained recognisable food.

Feeding principally on Mollusca 89 per cent. (200 per 100), chiefly *Solen* sp. 63 per cent. (132 per 100), and *Psammobia ferröensis*, 26 per cent. (58 per 100.)

Polychæta occurred in 26 per cent. (58 per 100) and Crustacea in 16 per cent. (105 per 100) represented by small *Eupagurus Bernhardus*.

77. Dogger—N.N.E. of South-west Patch. LIX. 6. (O. 320.) June. 13-16 fathoms. f.s. & sh.

Thirty-four fish (83 per cent.) of 30 cm.+ contained recognisable food.

Feeding chiefly on Mollusca 85 per cent. (506 per 100) the principal representatives being *Mactra subtruncata* in 29 per cent. (265 per 100), *Solen* sp. 47 per cent. (88 per 100) and *Natica catena* 3 per cent. (94 per 100).

Polychæta occurred in 18 per cent., Crustacea in 9 per cent. (88 per 100) (represented solely by small *Eupagurus Bernhardus*), Echinoderma in 3 per cent., and Tunicata in 6 per cent.

78. Dogger—N.N.E. of South-west Patch. LIX. 4. (O. 319.) June. 12–13 fathoms. f.s. & sh.

Twenty fish (87 per cent.) of 30 cm.+ contained recognisable food.

Feeding almost exclusively on Mollusca 100 per cent. (1,290 per 100) *Mactra subtruncata* in 90 per cent. (1,250 per 100) being the principal representative.

Polychæta occurred in 10 per cent.

79. Dogger—N.N.E. of South-west Patch. LXV. 7. (O. 358.) October. 10–14 fathoms. f.g.s.

Twenty-seven fish (100 per cent.) contained recognisable food.

Feeding almost exclusively on Mollusca 100 per cent. (21,000 ! per 100) the chief representatives being young *Mactra subtruncata*, 78 per cent. (20,900 ! per 100) and *Solen* sp. 15 per cent. (26 per 100). Crustacea occurred in 4 per cent. The number of *Mactra* present, which were nearly all in fragments, was calculated by drying the total quantity found after picking out all extraneous matter, weighing and dividing the weight by that of 70 whole *Mactra* (dry), which were found in the mass of fragments and multiplying the result by 70 ; the average length of the 70 whole specimens was 6·2 mm.

80. Dogger—E. of South-west Patch. XXVIII. 11. (O. 164.) March. 10–13 fathoms. f.s.

Thirty-four fish (87 per cent.) divided into two groups, *i.e.*, 20–30 cm. (13 fish) and 30 cm.+ (21 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups, and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 44. Plaice.

Size in cm.	20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	77	108	86	629	82	430
Solen sp.	54	77	62	148	59	121
Mactra subtruncata ...	...	...	52	428	32	265
Tellina fabula	15	23	14	19	15	21
Polychæta	46	46	38	52	41	50
Nephthys	15	15	19	19	18	18
Crustacea	...	...	19	19	12	12
Coelentera	...	...	5	5	3	3

The smaller fish were feeding chiefly on *Solen* sp., *Tellina fabula*, and Polychæta, whilst *Mactra subtruncata* and *Solen* sp. constituted the chief food of the larger ones.

81. Dogger—Between East and West Shoals. XXXI. 30. (B. 143.) May. 11–12 fathoms. f.g.s., f.d.s.

Fourteen fish (78 per cent.) of 30 cm. + contained recognisable food.

Feeding principally on Mollusca 93 per cent. (193 per 100), consisting wholly of *Solen* sp., 93 per cent. (172 per 100), and *Mactra* sp. 21 per cent. (21 per 100.)

Polychæta (14 per cent.) was the only other group represented.

82. Dogger—East of South-west Patch. XXVIII. 7. (O. 161.) March. 14–17 fathoms. f.s., & sh., f.s.

Sixty-six fish (96 per cent.) divided into two groups, *i.e.*, 20–30 cm. (17 fish) and 30 cm. + (49 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups, and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 45. Plaice.

Size in cm.	20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	47	94	98	445	85	355
Tellina fabula	29	71	24	88	26	83
Solen sp.	...	...	75	300	56	222
Polychæta	23	47	31	43	29	44
Nephthys sp.	18	18	12	12	14	14
Polyzoa (*Alcyonidium*) ...	53	?	10	?	21	?
Crustacea	23	23	12	18	15	20
Tunicata (*Pelonaia* sp. ?) ...	6	6	8	41	8	32
Echinoderma	6	6	2	2	3	3

The smaller fish were feeding chiefly on Mollusca (especially *Tellina fabula*) and *Alcyonidium*, whilst *Solen* sp. constituted the principal food of the larger fish.

83. Dogger—North Part of Hospital. LVI. 45. (O. 316.) May. 18–19 fathoms. f.d.g.s.

Seventeen fish (94 per cent.) contained recognisable food.

Feeding chiefly on Mollusca 88 per cent. (330 per 100), *Solen* sp. 35 per cent. (153 per 100) and *Cylichna cylindracea* 47 per cent. (165 per 100), being the chief representatives, and Polychæta 82 per cent. (376 per 100), *i.e.*, *Nephthys* sp. 59 per cent. (129 per 100), *Goniada maculata* 53 per cent. (124 per 100), *Lagis Koreni* 41 per cent. (65 per 100) and *Owenia fusiformis* 23 per cent. (59 per 100.) Crustacea occurred in 29 per cent. (29 per 100), Echinoderma in 12 per cent. (12 per 100) and Nemertinea in 6 per cent.

84. Dogger—South of South-west Patch. XXXI. 42. (B. 144.) May. 19–21 fathoms. f.s.

Twelve fish (92 per cent.) of 30 cm. + contained recognisable food.

Feeding chiefly on Mollusca, 92 per cent. (267 per 100), consisting principally of *Solen* sp., 75 per cent. (175 per 100), and *Mactra subtruncata*, 33 per cent. (58 per 100). Polychæta, 50 per cent. (83 per 100), were represented chiefly by *Nephthys* sp., 50 per cent. (67 per 100), and Crustacea, 8 per cent. (108 per 100) by *Portunus holsatus*, 8 per cent. (100 per 100).

85. Dogger—South of South-west Patch. XLI. 19. (O. 248.) October. 17–18 fathoms. g.s. & sh.; s. & gl.

Twenty-two fish (85 per cent.) contained recognisable food.

Feeding chiefly on Mollusca, 95 per cent. (222 per 100). *Solen* sp., 82 per cent. (168 per 100), being the principal representative.

Crustacea occurred in 41 per cent. (50 per 100), *Corystes cassivelaunus* being present in 36 per cent. (45 per 100), whilst Polychæta were found in 5 per cent. only.

86. East Part of Dogger Bank. XXXI. 25. (B. 142.) May. 16–21 fathoms. f.s.

Fifteen fish (100 per cent.) of 29 cm.+ contained recognisable food.

Feeding chiefly on Mollusca, 93 per cent. (466 per 100), represented by *Mactra subtruncata*, 53 per cent. (400 per 100), and *Solen* sp., 27 per cent. (47 per 100).

Polychæta occurred in 47 per cent. (47 per 100), represented by three or more species.

Lemon Soles. (*Pleuronectes microcephalus.*)

Fifty-nine fish from five stations were examined; of those 53 contained recognisable food, and two were empty, the contents of the remainder being unrecognisable.

The food consisted chiefly of Polychæta in 53 per cent., and Coelentera (*Cerianthus*) in 49 per cent., whilst Polyzoa occurred in 15 per cent., Mollusca in 15 per cent., and Crustacea in 6 per cent.

Included those recorded in the first report, 199 fish have been examined, of which 141 contained recognisable food consisting of Polychæta in 76 per cent., Coelentera, 21 per cent., Crustacea, 11 per cent., Mollusca and Polyzoa each in 6 per cent.

1. East of Farn Island. LXV. 3. (O. 354.) October. 40–50 fathoms. m.

Fifteen fish were examined of which three contained unrecognisable food, and 12 (80 per cent.) contained recognisable food.

Feeding chiefly on Coelentera (*Cerianthus*) 75 per cent. (167 per 100), and Polychæta, 58 per cent. (75 per 100), represented by *Eunice* (*norvegica* ?) and a Capitellid each in 17 per cent., and *Nereis pelagica*, *Sabella pavonina*, and a Terebellid each in 8 per cent.

2. W.N.W. of Brucey's Garden. LIX. 51. (O. 338.) July. 41–46 fathoms. f.s. & m.

Fourteen fish (100 per cent.) containing recognisable food.

Feeding chiefly on Coelentera (*Cerianthus*) 78 per cent. (171 per 100), and Polychæta, 57 per cent. (179 per 100) consisting of *Ampharete* (*Grubei* ?) 43 per cent. (143 per 100). *Eunice* (*norvegica* ?) 21 per cent. (21 per 100) and *Sabella pavonina* and a Terebellid each in 7 per cent.

Crustacea represented by *Eupagurus Bernhardus* occurred in 7 per cent.

3. South of the Hills. LVI. 38. (O. 313.) May. 27–29 fathoms. f.g.s.

Nine fish were examined of which two were empty and seven contained recognisable food.

Coelentera (*Cerianthus*) formed the chief food, occurring in six, whilst Polychæta were present in two, represented by *Sabella pavonina* in two, *Phyllodoce* sp.? and *Lepidonotus squamatus* each in one.

Mollusca represented by *Solen* feet occurred in two, and *Pycnogonum littorale* in one.

4. Off Grounds. XXXI. 43. (B. 145.) May. 26–31 fathoms. f.d.s.

Nine fish (100 per cent.) contained recognisable food.

Feeding chiefly on Polyzoa ? (*Alcyonidium*?), which was present in eight. The only other food found was *Hyas* sp. ? in one and six *Pycnogonum littorale* in one.

5. Off Blakeney Overfalls. LVII. 29. (B. 326.) June. 11–12 fathoms. s. & sh.

Eleven fish (92 per cent.) contained recognisable food.

Feeding wholly on Polychæta, represented by six *Lanice conchilega* in four stomachs, seven *Sabella pavonina* in three stomachs, and by numbers of *Pomatoceros triqueter* in four, the last species apparently having been pulled out of their tubes, as no trace of the latter was found.

Witch. (*Pleuronectes cynoglossus.*)

1. East of Farn Island. LVX. 3. (O. 354.) October. 40–50 fathoms. m.

Fifteen fish (83 per cent.) contained recognisable food, the contents in the remainder being unrecognisable.

Feeding chiefly on Polychæta, 80 per cent. (93 per 100), consisting of *Lumbriconereis* sp. ? 47 per cent., unidentified remains in 20 per cent., and *Sabella pavonina*, *Pectinaria* sp. ?, *Goniada maculata* and *Notomastas* ? sp., each in seven per cent.

Crustacea, represented by Amphipoda, occurred in 33 per cent. Mollusca (Cephalopoda) and Gephyrea each in seven per cent., and Coelentera (*Cerianthus*) in 13 per cent.

Dabs. (*Pleuronectus limanda.*)

One thousand and forty-one stomachs from 47 stations have been examined, of these 704 were divided into size groups, *i.e.*, < 10 cm., 117 ; 10–20 cm., 272 ; 20–30 cm., 209; 30 cm. +, 106 ; whilst the lengths of the remaining 337 were not noted.

Of the total examined 87 (8 per cent.) were empty, 114 (11 per cent.) contained unrecognisable food, whilst recognisable food was found in 840 (81 per cent.).

The food consisted of Mollusca and Crustacea each in 43 per cent., Polychæta in 22 per cent., Echinoderma in 18 per cent., Coelentera in 13 per cent., Pisces in 2 per cent., whilst Tunicata, Gephyrea and Foraminifera each occurred in less than 0·5 per cent.

Including those recorded in the first report, 1,370 stomachs have been examined, of which 1,098 contained recognisable food, *i.e.*, Mollusca in 47 per cent., Crustacea in 41 per cent., Polychæta in 21 per cent., Echinoderma in 15 per cent., Coelentera in 12 per cent., Pisces in 2 per cent., Polyzoa and Nemertinea each in 1 per cent., Tunicata, Gephyrea, and Foraminifera in less than 0·5 per cent.

Change of food with increase in size is shown in the following curves.

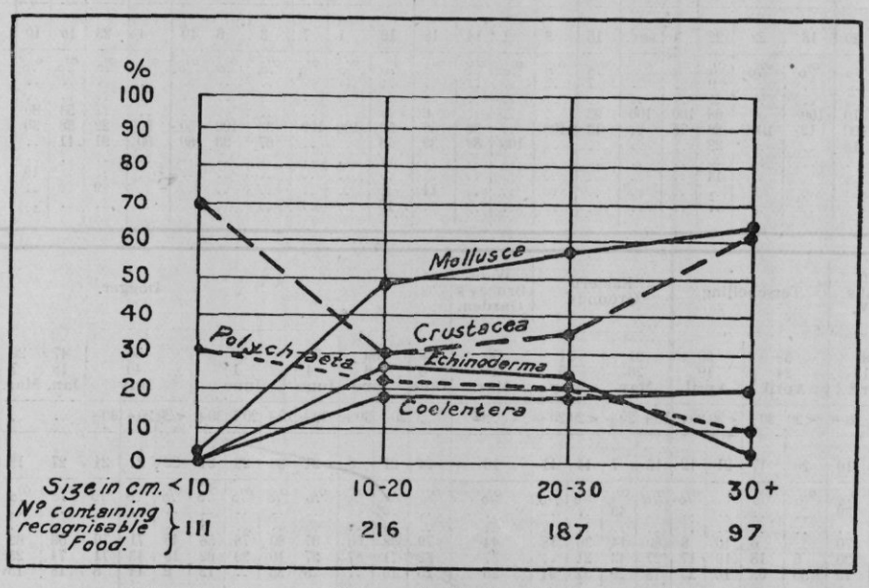

Fig. 4. Dabs. Change in food with increase in size.

The < 10 cm. fish were feeding chiefly on Crustacea (Amphipoda and Cumacea), with Polychæta second in importance; in the remaining groups Mollusca constituted the chief food, with Crustacea second. The rise in Crustacea in the 30 cm.+ group was almost wholly due to *Eupagurus Bernhardus*, whilst that in Echinoderma in the 10–20 and 20–30 cm. fish was due chiefly to *Amphiura filiformis*, *Echinocardium* sp. and *Ophiura* sp. The steady rise in Coelentera was due almost entirely to *Obelia* sp., which is often found in Dab stomachs from the Dogger.

Although not so marked as in the Plaice, there seems to be a certain cessation of feeding in the winter months, which is most marked in November, when the percentage of empty stomachs reaches 48 per cent.

The following curve shows the percentage of empty stomachs in each month of the year, the index figures giving the number examined (including the first report).

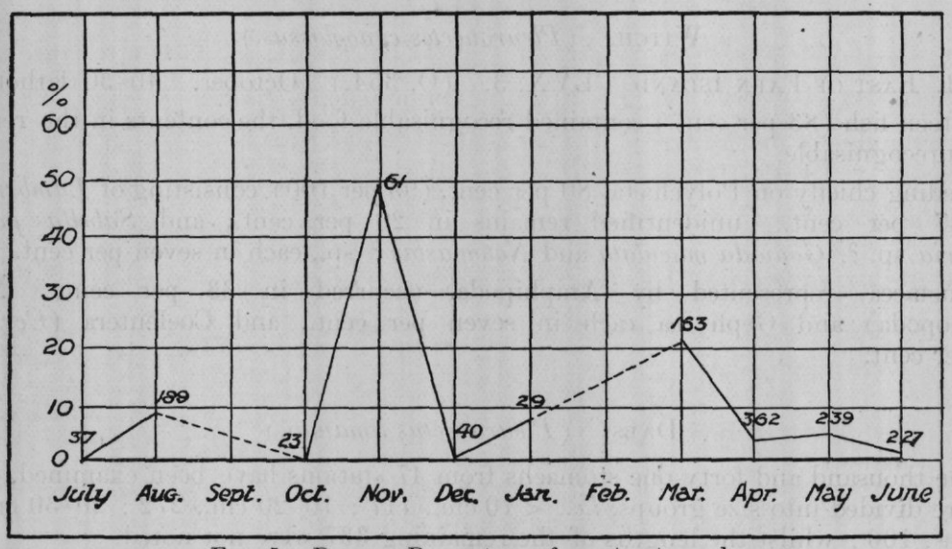

FIG. 5. DABS. Percentage of empty stomachs.

The average for the period November to March inclusive was 23 per cent., and 4 per cent. for April to August.

For details see Table E., of which the following is a summary :—

TABLE 46. Dabs.

Region.	Hartlepool.		Bridlington Bay.						Wash.												Leman Ground.		Markham's Hole.	S. of Brown Ridges.		Ijmuiden.	NE. of Brown Ridges.
Voyage	50	50	30	Oithona.	30		47	59	57	61	61		61	61		61	61	61		57	28		66	43		29	30
Station	4	6	16	7	11		1	29	13	32-34	26-29		23	3		9,10	6	16-19		18	15		7	1		4	39
Month	Mar.	Mar.	April	July	April		Jan.	July	June	Aug.	Aug.		Aug.	Aug.		Aug.	Aug.	Aug.		June	Mar.		Oct.	Nov.		Mar.	April
Size of Fish in cm. ..	2-7	4-7	20+	5-14	<20	20+	..	20+	5-7	5-10	5-10	10-15	6-9	10-17	7-9	..	6-10	7-9	10-16	5-12	<22	22+	..	10+	20+	..	10+
Stomachs containing recognisable food ..	11	20	16	22	22	4	sev.	15	3	1	14	18	16	1	7	3	6	10	4	23	19	10	23	7	8	20	19
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Pisces	..	..	..	..	9	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	5	26
Tunicata	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mollusca	..	10	100	..	68	100	100	93	..	..	..	6	..	..	..	..	..	..	..	..	53	80	13	71	62	20	84
Crustacea	100	100	12	100	86	75	..	13	100	..	36	56	50	100	100	33	100	50	50	22	58	30	30	..	37	35	21
Polychæta	..	15	..	..	23	..	..	..	..	100	86	39	56	..	..	67	33	60	50	91	11	..	4	..	..	35	16
Gephyrea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Echinoderma	..	..	..	..	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	10	61	14	12	15	..
Coelentera	..	..	..	..	..	..	..	..	..	..	..	ii	..	..	..	..	..	..	..	9	..	..	22	29	..	..	..
Foraminifera	..	..	..	..	..	..	..	..	..	..	..	..	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Region.	Off Haaks L.-V.		Terschelling.				Eastern Grounds.				W. of Brucey's Garden.	Dogger.																	Clay Deep.
Voyage	30		30		30		31		31		50	59	59		59		59		56		47	29	31		56		31		56
Station	31		24		19		20		16		24	8	6		4		1		40		18	7	30		45		25		47
Month	April		April		April		May		May		Mar.	June	June		June		June		May		Jan.	Mar.	May		May		May		June
Size of Fish in cm. ..	<20	20+	<20	20+	<20	20+	10+	20+	<20	20+	..	..	20+	30+	30+	10+	20+	30+	<20	20+	30+	..	..	10+	30+	20+	10-24	30+	..
Stomachs containing recognisable food ..	27	10	20	17	21	12	15	7	14	11	16	24	21	8	21	20	23	24	22	21	24	27	13	6	18	22	10	2	33
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Pisces	..	30	..	..	..	..	..	43	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	20	..	..
Tunicata	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mollusca	78	70	..	6	10	8	80	14	36	18	44	79	38	50	67	80	78	58	45	71	79	59	62	33	61	59	10	..	39
Crustacea	30	30	5	18	10	17	27	43	21	..	37	62	71	87	57	10	39	62	18	43	71	74	23	17	50	41	70	100	21
Polychæta	4	10	35	53	10	25	13	29	57	91	25	25	10	..	5	35	..	12	9	14	8	18	15	17	17	23	10	..	30
Gephyrea	..	..	..	..	..	..	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Echinoderma	26	40	95	76	86	100	13	..	7	9	12	..	..	..	5	..	..	4	9	..	..	4	..	..	59	10	..	..	82
Coelentera	4	..	15	29	57	75	7	..	7	..	..	..	10	..	..	..	4	..	73	57	46	18	46	33	50	9	..	..	..
Foraminifera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

1. South of the Mouth of the Tees. L. 4. (S.T. 404.) March. 5–6 fathoms. f.s.

Eleven fish (92 per cent.) of 2–7 cm. contained recognisable food.

Feeding wholly on Crustacea, 100 per cent., consisting of Amphipoda in 73 per cent. *Mysis* larvae in 18 per cent., and unidentified remains in 9 per cent.

2. North of Hartlepool. L. 6. (S.T. 406.) March. 4–5 fathoms. f.s.

Twenty fish (100 per cent.) of 4–7 cm. contained recognisable food.

Feeding chiefly on Crustacea, 100 per cent., represented by Amphipoda (400 per 100) in 80 per cent., remains in 25 per cent., and Cumacea in 5 per cent.

Polychæta occurred in 15 per cent. and Mollusca in 10 per cent.

3. Bridlington Bay. XXX. 16. (B. 124.) April. 8 fathoms. d.s. and sh.

Sixteen fish (100 per cent.) of 20 cm. + contained recognisable food.

Feeding chiefly on Mollusca, 100 per cent. (125 per 100), represented in 94 per cent. by *Solen* sp. ? (119 per 100).

Crustacea occurred in 12 per cent.

4. Bridlington Bay. Oithona 7. July. $2\frac{1}{4}$ fathoms.

Twenty-two fish (100 per cent.) of 5–14 cm. contained recognisable food.

All were full of Crustacea, represented exclusively by Cumacea.

5. Bridlington Bay. XXX. 11. (B. 123.) April. 5–7 fathoms. d.s.gl.

Twenty-six fish (96 per cent.), divided into two groups, *i.e.*, < 20 cm. (22 fish) and 20 cm. + (4 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food groups, and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 47. Dabs.

Size in cm.	< 20.		20 +.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Crustacea	86	145	75	100	85	138
Crangon vulgaris	27	27	50	50	31	31
Idothea linearis	9	9	25	25	11	11
Corystes cassivelaunus ...	23	23	...	...	19	19
Amphipoda	18	18	...	...	15	15
Mollusca	68	86	100	150	73	96
Solen sp.	23	23	75	125	31	38
Polychæta	23	23	...	...	19	19
Echinoderma	14	14	...	...	12	12
Pisces	9	9	...	...	8	8

Both size-groups were feeding chiefly on Crustacea and Mollusca.

6. Bridlington Bay. XLVII. 1. (B. 276.) January. 6 fathoms. f.s.

Several fish examined, all feeding largely on Mollusca, represented by *Doris pilosa*.

7. Bridlington Bay. LIX. 29. (B. 345.) July. 3–5 fathoms. f.d.s.

Fifteen fish (100 per cent.) of 20 cm. + contained recognisable food.

Feeding principally on Mollusca, 93 per cent. (106 per 100), represented almost entirely by *Solen* sp. 93 per cent. (93 per 100).

Crustacea occurred in 13 per cent. and Pisces in 7 per cent.

8. Wash—Boston Deep. LVII. 13. (S.T. 483.) June. 8 fathoms. c.s., gl. & sh., f.s.

Three fish (75 per cent.) of 5–7 cm. contained recognisable food.

All feeding on Crustacea, represented solely by Amphipoda.

9–11. Wash—Boston Deep. Bennington Main. LXI. 32–34. (S.T. 581–583.) August. 3–5 fathoms. s.m., f.s.

Eleven fish of 3–5 cm. were examined, of these 10 contained unrecognisable food, whilst the remaining one had been feeding on Polychæta.

12–15. Wash—Boston Deep. Leverton and Bennington Main. LXI. 26–29. (S.T. 575–578.) August. 1–7 fathoms. f.s.

Thirty-two fish (80 per cent.), divided into two groups, *i.e.*, 5–10 cm. (14 fish) and 10–15 cm. (18 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 48. Dabs.

Size in cm.	5–10.		10–15.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Polychæta (unidentified) ...	86	?	39	39	59	?
Crustacea	36	43	56	89	47	69
Crangon vulgaris	7	7	28	39	19	25

The smaller fish were feeding chiefly on Polychæta, whilst the food of the larger consisted principally of Crustacea, represented by *Crangon vulgaris* and *Portunus holsatus*.

16. Wash—Boston Deep (North Toft). LXI. 23. (Ag. 572.) August. 1 fathom. f.s.

Sixteen fish (76 per cent.) of 6–9 cm. contained recognisable food.

Feeding chiefly on Crustacea, 50 per cent. (169 per 100), consisting principally of Amphipoda 37 per cent. (156 per 100).

Polychæta were present in 56 per cent., mostly unidentified.

17. Wash—Lynn Deep (Gat Channel). LXI. 3. (S.T. 552.) August. 3–4 fathoms. f.s.

Eight fish (73 per cent.) of 7–17 cm. contained recognisable food.

The food in all cases consisted solely of Polychæta, none of which were identified.

18 & 19. Wash—Lynn Deep (Gat Channel). LXI. 9 & 10. (S.T. 558, 559.) August. 4–9 fathoms. f.s.

Three fish (16 per cent.) contained recognisable food ; 79 per cent. being empty.

Polychæta occurred in two and Crustacea in one.

20. WASH—LYNN DEEP (GAT CHANNEL). LXI. 6. (Ag. 555.) August. 2 fathoms. f.s.

Six fish (85 per cent.) of 6–10 cm. contained recognisable food.

All feeding on Crustacea, represented in 50 per cent. by Amphipoda. Polychæta occurred in 33 per cent.

21–24. WASH—LYNN DEEP (HOOK HILL HALL AND OLD SOUTH GROUND). LXI. 16–19. (Ag. 565–568.) August. 1–6 fathoms. f.s., f.s. & m., f.s. & sh.

Fourteen fish (67 per cent.) of 7–16 cm. contained recognisable food.

Feeding chiefly on Polychæta, 57 per cent., and Crustacea, 50 per cent. (64 per 100), *Crangon* sp ? 29 per cent. (43 per 100) being the only one identified.

25. WASH—LYNN DEEP. LVII. 18. June. 5–8 fathoms. Soil variable.

Twenty-three fish (85 per cent.) of 5–12 cm. contained recognisable food.

Feeding chiefly on Polychæta, represented solely by Terebellida (? *Lanice*) in 91 per cent.

Crustacea (Amphipoda) occurred in 22 per cent. and Hydrozoa in 9 per cent.

26. LEMAN GROUND. XXVIII. 15. (B. 109.) March. 14–16 fathoms. f.d.s., f.s.

Twenty-nine fish (83 per cent.), divided into two groups, *i.e.*, < 22 cm. (19 fish) and 22 cm. + (10 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 49. Dabs.

Size in cm.	< 22.		22 +.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	53	110	80	220	62	148
Solen sp. feet	16	26	60	200	31	86
Mactra sp. feet	16	21	...	...	10	14
Crustacea	58	74	30	40	48	62
Callianassa subterranea ...	26	26	20	20	24	24
Pandalus Montagui	37	37	10	10	28	28
Polychæta	11	11	...	...	7	7
Echinoderma	...	...	10	10	3	3

The smaller fish were feeding chiefly on Crustacea (*Pandalus* and *Callianassa*), Mollusca (chiefly *Solen* and *Mactra* feet), whilst Mollusca, represented almost entirely by *Solen* feet, formed the principal food of the larger fish.

27. MARKHAM'S HOLE. LXVI. 7. (O. 367.) October. 20–33 fathoms. spk.s., s. & m.

Twenty-three fish (100 per cent.) contained recognisable food.

Feeding chiefly on Echinoderma, 61 per cent. (74 per 100), the principal representatives being *Ophiothrix fragilis* 30 per cent. and *Echinus miliaris* 35 per cent.

Crustacea occurred in 20 per cent. (43 per 100), *Eupagurus Bernhardus* 13 per cent. (13 per 100) being the chief representative.

Mollusca were present in 13 per cent. and Polychæta in 4 per cent.

28. South of Brown Ridges. XLIII. 1. November. 15–18 fathoms. f.d.s.

Fifteen fish (48 per cent.), divided into two groups, *i.e.*, 10–20 cm. (seven fish) and 20 cm. + (eight fish), contained recognisable food, and 48 per cent. were empty.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 50. Dabs.

Size in cm.	10–20.		20 +.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	71	71	62	75	67	73
Solen sp.	43	43	50	50	47	47
Crustacea	...	...	37	37	20	20
Echinoderma	14	14	12	12	13	13
Coelentera (*Obelia* sp.) ...	29	?	...	...	13	?
Pisces	...	...	25	25	13	13

Both groups were feeding chiefly on Mollusca (especially *Solen* sp.).

The 20 cm. + fish had also been feeding on Crustacea and Pisces, which were both absent from the stomachs of the smaller fish.

29. Off Ijmuiden. XXIX. 4. (O. 170.) March. 9–11 fathoms. f.s.

Twenty fish (62 per cent.) contained recognisable food ; 31 per cent. being empty.

Feeding chiefly on Crustacea, 35 per cent. (40 per 100), represented by *Crangon vulgaris* 20 per cent. (20 per 100), *Eupagurus Bernhardus* 15 per cent. (15 per 100), and *Thia polita* 5 per cent., and Polychæta, 35 per cent. (35 per 100), the principal representatives of which were *Terebella* ? in 15 per cent. and *Phyllodoce grænlandica* 10 per cent.

Mollusca occurred in 20 per cent., *Solen* sp. 10 per cent., Echinoderma represented by *Ophiura albida* in 15 per cent., and Pisces in 5 per cent.

30. North-East Part of Brown Ridges. XXX. 39. April. 15 fathoms. f.s.

Nineteen fish (82 per cent.) of 10–20 cm. contained recognisable food.

Feeding chiefly on Mollusca, 84 per cent. (158 per 100), represented principally by *Syndosmya prismatica* 47 per cent. (58 per 100), *Donax vittatus* 26 per cent. (63 per 100), and *Solen* sp. 31 per cent. (31 per 100).

Pisces, represented by *Ammodytes*, occurred in 26 per cent. (26 per 100), Crustacea in 21 per cent., and Polychæta in 16 per cent.

31. Off Haaks Light-vessel. XXX. 31. (B. 125.) April. 14–15 fathoms. f.s.

Thirty-seven fish (95 per cent.), divided into two groups, *i.e.*, <20 cm. (27 fish) and 20 cm. + (10 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 51. Dabs.

Size in cm.	< 20.		20 +.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	78	133	70	170	76	143
Solen sp.	37	48	40	40	38	46
Solen pellucidus	18	33	20	70	19	43
Tellina fabula	18	18	10	10	16	16
Crustacea	30	30	30	40	30	32
Eupagurus Bernhardus ...	7	7	30	30	14	14
Echinoderma	26	26 ?	40	40 ?	30	30 ?
Echinocardium sp.	7	?	30	?	14	?
Polychæta	4	4	10	20	5	8
Pisces (*Ammodytes* sp.) ...	...	...	30	30	8	8

Mollusca formed the chief food of both size-groups. Echinoderma were more common in the larger fish, whilst Pisces were absent from the stomachs of the smaller ones.

32. NORTH-WEST OF TERSCHELLING. XXX. 24. (O. 187.) April. 19–20 fathoms. m., s. & m.

Thirty-seven fish (97 per cent.), divided into two groups, *i.e.*, < 20 cm. (20 fish) and 20 cm. + (17 fish), contained recognisable food.

Table showing for each size group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 52. Dabs.

Size in cm.	< 20.		20 +.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Echinoderma	95	685	76	124	86	426
Amphiura filiformis ...	95	650	23	41	62	370
Ophiura ciliaris	25	25	47	47	35	35
Echinocardium sp.	5	?	29	?	16	?
Polychæta	35	110	53	218	43	159
Lagis Koreni	25	100	53	212	38	151
Coelentera (*Obelia* sp.) ...	15	?	29	?	22	?
Crustacea	5	5	18	18	11	11
Mollusca	...	...	6	6	3	3

Both groups were feeding chiefly on Echinoderma and Polychæta, the former being more common in the < 20 cm. group than in the 20 cm. + and the latter *vice versa*.

33. N.N.W. of Terschelling. XXX. 19. (O. 186.) April. 20–21 fathoms. m.

Thirty-three fish (100 per cent.), divided into two groups, *i.e.*, < 20 cm. (21 fish) and 20 cm. + (12 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 53. Dabs.

Size in cm.	< 20.		20 +.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Echinoderma	86	119	100	234	91	161
Echinocardium sp.	19	?	100	?	48	?
Ophiura ciliaris	29	29	50	50	36	36
Amphiura filiformis ...	38	67	33	67	36	67
Coelentera (*Obelia* sp.) ...	57	?	75	?	64	?
Polychæta	10	29	25	42	15	33
Crustacea	10	10	17	17	12	12
Mollusca	10	10	8	8	9	9

Echinoderma (especially *Amphiura*) and Coelentera (*Obelia* sp.) formed the chief food of the smaller fish, whilst Echinoderma (especially *Echinocardium* sp.) and Coelentera (*Obelia* sp.) formed that of the larger.

34. Sylt Outer. XXXI. 20. (B. 139.) May. 10–11 fathoms. f.s.

Twenty-two fish (76 per cent.), divided into two groups, *i.e.*, < 20 cm. (15 fish) and 20 cm. + (7 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 54. Dabs.

Size in cm.	< 20.		20 +.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	80	86	14	29	59	68
Solen sp.	27	33	14	14	23	27
Bivalve feet	40	40	14	14	32	32
Crustacea	27	27	43	43	32	32
Eupagurus Bernhardus ...	7	7	43	43	18	18
Polychæta	13	13	29	29	18	18
Pisces	...	...	43	43	14	14
Echinoderma	13	13	...	...	9	9
Coelentera (*Obelia*)	7	?	...	...	5	?

Mollusca formed the chief food of the smaller fish, whilst the larger fish had been feeding more on Crustacea and Pisces.

35. Horn Reef Outer. XXXI. 16. (B. 136.) May. 26–27 fathoms. f.s. & oz. ; f.s. & m.

Twenty-five fish (64 per cent.) divided into two groups, *i.e.*, < 20 cm. (14 fish) and 20 cm. + (11 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various-food groups, and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 55. Dabs.

Size in cm.	<20.		20+.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Polychæta	57	78	91	100	72	88
Mollusca	36	36	18	18	28	28
Scrobicularia sp.	29	29	...	...	16	16
Crustacea	21	21	...	...	12	12
Echinoderma	7	7	9	9	8	8
Coelentera	7	?	...	...	4	?
Gephyrea	7	7	...	...	4	4

The larger fish were feeding principally on Polychæta, with few Mollusca and Echinoderms.

The smaller fish, whilst feeding chiefly on Polychæta, although to a less extent than the larger, contained (in addition to Mollusca and Echinoderma) Crustacea, Coelentera, and Gephyrea, which were absent from the stomachs of the larger fish.

36. West of Brucey's Garden. L. 24. (O. 286.) March. 42–43 fathoms. f.d.s.

Sixteen fish (40 per cent.) contained recognisable food, 47 per cent. being empty, whilst the remainder contained unrecognisable food.

Mollusca occurred in 44 per cent. (50 per 100), *Cardium* feet 25 per cent. and *Solen pellucidus* 12 per cent., being the chief representatives.

Crustacea occurred in 37 per cent. (112 per 100) represented in 19 per cent. by *Ampelisca* sp. (94 per 100).

Polychæta were present in 25 per cent.. and Echinoderma in 12 per cent.

37. Dogger—N.N.E. of South-west Patch. LIX. 8. (O. 321.) June. 16–17 fathoms. f.s. & sh. ; f.g.s.

Twenty-four fish (89 per cent.) contained recognisable food.

Feeding chiefly on Mollusca 79 per cent. (92 per 100), the principal representative being *Solen* sp. 71 per cent. (83 per 100), and Crustacea 62 per cent. (62 per 100), represented solely by *Eupagurus Bernhardus*. Polychæta occurred in 25 per cent.

38. Dogger—N.N.E. of South-west Patch. LIX. 6. (O. 320.) June. 13–16 fathoms. f.s. & sh.

Twenty-nine fish (83 per cent.) divided into two groups, *i.e.*, 20–30 cm. (21 fish) and 30 cm. + (8 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 56. Dabs.

Size in cm.	20–30.		30+.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.
Crustacea	71	81	87	87	76	83
Eupagurus Bernhardus ...	71	76	87	87	76	79
Mollusca	38	38	50	62	41	45
Solen sp.	24	24	50	62	31	34
Polychæta	10	10	...	...	7	7
Coelentera	10	?	...	...	7	?

Both size-groups had been feeding chiefly on Crustacea (especially *Eupagurus Bernhardus*) and Mollusca (principally *Solen* sp.), Polychæta and Echinoderma were present in the 20–30 cm. fish only.

39. DOGGER—N.N.E. OF SOUTH-WEST PATCH. LIX. 4. (O. 319.) June. 12–13 fathoms. f.s. & sh.

Twenty-one fish (95 per cent.) of 30 cm. +, contained recognisable food.

Feeding principally on Mollusca 67 per cent. (219 per 100), consisting chiefly of *Natica catena* 57 per cent. (152 per 100), and *Mactra subtruncata* 29 per cent. (62 per 100), Crustacea represented solely by *Eupagurus Bernhardus* were present in 57 per cent. (57 per 100.)

Polychæta and Echinoderma each occurred in 5 per cent. only.

In three stomachs which contained both *Natica* and *Mactra*, the latter were bored by the *Natica*.

40. DOGGER—NORTH OF SOUTH-WEST PATCH. LIX. 1. (O. 318.) June. 9–15 fathoms. f.s., f.s. & sh.

Sixty-seven fish (85 per cent.) divided into three groups, *i.e.*, 10–20 cm. (20 fish), 20–30 cm. (23 fish), and 30 cm. + (24 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

TABLE 57. Dabs.

Size in cm.	10–20		20–30		30+		Total.	
	St.	Sp.	St.	Sp.	St.	Sp	St.	Sp.
Mollusca	80	m	78	144	58	129	72	m
Solen sp.	55 (fry)	m	22	26	29	29	34	m
Natica catena	...	...	22	30	29	50	18	28
Mactra subtruncata	...	...	9	22	8	37	6	21
Crustacea	10	10	39	43	62	75	39	45
Eupagurus Bernhardus	10	10	26	26	58	71	33	37
Polychæta	35	35	...	...	12	12	15	15
Coelentera	...	...	4	?	...	...	1	?

The smallest fish were feeding chiefly on Mollusca, represented in the majority of cases by the fry of *Solen* sp., about 2 mm. long, many of the stomachs being quite full. The medium fish were feeding on a varied assortment of Mollusca, chiefly *Solen*, *Natica* and *Mactra*, and Crustacea, especially *Eupagurus*. The food of the larger fish consisted chiefly of *Eupagurus* and Mollusca.

In one case (among the 30 cm. + fish) in which both *Natica* and *Mactra* were present in the same stomach, four out of seven of the latter were bored.

41. Dogger—North of South-west Patch. LVI. 40. (O. 314.) May. 10–14 fathoms. f.g.s. & sh.

Sixty-seven fish (92 per cent.) divided into three groups, *i.e.*, < 20 cm. (22 fish), 20–30 cm. (21 fish), and 30 cm. + (24 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 58. Dabs.

Size in cm.	<20.		20–30		30+.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Mollusca	45	95	71	110	79	138	66	115
Solen sp.	36	41	62	86	58	100	52	76
Coelentera (*Obelia* sp.)	73	?	57	?	46	?	58	?
Crustacea	18	23	43	43	71	75	45	48
Eupagurus Bernhardus	14	14	33	33	71	75	40	42
Polychæta	9	9	14	14	8	8	10	10
Echinoderma	9	9	...	...	...	...	3	3

The small fish were feeding chiefly on *Obelia* and *Solen*, the medium on *Solen*, *Obelia* and *Eupagurus*, and the large on *Eupagurus*, *Solen* and *Obelia*.

42. Dogger—Eastern Shoal. XLVII. 18. (O. 272.) January. 11–12 fathoms. f.s.

Twenty-seven fish (93 per cent.) contained recognisable food.

Feeding chiefly on Crustacea represented solely by *Eupagurus Bernhardus* 74 per cent. (104 per 100), and Mollusca 59 per cent. (130 per 100), consisting chiefly of *Solen* sp. 33 per cent. (48 per 100), *Mactra subtruncata* 26 per cent. (41 per 100), and *Natica catena* 22 per cent. (37 per 100).

Polychæta occurred in 18 per cent., *Phyllodoce grœnlandica* 15 per cent. being the chief representative.

Coelentera (*Obelia geniculata*) were present in 18 per cent. and Echinoderma in 4 per cent.

43. Dogger—N.E. of South-west Patch. XXIX. 7. (O. 172.) March. 9–11 fathoms. f.s. & sh.

Thirteen fish (87 per cent.) contained recognisable food.

Feeding principally on Mollusca 61 per cent. (77 per 100), *Solen* sp. 38 per cent. (46 per 100) being the chief representative.

Coelentera (*Obelia longissima*) occurred in 46 per cent., Crustacea (*Eupagurus Bernhardus*) in 23 per cent. (31 per 100), and Polychæta in 15 per cent.

44. Dogger—Between East and West Shoals. XXXI. 30. (B. 143.) May. 11–12 fathoms. f.g.s., f.d.s.

Twenty-four fish (86 per cent.) divided into two groups, *i.e.*, 10–20 cm. (6 fish) and 30 cm. + (18 fish), contained recognisable food.

Table showing for each size-group (i) the percentage of stomachs containing the various food-groups and the dominant species, and (ii) the total number of specimens found per 100 stomachs.

Table 59. Dabs.

Size in cm.	10–20.		30+.		Total.	
	St.	Sp.	St.	Sp.	St.	Sp
Mollusca	33	33	61	67	54	58
Solen sp.	33	33	56	61	50	54
Coelentera (*Obelia*)	33	?	50	?	46	?
Crustacea	17	17	50	50	42	42
Eupagurus Bernhardus ...	...	...	50	50	37	37
Polychæta	17	17	17	17	17	17

The chief food in each case consisted of *Solen* and *Obelia*, and in addition the 30 cm. + were feeding to a large extent on *Eupagurus*.

45. Dogger—North Part of Hospital. LVI. 45. (O. 316.) May. 18–19 fathoms. f.d.g.s.

Twenty-two fish (88 per cent.) of 20 cm. + contained recognisable food.

The chief food consisted of Mollusca 59 per cent. represented almost entirely by *Solen* sp. 55 per cent. and Echinoderma 59 per cent. (141 per 100), represented by *Amphiura filiformis* 59 per cent. (136 per 100).

Crustacea occurred in 41 per cent., *Eupagurus Bernhardus* 23 per cent., and *Callianassa subterranea* 18 per cent., whilst Polychæta were present in 23 per cent.

46. Dogger—East Part. XXXI. 25. (B. 142.) May. 16–21 fathoms. f.l.g.s., f.s., f.g.s.

Twelve fish (41 per cent.) contained recognisable food, that in the remainder being unrecognisable.

The food consisted chiefly of Crustacea in 75 per cent. (290 per 100), represented by Amphipoda 42 per cent. (250 per 100). *Eupagurus Bernhardus* 25 per cent. (25 per 100).

Pisces occurred in 17 per cent., whilst Mollusca, Polychæta and Echinoderma were each present in 8 per cent.

47. Off East End of Great Silver Pit. LVI. 47. (O. 317.) June. 23–25 fathoms. s. and m., f.d.s.

Thirty-three fish (100 per cent.) contained recognisable food.

Feeding chiefly on Echinoderma in 82 per cent. (618 per 100) consisting principally of *Amphiura filiformis* 79 per cent. (606 per 100).

Mollusca occurred in 39 per cent. (39 per 100). *Solen pellucidus* 21 per cent. (21 per 100) being the commonest species.

Crustacea occurred in 21 per cent., and Polychæta in 30 per cent.

Flounder. (*Pleuronectes flesus.*)

Twenty-seven fish from two stations were examined. Five of these contained recognisable food, the remainder (all from one station) being empty. Including those recorded in the last report fifty-one stomachs from three stations have been examined, 45 of which were empty. The empty stomachs were all those of fish caught off Ijmuiden and Egmont in 8–10 fathoms f.s.–c.s. in November and March, one stomach only from that locality containing any food. Those containing food were taken off Covehithe in April. (c.f. Plaice and Dabs, pp. 81 and 106.)

Off Covehithe. LII. 9. (S.T. 431.) April. 11 fathoms. m.

Five fish (100 per cent.) contained recognisable food.

All feeding chiefly on Mollusca (*Scrobicularia alba*), whilst *Crangon vulgaris*, *Idothea linearis*, and *Lagis Koreni* each occurred in one stomach only.

Off Ijmuiden. XXVIII. 24. (B. 115.) March. 8–10 fathoms. f.s.

All the fish examined (22) were empty. (c.f., 1st Report on Food of Fishes, p. 251.)

Soles. (*Solea vulgaris.*)

One hundred and fifty-seven stomachs from 16 stations have been examined; of these 87 were divided into size-groups, *i.e.*, <20 cm. (47 fish), 20–30 cm. (19 fish), 30 cm. + (21 fish), whilst the lengths of 70 were not noted.

Of those examined recognisable food was found in 108, whilst 31 were empty, and 18 contained unrecognisable food. The food found consisted chiefly of Polychæta in 58 per cent., Crustacea 26 per cent., Mollusca 12 per cent., Pisces 10 per cent., Echinoderma 6 per cent., and Nemertinea 1 per cent.

Including those recorded in the last report 349 stomachs have been examined. Of these 212 contained recognisable food, which consisted of Polychæta in 59 per cent., Crustacea in 30 per cent., Pisces and Mollusca each in 11 per cent., Echinoderma in 9 per cent., Nemertinea in 3 per cent., Polyzoa and Coelentera each in less than 0·5 per cent.

There is a small amount of evidence to show that, like the Plaice, Dab, and Flounder, the Sole does not feed to the same extent in the winter (December–April) as it does in the summer, but owing to the fact that we have so few records, it is not conclusive.

Curve showing the percentage of empty stomachs in each month of the year (excepting October, November, February, and March), including those recorded in the first report. The index numbers show the number examined.

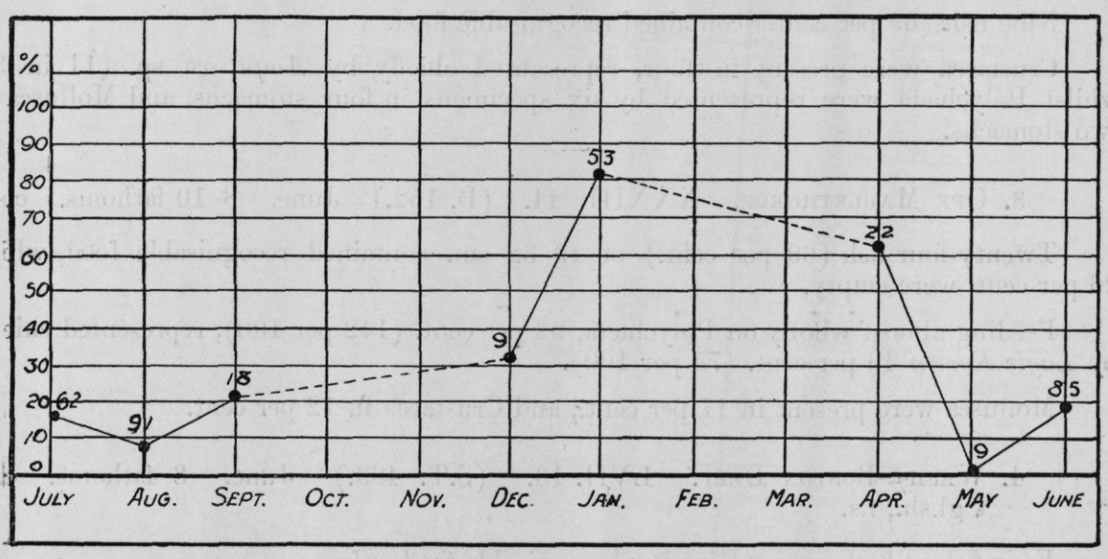

Fig. 6. Soles. Percentage of Empty Stomachs.

It will be seen from the above that in December, January, and April the percentage of empty stomachs varies between 33 per cent. and 82 per cent., whilst from May to September it does not rise above 22 per cent.

For details *see* Table F, of which the following is a summary.

TABLE 60. Soles.

Region.	Lincolnshire Coast.				Wash.								Middle Ground.	Sylt Outer.
Voyage	30	57		33	57	Boston Deeps.	61	61	61	61	57		64	31
Station	3	22		44	13		3	9–10	16–19	12	21		16	20
Month	Apr.	June		June	June	June	Aug.	Aug.	Aug.	Aug.	June		Sept.	May
Size	...	20+	30+	19–32	8–9	7–14	9–11	11–14	10–14	10–14	20+	30+	...	30+
Stomachs containing recognisable food.	6	5	4	24	0	13	1	2	5	12	8	5	14	9
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Pisces	...	...	...	...	...	...	...	...	...	8	...	...	7	100
Mollusca	33	20	25	17	...	...	...	...	...	...	37	20	7	...
Crustacea	...	60	25	12	...	15	100	50	40	75	37	20	14	...
Polychæta	67	40	50	92	...	85	...	50	60	25	37	60	64	...
Nemertinea	...	...	...	...	...	...	...	...	...	8	...	...	...	...
Echinoderma ...	...	...	...	...	...	...	...	...	...	...	...	...	50	...

1. OFF TRUSTHORPE. XXX. 3. (B. 119.) April. 7 fathoms. f.s., c.s.

Six fish (35 per cent.) contained recognisable food, and 59 per cent. were empty.

Polychæta occurred in four, represented by 18 specimens of three species.

Mollusca (unidentified) were present in the remaining two.

2. OFF MABLETHORPE. LVII. 22. (B. 325.) June. 7–9 fathoms. spk.s., s. & m.

Nine fish (69 per cent.) contained recognisable food.

Crustacea were present in four, represented chiefly by *Ampelisca* sp. (11 in 3), whilst Polychæta were represented by six specimens in four stomachs, and Mollusca in two stomachs.

3. OFF MABLETHORPE. XXXIII. 44. (B. 152.) June. 8–10 fathoms. c.s.

Twenty-four fish (69 per cent.) of 19–32 cm. contained recognisable food, whilst 26 per cent. were empty.

Feeding almost wholly on Polychæta, 92 per cent. (142 per 100), represented chiefly by *Lagis Koreni* 46 per cent. (75 per 100).

Mollusca were present in 17 per cent., and Crustacea in 12 per cent.

4. WASH—BOSTON DEEP. LVII. 13. (S.T. 483.) June. 8 fathoms. c.s., gl.sh., f.s.

Four fish of 8–9 cm. contained unrecognisable food only.

5. WASH—BOSTON DEEP. June. (Fisherman's catch.)

Thirteen fish (86 per cent.) of 7–14 cm. contained recognisable food.

Polychæta constituted the chief food in 85 per cent. represented by unidentified remains in all cases.

Crustacea (unidentified remains) occurred in the remaining 15 per cent.

6. WASH—LYNN DEEP (GAT CHANNEL). LXI. 3. (S.T. 552.) August. 3–4 fathoms. f.s.

Five fish (9–11 cm.) were examined, of which one only contained recognisable food consisting of a single Amphipod.

7 & 8. WASH—LYNN DEEP (GAT CHANNEL). LXI. 9 & 10. (S.T. 558, 559.) August. 4–9 fathoms. f.s.

Two fish (11-14 cm.) out of three contained recognisable food, consisting in one case of a single Amphipod, and in the other of unidentified Polychæte remains.

9–12. WASH—HOOK HILL HALL AND OLD SOUTH GROUND. LXI. 16–19. (Ag. 565–568.) August. 3–6 fathoms. f.s. & sh.

Five fish (10–14 cm.) out of seven contained recognisable food, consisting of Amphipoda in two, and Polychæta in three.

13. WASH—LYNN DEEP. LXI. 12. (S.T. 561.) August. 4 fathoms. s. & m.

Twelve fish (92 per cent.), 10–14 cm. in length, contained recognisable food.

75 per cent. were feeding on Amphipoda, and 25 per cent. on Polychæta, whilst Nemertinea and Pisces each occurred in 8 per cent.

14. WASH—LYNN DEEP. LVII. 21. (B. 324.) June. 9–16 fathoms. s. & m., c.s. & m.

Thirteen fish (72 per cent.) of 20 cm. + contained recognisable food.

Feeding chiefly on Polychæta, 46 per cent., *Nephthys* sp. in 31 per cent., and *Ophelia limacina* in 15 per cent. being the chief representatives.

Mollusca and Crustacea each occurred in 31 per cent., the latter represented chiefly by *Amphipoda*.

15. MIDDLE GROUND. LXIV. 16. (B. 386.) September. 23–24 fathoms. f.g.s.

Fourteen fish (78 per cent.) contained recognisable food.

Feeding chiefly on Polychæta 64 per cent. (93 per 100), represented in 29 per cent. by *Ophelia limacina* (50 per 100.)

Echinoderma occurred in 50 per cent. (114 per 100), represented chiefly by *Echinocyamus pusillus* 43 per cent. (93 per 100), whilst Crustacea occurred in 14 per cent., and Pisces and Mollusca each in 7 per cent.

16. SYLT OUTER. XXXI. 20. (B. 139.) May. 10–11 fathoms. f.s.

Nine fish (100 per cent.) of 30 cm. + contained recognisable food.

Feeding wholly on Pisces, which consisted of single specimens of *Ammodytes* sp. in five, *Pleuronectes limanda* in three, and *Rhombus maximus* ? juv. in one.

SEA TROUT. (*Salmo trutta.*)

LEMAN GROUND. LXI. 36. (B. 347.) August. 13–17 fathoms. f.d.s., f.s.

The only fish examined, one of 41 cm., contained two *Ammodytes lanceolatus*.

HERRING. (*Clupea harengus.*)

MARKHAMS HOLE. LXVI. 7. (O. 367.) October. 20–33 fathoms. spk.s., s. & m.

Fifteen fish were examined, of these one was empty, whilst the remainder had all been feeding on herring spawn.

TOPE. (*Galeus vulgaris.*)

SOUTH BIGHT OF HORN REEF. LX. 1. (O. 340.) July. 9–10 fathoms. f.d.s. & sh., f.d.s.

One fish was examined, and found to contain two whole *Pleuronectes* sp. and several pieces, including a head, and several *Ammodytes* sp.

SPUR DOG. (*Acanthias vulgaris.*)

One hundred and nineteen stomachs from 10 stations have been examined. Of these 28 were empty, one contained unrecognisable food, and 90 contained recognisable food.

The food consisted chiefly of Coelentera (*Pleurobracheus pileus* in 65 per cent., whilst Pisces occurred in 32 per cent., Crustacea in 22 per cent., Mollusca in 3 per cent., Polychæta in 2 per cent. and Gephyrea in 1 per cent.

Including those recorded in the first report, 180 stomachs from 21 stations have been examined, of these 110 contained recognisable food which consisted of Coelentera (*Pleurobracheus*) in 54 per cent., Pisces 30 per cent., Crustacea 26 per cent., Gephyrea (*Echiurus*) 15 per cent., Mollusca 4 per cent., Polychæta 2 per cent.

In the majority of cases in which *Acanthias* had been feeding on *Pleurobracheus*, and in some cases in which no food was found, the stomachs were distended with water.

Acanthias, unlike most piscivorous fish, does not always swallow a fish whole, but often bites pieces off. This is well shown by the experience of drift net fishermen, who frequently have a large proportion of their catch of herring and mackerel rendered unsaleable by the bites of spur dogs.

1. OFF MABLETHORPE. XL. 44. (B. 226.) October. 7–8 fathoms. s.gl.

Five fish (29 per cent.) of 67 cm. + contained recognisable food, whilst unrecognisable food occurred in 65 per cent.

Pisces remains were present in four, and Crustacea in one.

2. OFF SUTTON. XL. 42. (B. 225.) October. 5–7 fathoms. s. & m.

Fifteen fish (54 per cent.) of 28–45 cm. contained recognisable food, the remainder being empty.

Feeding chiefly on Crustacea 100 per cent. (180 per 100), consisting of *Crangon vulgaris* 47 per cent. (67 per 100), *Pandalus Montagui* 47 per cent. (53 per 100), *Eupagurus Bernhardus* 33 per cent. (33 per 100), and *Gastrosaccus spinifer* 13 per cent. (27 per 100).

Pisces were present in 60 per cent. (60 per 100), represented by *Clupea* sp. 27 per cent., *Gobius minutus*, *Petromyzon* sp., and *Solea vulgaris* each in 7 per cent. and remains in 13 per cent.

Mollusca occurred in 20 per cent. represented by *Buccinum undatum* in 13 per cent. and *Solen* sp. in 7 per cent., whilst Polychæta (*Ophelia limacina*) were found in 7 per cent.

3. LEMAN GROUND. XXVIII. 15. (B. 109.) March. 14–16 fathoms. f.d.s., f.s.

The only fish examined contained fish remains.

4. East of Leman. XXVIII. 19. (B. 112.) March. 16 fathoms. f.d.s.

Five fish were examined.

In two the stomachs were distended with water only, whilst the remaining three contained respectively, single specimens of *Clupea harengus*, *C. sprattus* and *Eupagurus Bernhardus*.

5. Between Brown Ridges and Winterton Twenties. LVIII. 24. (B. 339.) June. 15–17 fathoms. f.g.s.

The only fish examined (75 cm. long) contained a single *Gadus merlangus*.

6. Between the Western Brown Ridges. LVIII. 14. (B. 334.) June. 17–20 fathoms. f.g.s. & sh.

Fifty-one fish of 38–60 cm. and one of 83 cm. contained recognisable food.

Feeding chiefly on Coelentera, represented by large numbers of *Pleurobracheus pileus* in 98 per cent. Pisces occurred in 12 per cent. represented by a whole pleuronectid in 4 per cent., and pieces in 4 per cent., and *Solea lutea* in 4 per cent.

The stomachs in all cases contained a large quantity of water.

7. Broad Fourteens. XXXVII. 22. August. 13–14 fathoms. f.g.s.

The only fish (81 cm. long) examined, contained single specimens of *Trachinus draco* and *Pleuronectes platessa*.

8. W.S.W. of Fano. XXXI. 9. (B. 132.) 7½ fathoms. f.s. & oz.

Four fish (80 per cent.) of 80 cm. + contained recognisable food.

Crustacea occurred in three, represented by *Eupagurus Bernhardus* in two and *Crangon vulgaris* in one, whilst Polychæta (*Alitta virens* and *Nephthys caeca*), Gephyrea (*Echiurus*) and Coelentera (*Pleurobracheus pileus*) each occurred in one stomach only.

9. Horn Reef, Outer. XXXI. 14. (B. 135.) May. 19–21 fathoms. f.l.s.

Seven fish (100 per cent.) of 60–70 cm. contained recognisable food.

All the stomachs were distended with water, and contained many *Pleurobracheus pileus*, and in addition one or two contained fish remains.

10. Off East End of Great Silver Pit. LVI. 47. (O. 317.) June. 23–25 fathoms. s. & m., f.d.s.

Of the two fish examined one was empty, whilst the other contained pieces of *Pleuronectes* sp. ?

Skate. (*Raia batis.*)

Leman Ground. XXVIII. 15. (B. 109.) March. 14–16 fathoms. f.d.s., f.s.

One fish only was examined ; it contained single specimens of each of the following—*Clupea sprattus*, *Crangon Allmanni*, *Pandalus brevirostris*, and *Pandalus Montagui*.

Thornback. (*Raia clavata.*)

Sixty-four stomachs from 8 stations have been examined. Of these 58 (91 per cent.) contained recognisable food, the remainder being empty.

Feeding chiefly on Crustacea in 96 per cent., with Polychæta in 21 per cent., Mollusca in 15 per cent., and Pisces in 12 per cent.

Including those recorded in the first report, 132 stomachs have been examined. Of these 121 contained recognisable food, consisting of Crustacea in 97 per cent., Polychæta in 12 per cent., Pisces in 10 per cent., and Mollusca in 9 per cent.

For details see Table G., of which the following is a summary.

TABLE 61. Thornback.

Region.	Bridlington.	Mablethorpe.	Blakeney.	Leman Ground.		Brown Ridges.	Southwold.			Sunk.
Voyage	56	56	26	28	28	58	61			32
Station	11	31	2	17	15	10	52			14
Month	May	May	Jan.	Mar.	Mar.	June	August			June
Size in cm.	23–49	...	...	...	...	62	<30	30+	40+	...
Stomachs containing recognisable food.	4	11	6	1	6	1	7	10	2	10
	%	%	%	%	%	%	%	%	%	%
Pisces	25	...	50	...	33	...	...	...	...	10
Mollusca	50	...	33	...	33	...	...	...	...	30
Crustacea	100	100	83	100	100	100	100	100	100	90
Polychæta	...	36	17	...	...	...	...	...	...	70

1. BRIDLINGTON BAY. LVI. 11. (B. 304.) May. 6 fathoms. f.d.s.

Four fish (100 per cent.) of 23–49 cm. contained recognisable food.

Crustacea were present in all, represented by *Portunus holsatus* and *Crangon* sp. ? each in two, whilst Mollusca occurred in two, and Pisces in one.

2. OFF MABLETHORPE. LVI. 31. (B. 315.) May. 6–7 fathoms. s. & gl.

Eleven fish (100 per cent.) contained recognisable food.

Feeding almost exclusively on Crustacea 100 per cent. (1,560 per 100), represented principally by *Gastrosaccus spinifer*, 73 per cent. (455 per 100), *Amathilla homari* 64 per cent. (427 per 100), and *Ampelisca* sp. ? 36 per cent. (500 per 100). Polychæta, the only other group found, occurred in 36 per cent.

3. EAST OF BLAKENEY OVERFALL. XXVI. 2. (B. 101.) January. 10 fathoms. c.s. & sh.

Six fish (60 per cent.) contained recognisable food.

Crustacea occurred in five, represented by ten specimens of four species, whilst Pisces occurred in three, Mollusca in two, and Polychæta in one stomach only.

4. LEMAN GROUND. XXVIII. 17. (B. 110.) March. 14–16 fathoms. f.s., f.d.s.

The only fish examined contained ten *Crangon Allmanni*.

5. LEMAN GROUND. XXVIII. 15. (B. 109.) March. 14–16 fathoms. f.d.s., f.s.

Six fish (84 per cent.) contained recognisable food.

Feeding chiefly on Crustacea 100 per cent. (532 per 100), represented in the majority of cases by *Crangon Allmanni* 100 per cent. (500 per 100).

Pisces and Mollusca each occurred in 33 per cent.

6. North Part of West Brown Ridge. LVIII. 10. (B. 332.) June. 15–19 fathoms. f.d.s., f.g.s.

One fish of 62 cm. contained three *Portunus holsatus* and two *Corystes cassivelaunus*.

7. Off Southwold. LXI. 52. (B. 362.) August. 12 fathoms. c.s. & st.

Seventeen fish (100 per cent.) divided into three groups, *i.e.*, <30 c.m. (7 fish), 30–40 c.m. (10 fish), and 40 c.m. + (2 fish) contained recognisable food.

Feeding exclusively on Crustacea 100 per cent. (605 per 100), represented chiefly by *Crangon Allmanni* 100 per cent. (432 per 100), and *Pandalus Montagui* 53 per cent. (105 per 100).

8. Sunk. XXXII. 14. (B. 149.) June. 9–10 fathoms. c.s. & gl.

Ten fish (91 per cent.) contained recognisable food.

Feeding chiefly on Crustacea 90 per cent. (330 per 100), represented by *Pandalus Montagui* 40 per cent. (110 per 100), *Eupagurus Bernhardus* 60 per cent. (90 per 100), *Portunus holsatus* 60 per cent. (60 per 100), and four other species in 10–20 per cent.

Polychæta occurred in 70 per cent. (100 per 100), represented chiefly by *Nephthys caeca* in 70 per cent. (90 per 100).

Mollusca, represented by bivalve feet, were present in 30 per cent. (330 per 100) and Pisces in 10 per cent.

Homelyn. (*Raia maculata.*)

1. Off Mablethorpe. LVI. 31. (B. 115.) May. 6–7 fathoms. s. & gl.

Eight fish (100 per cent.) contained recognisable food.

Feeding chiefly on Crustacea 100 per cent. (3,510 per 100), represented by *Gastrosaccus spinifer* 88 per cent. (3,120 per 100), *Amathilla homari* 25 per cent. (75 per 100), *Gammarus* sp. 25 per cent., *Portunus holsatus* and *Crangon trispinosa* each in 12 per cent., whilst Polychæta represented by *Nephthys* sp. were present in 62 per cent.

2. Off Saltfleet. LVI. 30. (B. 114.) May. 7 fathoms. c.d.s., d.s. & gl.

Two fish only were examined.

Both feeding on Crustacea and Polychæta. Of the former *Gastrosaccus spinifer* occurred in both, one of which was full, whilst *Crangon* sp. and *Pandalus Montagui* each occurred in one. Polychæta were represented by *Nephthys* sp. only.

III.—COMPARISON OF THE FOOD OF DIFFERENT SPECIES OF FISH CAUGHT IN THE SAME HAUL OF THE TRAWL.

1. South of the Mouth of the Tees. L. 4. (S.T. 404.) March. 5–6 fathoms. f.s.

Three Cod of 9–10 cm. and 11 Dabs of 2–7 cm. contained recognisable food.

All were feeding wholly on Crustacea, consisting chiefly of Amphipoda (*Paratylus Swammerdami* in the case of the Cod).

2. North of Hartlepool. L. 6. (S.T. 406.) March. 4–5 fathoms. f.s.

Eleven Cod of 7–12 cm. and 20 Dabs of 4–7 cm. contained recognisable food.

All were feeding chiefly on Crustacea, consisting principally of Amphipoda in the Dabs, and Amphipoda and Mysidæ in the Cod; in addition Pisces occurred in one Cod, and Polychæta and Mollusca in three and two Dabs respectively.

3. Hartlepool Ground. L. 9. (O. 281.) March. 14–25 fathoms. f.d.s.

Twelve Grey Gurnard, 20 Cod (< 50 cm.), and 19 Cod (50–70 cm.) contained recognisable food.

The following Table shows the percentage of stomachs for each species and size group in which the various food groups and dominant food species were found.

Table 62. Grey Gurnard and Cod.

—	Grey Gurnard.	Cod < 50 cm.	Cod 50–70 cm.
	%	%	%
Crustacea	67	70	79
Crangon Allmanni	25	25	21
Pandalus Montagui	17	35	...
Portunus pusillus	...	5	32
Galathea squamifera ...	...	...	21
Pisces	42	40	68
Gadus sp.	33	20	37
Clupea sp.	8	10	16
Pleuronectes sp.	...	...	21
Mollusca	8	...	...
Echinoderma	...	...	5

Both Cod and Grey Gurnard were feeding chiefly on Crustacea and Pisces, the Crustacea being more varied in the Cod than in the Grey Gurnard, whilst Pisces were most numerous and varied in the large Cod.

4. Bridlington Bay. XXX. 16. (B. 124.) April. 5 fathoms. f.g.s.

Twenty-six Plaice (<20 cm.) and 16 Dabs (20 cm. +) contained recognisable food. The Dabs were feeding principally on *Solen* feet (94 per cent.), whilst the Plaice, although feeding chiefly on Mollusca (*Solen*, *Mactra*, *Syndosmya*), also contained four species of Polychæta in 23 per cent., two of Crustacea in 19 per cent., and two of Echinoderma in 15 per cent.

5. Bridlington Bay. LIX. 29. (B. 345.) July. 3–5 fathoms. f.d.s.

Thirty Plaice (12–20 cm.) and 15 Dabs (20 cm. +) contained recognisable food. As in XXX. 16, the Dabs were feeding chiefly on *Solen* feet (93 per cent.), whilst the Plaice were feeding on Mollusca (mostly unidentified) 87 per cent. and Polychæta (50 per cent.), represented principally by *Nephthys* (40 per cent.).

6. Off Sutton. XL. 41. (B. 224.) October. 5–9 fathoms. s. & gl.

Thirty-nine Cod (21–26 cm.) and 14 Grey Gurnard (27–35 cm.) contained recognisable food. The Gurnard were feeding wholly on Crustacea, consisting of *Crangon Allmanni*, *C. vulgaris*, and *Pandalus Montagui* in 50 per cent., 57 per cent., and 64 per cent. respectively.

The Cod also were feeding chiefly on Crustacea (92 per cent.), *Pandalus Montagui* 64 per cent. and *Eupagurus Bernhardus* 41 per cent., being the chief representatives, whilst Polychæta, Pisces and Mollusca occurred in 18 per cent., 5 per cent., and 3 per cent. respectively.

7. East of Farn Island. LXV. 3. (O. 354.) October. 40–50 fathoms. m.

Fifteen Witches and 12 Lemon Soles contained recognisable food. The former were feeding chiefly on Polychæta 80 per cent., with Crustacea (Amphipoda) in 33 per cent., Mollusca and Gephyrea ? in 7 per cent., and Coelentera (*Cerianthus*) in 13 per cent., whilst the Lemon Soles were feeding on Coelentera (*Cerianthus*) 75 per cent., and Polychæta 58 per cent.

8. W.N.W. of Brucey's Garden. LIX. 51. (O. 338.) July. 41–46 fathoms. f.s. & m.

Sixteen Haddock, 14 Lemon Soles, and one Angler contained recognisable food. The Haddocks were feeding chiefly on Crustacea (Amphipoda) 87 per cent., the Lemon Soles on *Cerianthus* 78 per cent., and Polychæta 57 per cent., and the Angler on Pisces (*Gadus*, sp. var.).

9. The Hills. XLIX. 26. (O. 280.) March. 15–27 fathoms. f.s., f.d.s.

Twenty Haddock and six Plaice contained recognisable food. The Haddock were feeding chiefly on Mollusca 95 per cent. (*Solen pellucidus* 80 per cent.), Polychæta 85 per cent. (*Ophelia limacina* 60 per cent., *Nephthys* sp. 60 per cent.), Crustacea 65 per cent. (Amphipoda 55 per cent.), with Echinoderma in 40 per cent., whilst the food of the Plaice consisted of Mollusca in 83 per cent. (*Tellina fabula* 50 per cent.), Coelentera (*Cerianthus*) 67 per cent., Polychæta in 33 per cent., and Crustacea in 17 per cent.

10. South of the Hills. LVI. 38. (O. 313.) May. 27–29 fathoms. f.g.s.

Thirty-one Plaice and seven Lemon Soles contained recognisable food. The former were feeding chiefly on Mollusca 84 per cent. (*Solen* sp. ? 26 per cent., *Solen pellucidus* 23 per cent., and *Cylichna cylindracea* 19 per cent.), Polychæta 42 per cent., and Pisces (*Ammodytes*) 32 per cent., whilst the latter were feeding chiefly on Coelentera (Actinians) 85 per cent. with Polychæta and Mollusca each in 28 per cent. and Crustacea in 14 per cent.

11. Flamborough Off Ground. XXXI. 43. (B. 145.) May. 26–31 fathoms. f.d.s.

Twenty-six Plaice and nine Lemon Soles contained recognisable food.

The former were feeding on a varied assortment of Mollusca in 85 per cent., with Echinoderma in 27 per cent. and Pisces and Polychæta each in 23 per cent., whilst the Lemon Soles were feeding chiefly on *Alcyonidium* 89 per cent., with Crustacea and Pycnogonida each in 11 per cent.

12. Leman Ground. XXVIII. 15. (B. 109.) March. 14–16 fathoms. f.s., f.d.s.

Six Plaice (20–30 cm.), seven Plaice (30 cm. +), 19 Dabs (< 22 cm.), 10 Dabs (22 cm. +), six Whiting, three Grey Gurnard, and six Thornbacks contained recognisable food.

The Plaice were feeding chiefly on Mollusca (*Tellina fabula*, *Solen* spp., &c.), the small Dabs on Crustacea (*Pandalus Montagui* and *Callianassa subterranea*) and Mollusca (*Solen* and *Mactra* spp.), the large Dabs on Mollusca (*Solen* sp.), the Whiting, Grey Gurnard and Thornback on Crustacea (*Crangon Allmanni*).

13. Knoll Deep. LXI. 59–62. (B. 367–370.) August. 21–26 fathoms. Soil various.

Eighty Whiting and 43 Plaice contained recognisable food.

The former were feeding principally on Crustacea (*Crangon Allmanni* chiefly), and the latter on Polychæta (*Lagis Koreni*) and Mollusca (*Scrobicularia alba*).

14. N.E. Part of Brown Ridges. XXX. 39. (B. 126). April. 15 fathoms. f.s.

Fifty-five Plaice and 19 Dabs contained recognisable food.

The former were feeding chiefly on Mollusca (*Solen* sp., *Donax vittatus* and *Tellina fabula*) and Polychæta (*Nephthys*, *Goniada maculata*, &c.), and Pisces (*Ammodytes*), and the latter on Mollusca (*Scrobicularia prismatica*, *Solen* sp. and *Donax vittatus*), Pisces (*Ammodytes*), Crustacea and Polychæta.

15. Off Haaks Light Vessel. XXX. 31. (B. 125.) April. 14–15 fathoms. f.s.

Fifty Plaice, 37 Dabs and 27 Grey Gurnard contained recognisable food.

The Plaice were all feeding chiefly on Mollusca (*Donax vittatus*, *Tellina fabula* and *Solen* spp.), the Dabs on Mollusca (*Solen* spp. and *Tellina fabula*), and the Grey Gurnard on Crustacea (*Crangon Allmanni*).

16. Sylt Outer. XXXI. 20. (B. 139.) May. 10–11 fathoms. f.s.

Twenty-two Dabs, 38 Plaice, 27 Haddock, and three Cod contained recognisable food.

The Dabs were feeding chiefly on Mollusca (*Solen* spp. and bivalve feet), the Plaice and Haddock on Mollusca (*Tellina* spp.), and the Cod on Pisces.

17. West of Horn Reef. XXIX. 15. (O. 179.) March. 22–23 fathoms. f.s., f.s. & oz.

Nineteen Haddock and 17 Whiting contained recognisable food.

The former were all feeding chiefly on Echinoderma (*Amphiura filiformis*) and the latter on Pisces (*Clupea*, &c.).

18. Horn Reef Outer. XXXI. 16. (B. 136.) May. 26–27 fathoms. f.s. & m.

Twenty-five Dabs, 14 Long Rough Dabs, and 26 Grey Gurnard contained recognisable food.

The Dabs were feeding chiefly on Polychæta, the Long Rough Dabs on Crustacea (*Nika edulis*), and the Grey Gurnard on Crustacea represented however by *Crangon Allmanni*.

19. Lower Scruff. XXIX. 10. (O. 175.) March. 24 fathoms. f.s.

Eighteen Cod, 23 Haddock, 21 Whiting, and one Grey Gurnard contained recognisable food.

The Cod were feeding chiefly on Pisces and Crustacea, the Haddock on Echinoderma (*Amphiura filiformis*), Polychæta (*Lagis Koreni*), Mollusca (*Solen* sp.) and Crustacea, the Whiting on Pisces and Crustacea, and the Grey Gurnard on Crustacea.

20. Off East End of Great Silver Pit. LVI. 47. (O. 317.) June. 23–25 fathoms. s. & m., f.d.s.

Twenty-five Plaice, 33 Dabs, 36 Haddock, 18 Whiting, 11 Cod, and 11 Grey Gurnard contained recognisable food.

The Plaice were feeding chiefly on Polychæta (*Nephthys* sp.), Mollusca (*Cylichna cylindracea*), and Echinoderma (*Amphiura filiformis*), the Dabs and Haddock on Echinoderma (*Amphiura*), the Whiting on Crustacea (*Eupagurus Bernhardus*) and Pisces, the Cod on Crustacea and Pisces, and the Gurnard on Crustacea only (*Crangon trispinosus*, &c.).

21. Dogger—N.N.E. of South-West Patch. LIX. 8. (O. 321.) June. 16–17 fathoms. f.s. & sh., f.g.s.

Nineteen Plaice, 24 Dabs, and 13 Haddock contained recognisable food.

The Plaice were feeding chiefly on Mollusca (*Solen* sp. and *Psammobia ferroensis*), the Dabs on Mollusca (*Solen* feet and siphons) and Crustacea (*Eupagurus Bernhardus*), and the Haddock on Mollusca (*Solen* sp. and *Tellina fabula*).

22. Dogger—N.N.E. of South-West Patch. LIX. 6. (O. 320.) June. 13–17 fathoms. f.s. & sh.

Thirty-four Plaice and 29 Dabs contained recognisable food.

The former were feeding chiefly on Mollusca (*Solen* and *Mactra subtruncata*), and the latter on Crustacea (*Eupagurus Bernhardus*) and Mollusca (*Solen* sp.).

23. Dogger—N.N.E. of South-West Patch. LIX. 4. (O. 319.) June. 12–13 fathoms. f.s. & sh.

Twenty-one Plaice and 22 Dabs contained recognisable food.

The Dabs were feeding chiefly on Mollusca (*Natica catena* and *Mactra subtruncata*) and Crustacea (*Eupagurus Bernhardus*), and the Plaice on Mollusca (*Mactra subtruncata*).

24. Dogger—North of South-West Patch. LVI. 40. (O. 314.) May. 10–14 fathoms. f.s. & sh.

Sixty-seven Dabs, 34 Haddock, and 23 Cod contained recognisable food.

The Dabs were feeding chiefly on Mollusca (*Solen*), Crustacea (*Eupagurus Bernhardus*), and Coelentera (*Obelia*), the Haddock on Crustacea (*Amphipoda*), and the Cod on Crustacea (*Eupagurus Bernhardus*).

25. Dogger—N.N.E. of South-West Patch. LXV. 7. (O. 358.) October. 10–14 fathoms. f.g.s.

Twenty-seven Plaice and 53 Haddock contained recognisable food.

The former were feeding chiefly on Mactra fry (about 6 mm. long), whilst the latter were feeding principally on Solen (about 25 mm. long).

26. Dogger—North of South-West Patch. LIX. 1. (O. 318.) June. 9–15 fathoms. f.g.br.s., f.s. & sh.

Sixty-seven Dabs, 20 Haddock, and 87 Cod contained recognisable food.

The Dabs were feeding chiefly on Mollusca (various species, chiefly *Solen* fry in the case of the smaller) and Crustacea (*Eupagurus Bernhardus*), the Haddock (large) on Echinoderma (*Amphiura filiformis*) and Mollusca, various, and (small) Mollusca (*Solen*, *Mactra*, and other fry), whilst Crustacea (*Eupagurus Bernhardus*) and Pisces formed the chief food of the Cod.

27. Dogger—South of South-West Patch. XLI. 19. (O. 248.) October. 17–18 fathoms. f.s. & sh., s. & gl.

Twenty Cod, 16 Haddock, and 22 Plaice contained recognisable food.

The Cod and Haddock were feeding chiefly on Herring spawn, whilst *Solen* and *Corystes* formed the principal food of the Plaice.

28. Dogger—South of South-West Patch. XLI. 20. (O. 249.) October. 17–18 fathoms. s. & gl., g.s.

Whiting, Cod, and Haddock were all feeding largely on Herring spawn.

29. Dogger—N.E. of South-West Patch. XXIX. 8. (O. 173.) March. 11–14 fathoms. f.s. & sh., f.s.

Fourteen Cod and eight Haddock contained recognisable food.

The Cod were feeding chiefly on *Buccinum* and bivalve feet and *Eupagurus Bernhardus*, and the Haddock on *Mactra subtruncata* (?) feet.

30. Dogger—East of South-West Patch. XXVIII. 7. (O. 161.) March. 14–17 fathoms. f.s. & sh., f.s.

Sixty-six Plaice, 29 Haddock, and five Cod contained recognisable food.

The Plaice were feeding chiefly on Mollusca (*Solen* sp. and *Tellina fabula*). The Haddock on a varied assortment of Mollusca (*Tellina* and *Solen* largely), Crustacea and Polychæta, and the Cod on Crustacea, Polychæta and Pisces.

31. Dogger—North Part of Hospital. LVI. 45. (O. 316.) May. 18–19 fathoms. f.d.g.s.

Seventeen Plaice, 25 Dabs, 19 Whiting, and 36 Haddock contained recognisable food.

The Plaice were feeding chiefly on Mollusca (*Solen* sp. and *Cylichna cylindracea*) and Polychæta (*Nephthys* sp. *Goniada maculata* and *Lagis Koreni*), the Dabs on Mollusca (*Solen*), Echinoderma (*Amphuira filiformis*) and Crustacea (*Eupagurus* and *Callianassa*), the Whiting on Crustacea (*Eupagurus Bernhardus* and *Callianassa subterrannea*) and Pisces, and the Haddock on Echinoderma (*Amphiura filiformis*) and Mollusca (*Montacuta bidentata* and *M. ferruginosa*).

32. Dogger—Between East and West Shoals. XXXI. 30. (B. 143.) May. 11–12 fathoms. f.g.s., f.d.s.

Fourteen Plaice, 24 Dabs, and 18 Haddock contained recognisable food.

The Plaice were feeding chiefly on Mollusca (*Solen* sp.), the Dabs on Mollusca (*Solen* sp.), Crustacea (*Eupagurus Bernhardus*) and Coelentera (*Obelia*), whilst the Haddock were feeding chiefly on Mollusca (*Solen*, &c.) and Crustacea.

33. Dogger—East Part. XXXI. 25. (B. 142.) May. 16–21 fathoms. f.l.g.s., f.s., f.g.s.

Fifteen Plaice, 12 Dabs, and one Coal fish contained recognisable food.

The Plaice were feeding principally on Mollusca (*Mactra subtruncata* and *Solen* sp.), the Dabs on Crustacea with Pisces, &c., whilst the Coal fish contained as principal food 113 *Ammodytes* of 3–6 cm.

Plaice, Dabs and Haddock (*see* Table H).

One hundred and thirteen Plaice, 125 Dabs, and 130 Haddock from stations XXXI. 20 and 30, LVI. 45 and 47, and LIX. 8 contained recognisable food.

Mollusca formed the chief food of all three (87 per cent., 57 per cent., and 59 per cent. respectively), and were represented principally by *Solen* sp. in 39 per cent., 38 per cent., and 27 per cent. respectively. *Tellina fabula* occurred only in the Plaice and Haddock (27 per cent. in each).

Montacuta spp. were most abundant in the Haddock, practically absent in the Dabs, and absent in the Plaice.

Cylichna cylindracea was present in 23 per cent. of the Plaice, absent in Dabs, and present in 2 per cent. only of the Haddock.

Crustacea were most common in the Dabs and Haddock, the respective percentages being 11 per cent., 38 per cent., and 38 per cent., the chief representative being *Eupagurus Bernhardus*, which was not found in the Plaice stomachs, but was present in 28 per cent. of the Dabs, and 9 per cent. of the Haddock.

Polychæta were most common in the Plaice (in 44 per cent.), whilst they occurred in 36 per cent. of the Haddock, and 23 per cent. of the Dabs. Of the various species identified, *Nephthys* sp. was present in 31 per cent. of the Plaice and 7 per cent. of the Haddock, being absent in the Dabs, *Lagis Koreni* was most common in the Plaice and Haddock (13 per cent. and 15 per cent. respectively), and rare in the Dabs (2 per cent.).

Echinoderma constituted a large proportion of the food in the Haddock (58 per cent.), whilst they were present in the Dabs (31 per cent.), and Plaice 12 per cent., represented in nearly all cases by *Amphiura filiformis*.

The chief food species being *Solen* sp., *Amphiura*, *Echinocyamus*, *Tellina*, *Mactra* and *Lagis*.

Haddock, especially when small (23–25 cm.), undouhtedly do an enormous amount of damage among small Mollusca, as for example in LIX. 1, where no less than 509 *Solen* fry of less than 2 mm. were counted in one stomach. Whether the *Solen* fry were sifted out of the sand or whether they were still in the pelagic state, we cannot say ; they seem, however, hardly worth the trouble of eating, as 500 *Solen* of 2 mm. would be about the equivalent of one of 1·6 cm.

Whiting. (*Gadus merlangus.*)

The Whiting feeds chiefly on Crustacea and Pisces. Of the former the chief representatives are *Crangon Allmanni*, *Eupagurus Bernhardus* and *Gastrosaccus spinifer*, and of the latter *Ammodytes* and *Clupea*. Mollusca, Polychæta and Echinoderma are also eaten, but not in any quantity.

Coalfish. (*Gadus virens.*)

Feeds almost entirely on Pisces.

Pout. (*Gadus luscus.*)

Apparently feeds chiefly on Crustacea with Pisces and Mollusca.

Ling. (*Molva vulgaris.*)

Apparently feeds wholly on Pisces.

Long Rough Dab. (*Drepanopsetta limandoides.*)

Feeds chiefly on Crustacea (*Nika*, *Crangon*, &c.)

Turbot. (*Rhombus maximus.*)

Feeds entirely on Pisces (*Gadus*, *Pleuronectes*, *Solea*, *Ammodytes*, &c.)

Plaice. (*Pleuronectes platessa.*)

When small (< 10 cm.) the Plaice feeds chiefly on Crustacea (Amphipoda, &c.) and Polychæta. With increase in size, however, Mollusca take first place, Polychæta remaining in the second, whilst Crustacea drops to third, whilst in the very large Plaice (50 cm. +) the food consists almost exclusively of Mollusca (*Solen* sp., *Mactra* sp.)

The chief representatives of the principal food groups are :—

Pisces—*Ammodytes* (3 per cent.)

Mollusca—*Tellina fabula*, 23 per cent. ; *Solen* sp., 22 per cent. ; *Donax vittatus*, 20 per cent. ; *Mactra subtruncata*, 5 per cent. ; *Solen pellucidus*, 4 per cent. ; *Scrobicularia* sp., 4 per cent.

Crustacea—*Corystes*, *Gastrosaccus spinifer*, *Nika*, and Amphipoda, all in less than 5 per cent.

Polychæta—*Lagis Koreni*, 16 per cent. ; *Ophelia limacina*, 8 per cent. ; *Nephthys* sp., 9 per cent. ; *Goniada maculata*, 3 per cent. ; *Owenia fusiformis*, 3 per cent.

Echinoderma—*Echinocardium* sp. ? 5 per cent. ; *Echinocyamus pusillus*, 4 per cent.

Plaice apparently cease feeding in November, and do not start properly again until March (*see* Introduction, p. 54).

Lemon Soles. (*Pleuronectes microcephalus.*)

Feed principally on Polychæta and Coelentera with an occasional Mollusc or Crustacean.

The chief species of Polychæta were mostly tubicolous, *i.e.*, *Sabella pavonina*, *Sabellaria spinulosa*, *Eunice norvegica*, *Pomatoceros triqueter*, *Owenia fusiformis*, whilst Coelentera were represented entirely by *Cerianthus*.

Dab. (*Pleuronectes limanda.*)

Young Dabs (< 10 cm.) feed chiefly on Crustacea (Amphipoda and Cumacea). In larger fish (10–30 cm.) Mollusca form the chief food, with Crustacea, Echinoderma, Polychæta and Coelentera in the order named, whilst in fish of 30 cm. + Mollusca still hold first place with Crustacea (chiefly *Eupagurus Bernhardus*) second, and Coelentera (*Obelia*) third, whilst Polychæta and Echinoderma drop to fourth and fifth places respectively.

The chief representatives of the principal food groups are :—

Mollusca.—*Solen* sp. (25 per cent.), *Mactra subtruncata* (6 per cent.), *Solen pellucidus* and *Natica catena* (each in 3 per cent.).

Crustacea.—*Eupagurus Bernhardus* (19 per cent.).

Polychæta.—*Lanice conchilega* (4 per cent.), *Lagis Koreni* (2 per cent.).

Echinoderma.—*Amphiura filiformis* (7 per cent.), *Echinocardium* (4 per cent.), *Ophiura ciliaris* (4 per cent.).

Coelentera.—*Obelia* (11 per cent.).

There is evidence to show that Dabs do not feed as much during the winter (November to March) as during the remaining months of the year, but it is not so marked as in the Plaice.

Soles. (*Solea vulgaris*).

Feeds chiefly on Polychæta and Crustacea (Amphipoda, &c.) with Pisces, Mollusca, Echinoderma, &c. The principal food species—

Pisces.—*Pleuronectes limanda*, young (4 per cent.), *Ammodytes* (3 per cent.).

Mollusca.—*Scrobicularia alba* (3 per cent.).

Crustacea.—*Ampelisca* (6 per cent.).

Polychæta.—*Nephthys* sp. (4 per cent.), *Lagis Koreni* (10 per cent.), *Ophelia limacina* (10 per cent.), *Sabellaria spinulosa* (4 per cent.).

Echinoderma.—*Echinocyamus pusillus* (5 per cent.).

Spurdog. (*Acanthias vulgaris.*)

As far as our records show, Coelentera (*Pleurobracheus pileus*) form a large portion of the food of the Spurdog, the other important groups being Pisces, Crustacea, and Gephyrea.

It seems very strange that such an organism as *Pleurobracheus* should be eaten in large quantities by a fish which otherwise feeds on Pisces, Crustacea, &c. It has been suggested that the *Pleurobracheus* are gulped down when the fish are struggling in the trawl, but if that were the case, one would expect to find a more or less heterogeneous collection, including stones, shells, sand, &c., which is certainly not the case. This supposition might, however, account for the fact that the stomachs are generally distended with sea water (cf. *Cyclopterus lumpus*, p. 58).

Thornback. (*Raia clavata.*)

Feeds almost entirely on Crustacea, no other food group occurring in more than 12 per cent.

The chief representatives of Crustacea are :—

Crangon vulgaris (30 per cent.), *Crangon Allmanni* (30 per cent.), *Portunus holsatus* (29 per cent.), *Eupagurus Bernhardus* (23 per cent.), *Pandalus Montagui* (18 per cent.), *Gastrosaccus spinifer* (10 per cent.), *Portunus pusillus* (7 per cent.).

Polychæta :—

Nephthys sp. (8 per cent.).

Homelyn. (*Raia maculata.*)

Feeds chiefly on Crustacea and Polychæta, Mysidæ, especially *Gastrosaccus spinifer*, forming a large proportion of the former food group.

Competition between Species.

Although many food species are liable to be eaten by several different fish, competition over the former is restricted to quite a small number of species.

The following table shows for each of the commoner food species the fish of which 10 per cent. or more had been eating them.

Table 63.

Table comparing the results of the investigations described in the 1st and 2nd Reports as regards the food of the various species of fish. The number of stomachs containing each food-group is expressed as a percentage of the total number containing recognisable food.

The figures are general averages based on the entire series of data collected from 1902–1905. Owing to differences in distribution, the figures do not indicate the full amount of competition which may take place in particular areas.

	Grey Gurnard.	Cod.	Haddock.	Whiting.	Plaice.	Dabs.	Soles.	Thornback.
MOLLUSCA :—	%	%	%	%	%	%	%	%
Tellina fabula	...	...	13	...	23	...	...	...
Donax vittatus	...	...	...	...	20	...	...	...
Mactra subtruncata	...	...	13	...	...	...	...	...
Solen sp ?	...	...	25	...	22	25	...	...
CRUSTACEA :—								
Portunus holsatus	...	14	...	...	...	...	...	29
Crangon vulgaris	...	...	...	...	...	...	...	30
Crangon Allmanni	49	...	...	24	...	...	...	30
Crangon trispinosus	14	...	...	...	...	...	...	...
Pandalus Montagui	...	14	...	...	...	...	...	18
Eupagurus Bernhardus	...	45	...	13	...	19	...	23
Gastrosaccus spinifer	22	...	...	...	...	...	...	10
Ampelisca sp.	16	...	...	...	...	...	...	...
POLYCHÆTA :—								
Aphrodite aculeata	...	11	...	...	...	...	...	...
Lagis Koreni	...	...	10	...	16	...	10	...
Ophelia limacina	...	...	...	...	...	...	10	...
ECHINODERMA :—								
Amphiura filiformis	...	...	21	...	...	...	...	...
Echinocyamus pusillus	...	...	13	...	...	...	...	...
COELENTERA :—								
Obelia	...	...	...	..	...	11	...	...

It will be seen that there is considerable competition over *Solen* sp. between Haddock, Plaice, and Dabs ; over *Crangon Allmanni* between Grey Gurnard, Whiting, and Thornback ; over *Eupagurus Bernhardus* between Cod, Whiting, Dabs, and Thornback ; and over *Lagis Koreni* between Haddock, Plaice, and Soles, &c.

On the whole, there is more competition between Plaice and Haddock (over *Tellina*, *Solen*, and *Lagis*) than between Plaice and Dabs (over *Solen* only) (cf. Table H).

V.—DETAILED TABLES A.—G.

Showing for the principal species of fish examined (i) Locality and date of capture, with depth and bottom deposits ; (ii) Size if noted ; (iii) The number of stomachs examined, distinguishing between those which were empty and those which contained recognisable or unrecognisable food ; (iv) The number of stomachs containing the various food species specified, and the number of the latter which were found.

Additional species found in the stomachs from those stations marked with a † will be found in the supplementary records for each species of fish.

Abbreviations used—st. = stomachs ; sp. = specimens ; m. = many.

TABLE A.—COD

Region	Off Farn Island.	Off Hartlepool						Whitby.	—	Off Grounds.		
Voyage	65†	50†	50†	50†	50†	50†	50†	50	Off Flamboro' Head.†	35†		56
Station	1	8	6	7	5	4	9	13, 16 & 17		5 & 6		33-35
Month	Oct.	Mar.	Mar.	Mar.	Mar.	Mar.	Mar.	Mar.	Feb.	July		May
Depth in fathoms	41-48	5-10	4-5	5-8	5-7	5-6	14-25	34-35	..	30-35		25-27
Soil	m.	c.s., f.s.	f.s.	f.s.	f.s.	f.s.	f.d.s.	f.d.s.	..	f.d.s. & m.		c.d.s., f.d.s.
Size in cm.	74+	29-63	7-12	8-10	9-11	9-10	<50	50+	..	..	19-53	65-80	..
	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	
Examined	5 ..	5 ..	11 ..	4 ..	6 ..	3 ..	21 ..	21 ..	53 ..	10 ..	5 ..	6 ..	5 ..	
Empty	1 ..	1 ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 ..	22 ..	.. ..	1 ..	1 ..	.. ..	
Unrecognisable food	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	
Recognisable food	4 ..	4 ..	11 ..	4 ..	6 ..	3 ..	21 ..	19 ..	31 ..	10 ..	4 ..	5 ..	5 ..	
PISCES	3 9	4 9	.. ..	.. ..	.. ..	.. ..	8 9	13 33	16 22	3 ?	1 ?	2 ?	5 54	1
Remains	1 ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 ..	6 ..	6 ..	.. ..	.. ..	.. ..	2 ..	2
Gobius minutus	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3
Callionymus lyra	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	3 3	.. ..	.. ..	.. ..	1 2	4
Centronotus gunnellus	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	5
Gadus æglefinus	2 6	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 2	.. ..	.. ..	.. ..	.. ..	.. ..	6
„ merlangus	1 1	3 5	.. ..	.. ..	.. ..	.. ..	4 5	4 10	1 1	.. ..	1 ..	1 ..	.. ..	7
„ sp.?	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	8
Motella sp.?	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	9
Ammodytes tobianus	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	10
„ sp.?	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	1 ..	5 47	11
Drepanopsetta limandoides	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	12
Pleuronectes limanda	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 5	9 11	.. ..	.. ..	.. ..	1 3	13
„ sp.?	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	14
Solea lutea	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	15
Clupea harengus	.. ..	2 4	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	16
„ „ spawn	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	17
„ sprattus	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	18
MOLLUSCA	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 2	8 54	.. ..	.. ..	.. ..	19
Mactra sp.?	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	20
Natica catena	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	21
Buccinum undatum	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 2	8 53	.. ..	.. ..	.. ..	22
CRUSTACEA	3 11	3 6	11 52	4 19	6 56	3 18	14 30	15 41	16 23	8 33	3 ..	5 ?	1 1	23
Stenorhynchus sp.?	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	24
Hyas coarctatus	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 4	1 1	4 4	6 12	.. ..	.. ..	.. ..	25
Portunus holsatus	.. ..	2 2	.. ..	.. ..	.. ..	.. ..	2 3	.. ..	2 2	1 4	.. ..	.. ..	1 1	26
„ pusillus	1 4	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	6 9	.. ..	.. ..	.. ..	.. ..	.. ..	27
Ebalia Bryeri	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 2	.. ..	.. ..	.. ..	28
Corystes cassivelaunus	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 9	4 5	.. ..	.. ..	3 ..	.. ..	29
Eupagurus Bernhardus	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	3 3	3 3	7 8	4 5	2 ?	.. ..	.. ..	30
„ cuanensis	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	31
Galathea intermedia	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	32
Gebia	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	33
Nephrops norvegicus	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	34
Crangon vulgaris	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	35
„ Allmanni	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	5 5	4 7	.. ..	.. ..	.. ..	.. ..	.. ..	36
„ trispinosus	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	37
„ sp.?	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	38
Hippolyte pusiola	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	39
Pandalus Montagui	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	7 11	.. ..	4 4	4 7	.. ..	.. ..	.. ..	40
„ brevirostris	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	2 3	4 6	.. ..	.. ..	.. ..	.. ..	.. ..	41
Mysidæ unidentified	.. ..	1 1	.. ..	3 7	3 3	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	42
Paratylus Swammerdammi	.. ..	.. ..	10 44	2 9	6 50	2 16	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	43
Cheirocratus robustus	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	44
POLYCHÆTA	2 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	12 21	.. ..	.. ..	4 ?	1 ..	45
Remains	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 ..	46
Aphrodite	2 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	12 21	.. ..	.. ..	4 ?	.. ..	47
Phyllodoce grœnlandica	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	48
ECHINODERMA	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	1 2	.. ..	.. ..	.. ..	49
Ophiura sp.?	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	1 1	.. ..	.. ..	.. ..	50
GEPHYREA	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	51

Gadus morrhua). † For additional records, *see* p. 160.

	Off Sutton.		Botney Gut.		Clay Deep.		Off Tersch-elling.		Sylt Outer.		Lower Scruff.				Dogger Bank.													
	40†		35†		56		30		31		29†				59†				56				29†		28		41		41	
	41		7		47		19 & 24		20		10				1				40				8		7		20		19	
	Oct.		July		June		April		May		Mar.				June				May				Mar.		Mar.		Oct.		Oct.	
	5-9		31-32		23-25		19-21		10-11		24				9-15				10-14				11-14		9-11		17-18		17-18	
	s. & gl.		m.		s. & m., f.d.s.		m., s. & m.		f.s.		f.s.				f.g.br.s., f.s. & sh.				f.g.s. & sh.				f.s. & sh.		f.s. & sh.		s. & gl. & g.s.		g.s. & sh, s.gl.	
	21-26		..		..		..		74+		<62		62+		20+		30+		20-32		45-62		..		..		..		..	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
	40	..	39	..	11	..	9	..	3	..	11	..	8	..	61	..	31	..	20	..	3	..	14	..	5	..	several		20	..
	1	..	2	..	2	..	..	..	..	..	..	..	1	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	39	..	37	..	8	..	9	..	3	..	11	..	7	..	58	..	29	..	20	..	3	..	14	..	5	..	all	..	20	..
1	2	2	8	17	4	5	7	10	3	?	5	7	6	8	7	11	12	14	4	5	2	6	4	5	2	..	all	..	15	?
2	1	..	3	..	2	..	4	..	..	..	3	..	3	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	4	..
3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..
4	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..
5	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	..	..	1	5	..	..	4	4	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
8	..	..	..	..	1	1	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	..	..	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	14	..	..	2	5	..	..	..	..	..	..	..	..
11	..	..	..	..	..	..	..	..	3	?	..	..	..	..	4	5	..	..	1	2	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	..	..	1	1	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	..	..	1	2	2	2	1	1	..	..	1	3	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3
15	..	..	..	..	..	..	1	1	3	?	..	..	..	..	1	4	..	..	..	..	..	..	2	2	1	..	..	..	..	..
16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	all	full	12	full
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
19	1	1	2	4	..	..	..	..	..	..	1	1	2	2	..	..	3	3	1	1	..	..	13	138	..	..	..	..	..	..
20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	8	82	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	3	7	..	..	..	..	..	..
22	1	1	2	4	..	..	..	..	..	..	1	1	2	2	..	..	..	..	..	..	..	..	7	47	..	..	..	..	..	..
23	36	92	37	131	7	27	5	13	2	..	6	6	3	3	56	98	25	45	19	43+	2	3	12	27	3	3	..	..	10	28
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
26	7	10	..	..	6	7	2	2	..	..	1	1	..	..	..	..	..	..	..	..	1	1	6	8	..	..	..	..	6	19
27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	39	8	16	5	20	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
29	..	..	4	17	3	17	1	1	2	?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
30	16	19	9	12	2	2	5	6	..	..	3	3	3	3	47	51	17	21	15	16	2	2	11	17	2	..	..	..	5	6
31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	5	2	5	..	..	..	..	..	..	..	..	..	..	..	..
33	..	..	..	..	1	1	1	1	..	..	..	..	..	..	2	3	1	1	..	..	..	..	..	..	..	..	..	..	..	..
34	..	..	33	102	..	..	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
35	..	..	..	..	..	..	..	..	1	?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
36	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..
37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	6	..	..	..	..	..	..	..	..	..	..
38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
39	8	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
40	25	47	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
41	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	m	..	..	..	..	..	..	..	..	..	..
45	10	?	9	17	1	1	3	4	..	..	4	7	1	4	1	1	..	..	..	..	..	..	3	3	3	3	..	..	..	..
46	10	?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
47	..	..	9	17	1	1	3	4	..	..	4	7	1	4	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..
48	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	1	1	..	..	..	..
49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
51	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..

TABLE B.—HADDOCK

Region	W.N.W. of Brucey's Garden.	Off Ground.								Hills.		Clay Deep.				Lower Scruff.		Eastern Ground.				Dogger Bank					
Voyage	59†	59†				56†				49†		56†				41†		29†		31†		29†		41†		41†	
Station	51	30				35				26		47				23		10		20		15		20		19	
Month	July	July				May				March		June				Oct.		March		May		March		Oct.		Oct.	
Depth in fathoms	41–46	29–36				27				15–27		23–25				20–22		24		10–11		22–23		17 18		17–18	
Soil	f.s.m.	f.s,, f.d.s.				f.d.s.				f.gs., f.d.s. f.s.		s. & m., f.d.s.				f.g.s.		f.s.		f.s.		f.s. & oz.		s. & gl., g.s.		g.s. & sh., s.gl.	
Size in cms.	?	10 +		20 +		30 +		◁26		30 +		◁28		30 +		?		30 +		30 +		30 +		?		?	
	St. sp.	St.	sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Examined	16 ..	18	..	16	..	23	..	35	..	11	..	20	..	25	..	11	..	23	..	23	..	27	..	20	..	Several		16	..
Empty	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Unrecognisable food	.. ..	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Recognisable food	16 ..	17	..	15	..	23	..	34	..	11	..	20	..	25	..	11	..	23	..	23	..	27	..	19	..	All		16	..
PISCES	.. ..	1	1	..	..	1	1	11	15	6	21	..	..	..	..	..	..	1	1	..	..	7	8	..	..	all	?	15	?
Gobius minutus	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1
Ammodytes sp.?	.. ..	1	1	..	..	1	1	11	15	6	21	..	..	..	..	..	..	..	..	..	..	7	8	..	..	..	..	1	1
MOLLUSCA	3 4	1	1	2	2	21	27	18	23	9	25	19	49	3	4	4	5	18	43	10	12	27	178	9	13	..	..	3	4
Remains	1 ..	..	..	..	..	13	..	7	..	2	..	1	..	..	..	..	..	..	..	1	..	3	..	..	..	..	..	2	..
Montacuta ferruginosa	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	3	3	..	..	..	..	..	..
„ bidentata	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4	..	..	..	..
Tellina fabula	.. ..	..	..	..	..	..	..	..	..	..	..	2	4	..	..	..	..	..	..	..	..	25	154	..	..	..	..	..	..
Mactra sp.?	.. ..	..	..	..	..	..	..	1	1	2	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scrobicularia prismatica	.. ..	..	..	1	1	3	3	..	..	8	19	..	..	..	..	..	..	7	7	..	..	..	..	..	..	..	..	..	..
„ nitida	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
„ sp.?	.. ..	..	..	..	..	..	..	2	2	7	7	..	..	..	..	2	2	..	..	..	..	1	1	..	..	..	..	..	..
Solen pellucidus	1 1	..	..	..	..	3	3	1	1	1	1	16	40	..	..	1	1	3	5	2	3	1	1	4	5	..	..	..	..
„ sp.	.. ..	..	..	..	..	2	2	4	4	3	3	2	2	1	1	3	3	3	3	5	5	12	16	..	..	..	..	2	2
Natica catena	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cylichna cylindracea	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	8	16	..	..	..	..	2	2	..	..	..	..
CRUSTACEA	14 m	1	10	3	3	4	9	25	139	5	9	13	62	7	?	8	8	14	35	8	20	18	242	6	7	..	..	4	4
Remains	.. ..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	1	..
Portunus holsatus	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
„ pusillus	.. ..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Corystes cassivelaunus	.. ..	..	..	..	..	1	1	..	..	1	1	..	..	3	3	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Eupagurus Bernhardus	.. ..	..	..	..	..	..	..	2	2	1	1	1	1	1	1	..	..	2	2	1	1	..	..	5	6	2	2	..	..	1	1
Callianassa subterranea	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	4	4	4	4	..	..	..	..	..	..	..	..
Crangon Allmanni	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..
„ sp.?	.. ..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..
Nika edulis	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	8	20	1	1	..	..	..	..	..	..	..	..
Gastrosaccus spinifer	.. ..	..	..	..	..	..	..	1	1	..	..	..	..	5	10	..	..	1	1	..	..	2	5	..	..	..	..	..	..
Diastylis	.. ..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	1	1	..	..	1	1	..	..	..	..
Cumacea unidentified	.. ..	..	..	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ampelisca sp.?	1 1	..	..	..	..	..	..	1	4	..	..	8	30	6	6	..	..	..	..	3	6	..	..	..	..	..	..	2	2
Bathyporeia sp.?	.. ..	..	..	..	..	..	..	25	120	3	7	2	10	..	..	..	..	..	..	..	..	15	230	..	..	..	..	..	..
Amphipoda unidentified	13 m	1	10	1	1	3	6	..	..	..	..	..	..	..	..	..	..	7	7	..	..	..	..	..	..	..	..	..	..
POLYCHÆTA	4 5	..	..	6	6	9	9	7	8	3	18	17	72	7	7	5	7	13	14	14	24	16	19	4	4	..	..	4	4
Remains	.. ..	..	..	2	..	4	..	5	..	..	..	..	..	1	..	2	..	4	..	2	..	6	..	2	..	..	..	..	..
Harmothoë sp.?	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	..	2	..	..	..	1	1	..	..	..	..
Phyllodoce grœnlandica	.. ..	..	..	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..
Lumbriconereis	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nephthys cæca	.. ..	..	..	..	..	..	..	..	..	..	..	4	6	..	..	..	..	1	1	2	2	..	..	..	..	..	..	..	..
„ sp.	.. ..	..	..	2	2	1	1	..	..	1	1	8	11	..	..	..	..	3	3	..	..	6	6	..	..	..	..	4	4
Goniada maculata	3 3	..	..	1	1	1	1	..	..	..	..	2	3	..	..	..	..	..	..	..	..	5	5	..	..	..	..	..	..
Lagis Koreni	1 1	..	..	..	..	..	..	..	..	..	..	4	4	6	6	4	4	1	1	9	15	1	1	1	1	..	..	..	..
Ophelia limacina	.. ..	..	..	..	..	1	1	1	2	3	17	12	46	..	..	..	..	2	2	1	1	1	1	..	..	..	..	..	..
ECHINODERMA	2 2	16	205	14	122	21	223	5	7	5	17	8	38	25	m	11	m	21	m	23	m	..	..	19	m	..	..	1	1
Ophiura sp.?	1 1	3	3	1	1	7	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..
Amphiura filiformis	.. ..	2	2	1	1	2	2	..	..	..	..	..	..	25	m	11	m	21	m	22	m	..	..	19	m	..	..	1	1
Echinocyamus pusillus	.. ..	15	200	13	120	20	200	4	6	5	17	8	37	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..
COELENTERA	.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	1	..

(*Gadus æglefinus*). † For additional records, *see* p. 160.

Dogger Bank.

	65† 7 October 10–14 f.g.s.				59† 1 June 9–15 f.g.br.s., f.s. & sh.				56† 40 May 10–14 f.g.s. & sh.				47† 12 Jan. 15–17 f.s.		29† 20 March 11–14 f.s.		31† 30 May 11–12 f.g.s., f.d.s.		28† 7 March 14–17 f.s.& sh.		56† 45 May 18–19 f.d.g.s.				56† 43 May 11–16 f.g.s. & sh., f.d.g.s.				29† 8 March 11–14 f.s. & sh.		47† 18 Jan. 11–12 f.s.		38† 3 August 10–17 f.g.s. & sh.		59† 8 June 16–17 f.s. & sh. f.g.s.	
	<30		30+		<26		30+		18–22		30+		30+		30+		30+		30+		16–23		35+		17–22		30–45		30+		30+		30–40		?	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
	30	..	23	..	22	..	10	..	22	..	12	..	25	..	20	..	13	..	29	..	16	..	20	..	20	..	19	..	8	..	22	..	26	..	13	..
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	30	..	23	..	21	..	9	..	22	..	12	..	25	..	20	..	13	..	29	..	16	..	20	..	20	..	19	..	8	..	22	..	26	..	13	..
1	1	12	10	?	..	..	1	1	..	..	1	4	..	..	11	30	..	..	2	2	..	..	..	..	..	..	..	..	..	..	6	6	7	18	..	..
2	1	12	..	..	..	..	..	..	..	..	..	..	..	..	11	25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	7	17	..	..
3	..	..	1	1	..	..	..	..	..	..	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	28	304	22	235	17	3,560	7	351	11	11	6	30	2	2	17	74	12	32+	24	55	1	1	18	100	11	18	19	460	8	50	13	18	20	175	12	57
5	..	..	2	..	3	..	1	..	8	..	..	..	..	..	1	..	2	..	8	..	..	..	..	..	1	..	..	..	1	..	3	..	..	..	..	..
6	..	..	..	..	..	..	..	..	..	..	1	5	..	..	..	..	..	..	..	..	..	..	7	30	1	4	19	200	..	..	..	..	8	35	..	..
7	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	1	1	13	60	..	..	2	4	..	..	..	..	..	..	..	..
8	..	..	4	15	ca. 6 mm. long.				..	..	5	20	..	..	9	15	3	6	9	22	..	..	2	2	6	8	18	250	3	3	..	..	17	130	5	30
9	3	3	3	9	6	20	5	300	..	..	..	..	..	..	6	36	7	8	1	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	3
10	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	.	..	6	6	..	..
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
13	ca. 2·5 cm. long.				ca. 1-2 mm. long.		..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	26	ca. 300	19	ca. 200	7	3,500	..	..	1	1	3	3	..	..	9	17	9	14	11	12	..	..	2	2	5	5	6	6	2	2	12	14	..	..	9	23
15	1	1	3	5	..	..	..	..	..	..	1	1	..	..	3	3	..	..	1	2	..	..	..	..	..	..	..	..	2	4	..	..	1	1	..	..
16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
17	14	67	13	14	8	8	3	3	22	205	8	70	24	194	5	5	4	6	22	54	6	6	4	4	20	104	12	21	5	6	12	18	25	108	3	3
18	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
19	10	30	5	5	1	1	..	..	1	1	..	..	..	..	2	2	2	2	..	..	..	..	..	..	1	1	..	..	2	2	2	2	13	70	1	1
20	..	..	..	..	2	2	2	2	..	..	4	19?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..
22	3	3	8	8	..	..	..	..	1	1	1	1	3	3	..	..	3	3	..	..	..	..	1	1	..	..	1	1	..	..	7	7	7	7	1	1
23	..	..	..	..	..	..	..	..	..	..	..	..	24	186	..	..	..	..	6	6	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..
24	..	..	..	..	..	..	1	1	..	..	..	..	..	..	2	2	..	..	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	3	3	..	..	..	..	..	..
26	3	3	..	..	..	..	..	..	..	..	..	..	2	3	..	..	..	..	4	6	1	1	..	..	1	1	3	3	..	..	2	2	3	3	..	..
27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
29	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
30	1	1	..	..	1	1	..	..	1	1	..	..	..	..	..	..	..	..	2	3	3	3	2	2	..	..	4	6	..	..	..	..	8	26	..	..
31	..	..	..	..	..	..	..	..	22	200	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	100	7	?	..	..	..	..	..	..	..	..
32	..	..	..	..	3	3	..	..	..	..	..	..	2	2	..	..	..	..	12	32	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
33	6	9	4	7	7	7	1	1	4	4	1	2	16	19	6	8	2	2	19	29	6	8	8	10	4	5	18	41	1	1	21	66	12	23	3	6
34	..	..	..	..	5	..	1	..	1	..	..	..	9	..	..	..	2	..	6	..	3	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..
35	..	..	..	..	..	..	..	..	..	..	..	..	3?	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
36	3	6	4	7	1	1	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	2	3	..	..	20	62	..	..	..	..
37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
38	1	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..
39	2	2	..	..	..	..	..	..	..	..	1	1	2	2	6	6	..	..	5	5	..	..	1	1	1	1	2	3	..	..	..	..	6	9	2	2
40	..	..	..	..	..	..	..	..	2	2	1	1	2	4	1	1	..	..	3	3	..	..	1	1	1	1	10	15	..	..	1	1	6	10	1	1
41	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	4	5	4	4	4	4	..	..	6	6	..	..	1	1	1	1	1	1
42	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	1
43	..	..	1	1	..	..	8	80	..	..	1	1	7	48	..	..	1	1	5	7	16	150	20	m	..	..	2	2	..	..	..	..	3	3	2	11
44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
45	..	..	..	..	..	..	8	80	..	..	..	..	7	48	..	..	..	..	5	6	16	150	20	m	..	..	2	2	..	..	..	..	3	3	1	1
46	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
47	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

TABLE C.—WHITING (*Gadus merlangus*).

Region.	Wash.			Leman Ground.			Knoll Deep.			E. Deep Water.			W. of Horn Reef.	Lower Scruff.	Clay Deep.	Dogger.	
Voyage	33	57		47	28	28	61			43			29	29	56	56	41
Station	10	18		26	17	15	59–62			5			15	10	47	45	20
Month	June	June		Jan.	March	March	August			November			March	March	June	June	Oct.
Depth in fms. ...	5–6	5–8		17–20	14–16	14–16	21–26			18			22–23	24	23–25	18–19	17–18
Soil	f.s.	s.m., sh., gl.		f.s. & m.	f.s. & f.d.s.	f.d.s., f.s.	variable.			f.s., clay & sh., f.spk.s.			f.s. & oz.	f.s.	s. & m. f.d.s.	f.d.g.s.	s. & gl. g.s.
Size in cm.... ...	...	...		...	...	...	15–24		25–34	20+		30+	...	...	...	...	...
	St.	Sp.	St. Sp	St.	Sp.	St. Sp.	St.	Sp.	St. Sp.	St.	Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.
Examined	15	...	14 ...	30	...	4 ...	6	...	38 ...	66	...	5 ...	8 ...	24 ...	37 ...	18 ...	28 ...	Several
Empty	4	...	... ...	19	...	... ...	...	...	... ...	28	...	1 ...	3 ...	7 ...	16 ...	... ...	8 ...	... ...
Unrecognisable food	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	... ...	... ...	... ...	1 ...	... ...
Recognisable „	11	...	14 ...	11	...	4 ...	6	...	38 ...	38	...	4 ...	5 ...	17 ...	21 ...	18 ...	19 ...	all ...
PISCES	3	?	8 8	10	10	1 1	2	2	7 7	7	7	3 3	2 2	15 15	11 12	4 6	6 6	all ...
Remains unidentified.	3	3	1 1	...	...	... ...	2	2	1 1	...	...	3 ...	2 ...	10 ...	10 ...	2 ...	4 ...	... ...
Gobius minutus...	...	...	... ...	...	...	... ...	...	...	... ...	1	1	... ...	... ...	... ...	... ...	... ...	... ...	... ...
Gadus merlangus	...	...	... ..	1	1	... ...	...	...	... ...	...	...	... ...	... ...	... ...	... ...	... ...	... ...	... ...
„ sp.? ...	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	1 1	... ...	... ...	1 1	... ...
Ammodytes sp.?	...	...	6 6	...	...	... ...	...	...	6 6	6	6	... ...	... ...	... ...	... ...	... ...	1 1	... ...
Pleuronectes limanda.	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	... ...	... ...	1 1	... ...	... ...
„ sp.	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	... ...	... ...	... ...	... ...	... ...
Solea lutea ...	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	... ...	1 1	... ...	... ...	... ...
Clupea sprattus...	...	...	... ...	...	...	1 1	...	...	... ...	...	...	... ...	... ...	... ...	... ...	... ...	... ...	... ...
„ harengus spawn.	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	... ...	... ...	... ...	... ...	all ...
„ sp.? ...	...	...	1 1	9	9	... ...	...	...	... ...	...	...	... ...	... ...	4 4	1 1	2 3	... ...	... ...
MOLLUSCA	4	?	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	... ...	1 1	... ...	3 3	... ...
Solen siliqua ...	...	...	... ...	...	...	... ..	...	...	... ...	...	...	... ...	... ...	... ...	... ...	... ...	1 1	... ...
Bivalve feet ...	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	... ...	1 1	... ...	... ...	... ...
Buccinum feet...	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	... ...	... ...	... ...	2 2	... ...
Sepiola atlantica	4	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	... ...	... ...	... ...	... ...	... ...
CRUSTACEA ...	10	?	7 10	1	1	4 19	6	45	31 35	34	41	1 1	3 7	2 2	9 17	10 15	12 16	... ...
Remains ...	...	...	1 ...	...	...	... ...	...	...	... ...	...	...	... ...	1 ...	... ...	... ...	... ...	... ...	... ...
Stenorhynchus sp.?	...	...	... ...	...	...	... ...	...	...	... ...	1	1	... ...	... ...	... ...	... ...	... ...	... ...	... ...
Portunus holsatus.	...	...	... ...	...	...	... ...	...	...	1 1	...	...	... ...	... ...	... ...	1 1	... ...	1 1	... ...
sp.?	...	...	... ...	...	...	... ...	...	...	... ...	2	2	... ...	... ...	... ...	... ...	... ...	... ...	... ...
Eupagurus Bernhardus.	1	...	... ..	...	...	... ...	...	...	1 1	4	4	... ...	... ...	... ...	2 2	6 6	9 9	... ...
Callianassa subterranea.	...	...	... ...	1	1	... ...	...	...	... ...	...	...	... ...	... ...	... ...	1 1	2 2	6 6	... ...
Crangon vulgaris	5	...	1 1	...	...	... ...	...	...	... ...	...	...	... ...	... ...	... ...	... ...	... ...	... ...	... ...
„ Allmanni	...	...	... ...	...	...	4 19	6	44	29 31	17	22	... ...	... ...	... ...	4 4	... ...	... ...	... ...
„ sp. ...	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	... ...	1 1	... ...	2 3	... ...	... ...
Nika edulis ...	...	...	... ...	...	...	... ...	...	...	... ...	...	...	1 ...	2 6	1 1	1 1	... ...	... ...	... ...

Table C.—Whiting—*continued.*

Region.	Wash.		Leman Ground.			Knoll Deep.		E. Deep Water.		W. of Horn Reef.	Lower Scruff.	Clay Deep.	Dogger.	
Voyage	33	57	47	28	28	61		43		29	29	56	56	41
Station	10	18	26	17	15	59–62		5		15	10	47	45	20
Month	June	June	Jan.	March	March	August		November		March	March	June	June	Oct.
Depths in fms. ...	5–6	5–8	17–20	14–16	14–16	21-26		18		22–23	24	23-25	18–19	17–18
Soil	f.s.	s.m., sh., gl.	f.s. & m.	f.s. & f.d.s.	f.d.s., fs.	variable.		f.s., clay & sh., f.spk.s.		f.s. & oz.	f.s.	s. & m. f.d.s.	f.d.g.s.	s. & gl. g.s.
Size in cm.... ...	...	..	...	...	...	15–24	25–34	20+	30+	...	...	...	...	...
	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.	St. Sp.
Pandalus Montagui.	... ...	1 1	... ...	... ...	... ...	... ...	1 1	... ...	... ...	... ...	... ...	... ...	... ...	... ...
Gastrosaccus spinifer.	... ...	4 6	... ...	... ...	... ...	2 2	9 11	... ...	... ...	... ...	... ...	... ...	... ...	... ...
Mysidae, unidentified.	... ...	... ...	... ...	... ...	1 1	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...
Ampelisca sp.? ...	... ...	1 1	... ...	... ...	... ...	... ...	.. ...	... ...	... ..	... ...	... ...	... ...	... ...	... ..
Urothoe sp.? ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... .	... ...	1 3	... ...	... ...
Hippomedon denticulatus.	... ...	... ...	... ...	... ...	... ...	... ..	... ...	... ...	... ...	... ...	... ...	1 1	... ...	... ...
Amphipoda unidentified.	5 ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	3 8	... ...	... ...	.. ...
Polychaeta ...	1 1	2 2	... ...	... ...	1 1	2 2	... ...	... ...	2 2	... ...	1 2	2 4	2 2	... ...
Remains	1 ...	.. ...	... ...	... ...	1 ...	1 ...	... ...	... ...	2 ...	... ...	... ...	... ...	1 ...	... ...
Polynoid ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	1 1	... ...	... ...	... ...
Phyllodoce sp.?...	... ...	1 1	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...
Nereis sp.? ...	... ..	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	1 2	... ...	... ...
Nephthys caeca...	... ...	1 1	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...
„ sp.? ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	1 1	... ...	1 1	... ...
Glycera sp. ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	1 2	... ...	... ...
Lagis Koreni ...	... ...	... ...	... ...	... ...	... ...	1 1	... ...	... ...	... ...	... ...	... ..	... ...	... ...	... ...
Echinoderma ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	2 ...	2 ...	... ...	... ...
Amphiura filiformis.	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ..	2 7	2 2	... ...	... ...
Coelentera ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	1 ...	... ...	... ...	... ...	... ...
Pleurobracheus pileus.	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	1 ...	... ...	... ...	... ...	... ...

TABLE D.—PLAICE

Region	Off Hartlepool.						Bridlington Bay.						Wash.										
Voyage	50†						30†		59†				57†		61†				61†		61†		
Station	8						16		29				13		26-29				32-34		23		
Month	Mar.						April		July				June		Aug.				Aug.		Aug.		
Depth in Fathoms	5-10						5		3-5				8		1-7				3-5		1		
Soil	c.s., f.s.						f.g.s.		f.d.s.				c.s., gl., sh., f.s.		f.s.				f.s., s.m.		f.s.		
Size in cm.	10+		20+		30+		10+		10+		20+		7-11		5-10		10-15		10-15		6-12		
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	
Examined	23	..	32	..	16	..	26	..	31	..	26	..	14	..	20	..	14	..	20	..	20	..	
Empty	2	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Unrecognisable food	..	..	1	..	1	..	..	..	1	..	2	..	8	..	3	..	..	..	13	..	1	..	
Recognisable food	21	..	31	..	10	..	26	..	30	..	24	..	6	..	17	..	14	..	7	..	19	..	
PISCES	1	**1**	2	**2**	2	**2**	..	..	1	**1**	1	**1**	..	..	..	..	..	..	..	..	..	..	1
Ammodytes	1	**1**	2	**2**	2	**2**	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	2
MOLLUSCA	4	**10**	10	**10**	3	**3**	23	**30**	26	**26?**	20	**32**	..	..	..	..	14	**200**	6	**50**	1	**1**	3
Remains unidentified	2	**2**	4	**4**	..	..	10	**10**	22	**22?**	8	**8?**	..	..	..	..	..	..	..	..	1	**1**	4
Nucula nucleus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Venus gallina	..	..	1	**1**	..	..	..	..	..	..	2	**4**	..	..	..	..	..	..	..	..	..	..	6
Tellina fabula	..	..	1	**2**	1	**1**	..	..	2	**2**	5	**5**	..	..	..	..	..	..	..	..	..	..	7
Psammobia ferroensis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
Donax vittatus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
Mactra subtruncata	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
„ stultorum	..	..	1	**1**	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
„ sp.?	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
Scrobicularia prismatica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
„ alba	..	..	..	..	..	..	..	..	..	..	2	**6**	..	..	..	..	..	..	..	..	..	..	14
„ sp.	..	..	..	..	..	..	6	**6**	..	..	3	**3**	..	..	..	..	..	..	..	..	..	..	15
Solen pellucidus	..	..	..	..	..	..	3	**4**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
„ (ensis and siliqua)	1	**1**	..	..	..	..	9	**9**	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	17
Natica Alderi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
Cylichna cylindracea	..	..	..	..	..	..	..	..	..	..	2	**2**	..	..	..	..	..	..	..	..	..	..	19
CRUSTACEA	8	**14**	10	**12**	6	**10**	5	**5**	1	**1**	1	**1**	..	..	9	?	..	..	..	..	15	?	20
Remains unidentified	..	..	..	..	..	..	1	**1**	1	**1**	..	..	..	..	2	?	..	..	..	..	..	..	21
Portunus holsatus	2	**2**	1	**1**	3	**3**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22
Corystes cassivelaunus	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	23
Thia polita	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
Eupagurus Bernhardus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
Nika edulis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26
Gastrosaccus spinifer	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	27
Ampelisca sp.?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
Amphipoda unidentified	..	..	..	..	3	**7**	3	**3**	..	..	..	..	..	..	4	**4**	..	..	..	..	13	?	29
POLYCHÆTA	18	**23**	27	**39**	5	**7**	6	**6**	15	**25**	11	**22**	..	..	13	**m**	3	**3**	2	**2**	5	**5**	30
Remains unidentified	6	**6**	16	**16**	1	**1**	1	**1**	..	..	1	**1**	..	..	..	..	..	..	2	**2**	4	..	31
Sthenelais limicola	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
Phyllodoce grœnlandica	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	33
Nephthys caeca	7	**7**	8	**11**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	34
„ sp.?					1	**1**	2	**2**	12	**20**	3	**3**	..	..	..	..	3	**3**	..	..	1	..	35
Glycera lapidum	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36
Goniada maculata	2	**2**	2	**3**	..	..	..	..	4	**4**	8	**16**	..	..	..	..	..	..	..	..	..	..	37
Owenia fusiformis	4	**6**	5	**5**	1	**1**	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	38
Lanice conchilega	..	..	..	..	..	.	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	39
Lagis Koreni	1	**1**	2	**2**	1	**1**	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40
Ophelia limacina	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	41
NEMERTINEA, unidentified	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
ECHINODERMA	..	..	1	**1**	1	**1**	4	**4**	3	**3**	2	**2**	..	..	..	..	2	**2**	..	..	..	..	43
Ophiura sp.	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	44
Amphiura filiformis	..	..	1	**1**	..	..	2	**2**	2	**2**	1	**1**	..	..	..	..	..	..	..	..	..	..	45
Echinocyamus pusillus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46
Echinocardium sp.?	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47
COELENTERA	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48
Cerianthus sp.?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49

(*Pleuronectes platessa*). † For additional records, *see* p. 161.

	Wash.										Sandettie.		Flamboro' Off and the Hills.													
	61†		61†		57†		Shrimpers' Catch†				44†		47		66†		47†		49†				56†		31†	
	6 & 8		3, 9, & 10		18		Wash				1		2		4		5		25 & 26				38		43	
	Aug.		Aug.		June		June				Nov.		Jan.		Oct.		Jan.		Mar.				May		May	
	1-3		3-9		5-8		?				19-20		31		26-30		25-26		15-30				27-29		26-31	
	f.s.		f.s.		s.m., sh., s.gl.		?				gl.		f.d.s.		f.d.g.s., f.g.s.		f.s.		f.g.s., f.d.s., f.s.				f.g.s.		f.d.s.	
	5-9		7-16		8-14		12-14		15-25		20-40		30+		..		..		20+		30+		40+		..		..	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
	24	..	33	..	11	..	20	..	13	..	96	..	37	..	28	..	53	..	12	..	38	..	19	..	35	..	26	..
	..	..	..	..	..	..	..	..	..	..	95	..	37	..	4	..	45	..	1	..	..	..	..	..	2	..	..	..
	9	..	15	..	5	..	13	..	6	..	..	..	..	..	..	..	1	..	..	..	3	..	..	..	2	..	..	..
	15	..	18	..	6	..	7	..	7	..	1	..	..	..	24	..	7	..	11	..	35	..	19	..	31	..	26	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	**3**	..	..	10	**17**	6	**9**
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	**3**	..	..	10	**17**	6	**9**
3	10	**100**	3	**10**	..	..	..	..	..	..	..	..	..	..	21	**43**	4	**4**	6	**13**	31	**159**	18	**62**	26	**70**	22	**71**
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	1	**1**	1	**1**	2	**2**	1	**1**
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	1	**1**	..	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**4**	..	..	3	**9**	19	**90**	1	**1**	1	**1**	5	**12**
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**2**	..	..	..	..	3	**3**	1	**1**	1	**2**	3	**6**
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	**12**	..	..	..	..	1	**1**	1	**3**	3	**5**	2	**2**
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	2	**2**
13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**5**	..	..	..	..	12	**29**	2	**2**	..	..	..	..
14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	**12**	..	..	..	..	1	**1**	..	..	1	**1**	..	..
15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	1	**1**	..	..	..	..	1	**1**	8	**18**
16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**2**	..	..	1	**1**	5	**5**	1	**1**	7	**23**	1	**1**
17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	**9**	1	**1**	..	..	17	**26**	15	**51**	8	**19**	10	**17**
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..
19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	..	..	6	**9**	2	**3**
20	6	?	11	?	5	?	..	..	..	..	1	**1**	..	..	..	..	..	..	3	**4**	4	**4**	..	..	4	**12**	..	..
21	..	..	3	**3**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	.	..	..	..	..	1	**1**	..	..	2	**2**	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**8**	..	..
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..
25	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..
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28	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	2	**3**	..	..	1	**1**	..	..
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30	2	**2**	9	?	1	**1**	5	**6**	7	**11**	..	..	..	..	6	**12**	6	**7**	6	**11**	20	**33**	6	**7**	13	**14**	6	**7**
31	1	..	5	..	..	..	3	**3**	1	**1**	..	..	..	..	..	..	1	**1**	1	**1**	5	**5**	1	**1**	5	**5**	2	**2**
32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	..	..	..	..	..	..	2	**2**	..	..	..	..
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37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	2	**2**	..	..	2	**2**	..	..
38	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	3	**8**	3	**3**	3	**7**	10	**16**	3	**3**	..	..	4	**4**
39	..	..	..	..	..	..	2	**2**	6	**10**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
40	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	1	**1**	..	..	..	..	1	**1**	4	**4**	..	..
41	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	3	**3**	..	..	..	..	..	..
42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	**3**	..	..	..	..	..	..
43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	**7**	1	**1**	..	..	3	**3**	2	**2**	5	**5**	7	**7**
44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	**4**	..	..	..	..	..	..	..	..	1	**1**	2	**2**
45	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	2	**2**	1	**1**
46	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	2	**2**
47	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	1	**1**	..	..
48	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	6	?	12	?	..	..	1	**1**	..	..
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TABLE D.—PLAICE

Region	Markham's Hole.	Leman Ground and Neighbourhood.														
Voyage	49†	49†		40†				66†						28		
Station	10	6		13				8						17		
Month	Mar.	Mar.		Sept.				Oct.						Mar.		
Depth in Fathoms	19-33	12-13		12-15				12-17						14-16		
Soil	f.s., s.m., s.s.	f.bl.spk.s., f.d.s.		f.d.s., f.spk.s.				gl., f.s.						f.s., f.d.s.		
Size in cm.	..	..		<31		31+		20+		30+		40+		..		
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	
Examined	47	..	40	..	24	..	36	..	26	..	30	..	10	..	several				
Empty	1	..	..	..	1	..	3	..	..	..	..	..	1	..	..	..			
Unrecognisable food	2	..	..	..	3	..	2	..	..	..	1	..	..	..	..	..			
Recognisable food	44	..	40	..	20	..	31	..	26	..	29	..	9	..	all	..			
PISCES	7	**10**	12	**21**	..	..	1	**1**	1	**1**	3	**3**	..	..	..	..			1
Ammodytes sp.?	3	**3**	12	**21**	..	..	1	**1**	..	..	1	**1**	..	..	..	..			2
MOLLUSCA	37	**236**	39	**1,100**	13	**17**	23	**46**	24	**104**	22	**245**	7	**54**	all	?			3
Remains unidentified	1	**1**	..	..	5	**5**	5	**5**	4	**4**	3	**3**	..	..	..	..			4
Nucula nucleus	..	..	..	..	..	..	4	**5**	..	..	..	..	..	..	..	..			5
Venus gallina	..	..	..	..	5	**7**	3	**4**	2	**3**	1	**1**	..	..	..	..			6
Tellina fabula	5	**14**	22	**80**	..	..	6	**6**	11	**70**	15	**220**	2	**20**	..	..			7
Psammobia ferroensis	2	**13**	2	**2**	..	..	..	..	..	..	..	..	1	**3**	..	..			8
Donax vittatus	..	..	29	ca. **1,000**	1	**1**	2	**2**	1	**3**	2	**2**	2	**5**	..	..			9
Mactra subtruncata	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..			10
„ stultorum	2	**2**	..	..	..	..	3	**5**	2	**3**	2	**2**	..	..	..	..			11
„ sp.?	..	..	..	..	..	..	..	..	2	**2**	1	**1**	..	..	..	..			12
Scrobicularia prismatica	28	**180**	..	..	..	..	..	..	1	**4**	..	..	..	..	..	..			13
„ alba	1	..	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..			14
„ sp.?	..	..	..	..	..	..	..	..	1	**1**	2	**4**	..	..	..	..			15
Solen pellucidus	4	**5**	..	..	..	..	..	..	..	..	..	..	..	..	..	..			16
„ (ensis and siliqua)	16	**19**	6	**7**	4	**4**	11	**19**	6	**6**	4	**8**	6	**23**	all	?			17
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Remains unidentified	3	**3**	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..			21
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	49† 5 Mar. 15-17 f.d.s., f.g.s.						64† 22 Sept. 17 f.g.s.		28† 15 Mar. 14-16 f.d.s., f.s.				63† 1 Sept. 15½-17 f.g.s.				40 14 Sept. 14-17 f.d.s.		48† 10 Feb. 16-17 f.s., f.d.s.		47† 26 Jan. 17½-20 f.s. & m.		48 8 Feb. 16-18 f.s.		63 5 Sept. 15-16 f.d.g.s.			
	<20		20+		30+		30+		20+		30+		20+		30+		25-40		..		..		..		20+		30+	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
	7	..	13	..	13	..	34	..	8	..	8	..	28	..	25	..	34	..	35	..	64	..	24	..	29	..	18	..
	1	..	2	..	2	..	1	..	2	..	1	..	7	..	..	..	..	..	3	..	36	..	22	..	5	..	11	..
	1	..	..	..	..	..	2	..	..	..	..	..	3	..	5	..	..	..	2	..	..	..	..	..	12	..	1	..
	5	..	11	..	11	..	31	..	6	..	7	..	18	..	20	..	34	..	30	..	28	..	2	..	12	..	6	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	..	..	..	..	..	..	..	..
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..
3	4	**50**	10	**103**	11	**169**	14	**23**	4	**4**	6	**47**	18	**75**	20	**229**	31	**52**	20	**27**	6	**17**	2	..	11	**38**	5	**18**
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7	..	..	..	..	6	**7**	3	**9**	1	**1**	4	**30**	3	**6**	2	**6**	..	..	2	**2**	..	..	2	**18**	..	..	1	**2**
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	**3**	..	..	..	..	..	..	..	..	..	..
9	4	**50**	9	**100**	6	**150**	1	**1**	..	..	1	**1**	12	**55**	17	**220**	..	..	..	..	..	..	..	..	7	**30**	3	**15**
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13	..	..	1	**1**	..	..	..	..	..	..	..	..	1	**1**	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..
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15	..	..	..	..	5	**9**	1	**1**	..	..	..	..	2	**2**	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..
16	..	..	1	**1**	1	**1**	..	..	1	**1**	1	**1**	1	**1**	..	..	1	**2**	5	**6**	3	**5**	..	..	..	..	..	..
17	..	..	..	..	..	..	1	**1**	1	**1**	2	**7**	..	..	1	**1**	14	**19**	6	**8**	..	..	1	..	2	**4**	1	**1**
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24	..	..	..	..	..	..	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	1	**1**	..	..	..	..	..	..
27	..	..	..	..	..	..	2	**5**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**
28	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..
29	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..
30	..	..	2	**4**	7	**35**	23	**40**	1	**1**	3	**4**	1	**1**	..	..	11	**11**	14	**16**	20	**71**	2	..	3	**7**	..	..
31	..	..	..	..	..	..	5	**5**	..	..	1	**1**	..	..	..	..	1	**1**	3	**3**	1	**1**	1	..	1	..	..	..
32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..
33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
34	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	**4**	4	**4**	..	..	..	..	..	..
35	..	..	..	..	..	..	2	**2**	1	**1**	1	**2**	..	..	..	..	7	**7**	1	**1**	..	..	..	..	1	..	..	..
36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
37	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	2	**2**	..	..	..	..	..	..	..	..	..	..
38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
39	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	**7**	..	..	..	..	..	..	..	..
40	..	..	1	**3**	7	**35**	18	**30**	..	..	..	..	1	**1**	..	..	1	**1**	..	..	14	**65**	..	..	1	**5**	..	..
41	..	..	..	..	..	..	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	1	..	..	..	..	..
42	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
43	1	**1**	3	**4**	3	**3+**	10	**13+**	..	..	.	..	3	?	3	?	1	?	4	**3+**	2	**2+**	1	..	..	..	..	..
44	1	**1**	1	**2**	..	..	4	**5**	..	..	..	..	.	..	..	..	..	..	1	..	1	..	..	..	..	..	..	.
45	..	..	1	**1**	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..
46	..	..	..	..	1	**1**	5	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	1	..	..	.	..	..
47	..	..	1	?	2	?	2	?	..	..	..	..	3	?	3	?	1	?	2	?	1	..	..	..	..	..	..	..
48	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

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Region	Leman Ground and Neighbourhood.								New Zealand						Knoll Deep to Winterton Shoal.						
Voyage	63†				63†				48†						48		61				
Station	7				9				14						2		59-62				
Month	Sept.				Sept.				Feb.						Feb.		Aug.				
Depth in Fathoms	15-16				15-16				14-15						22-24		23-26				
Soil	f.d.g.s.				f.d.g.s., f.s.				f.s., f.d.s.						s. & m., s. & ross.		variable.				
Size in cm.	20+		30+		20+		30+		10+		20+		30+		..		20+		30+		
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	
Examined	34	..	5	..	40	..	20	..	13	..	41	..	17	..	34	..	26	..	29	..	
Empty	1	..	2	..	..	..	..	..	12	..	32	..	8	..	8	..	9	..	3	..	
Unrecognisable food	17	..	1	..	3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	
Recognisable food	16	..	2	..	37	..	19	..	1	..	9	..	9	..	26	..	17	..	26	..	
PISCES	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Ammodytes sp.?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
MOLLUSCA	9	**11**	2	**6**	34	**167**	19	**178**	..	..	1	**2**	2	**4**	3	**3**	13	**42**	17	**18**	3
Remains unidentified	1	**1**	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	1	**1**	16	**16**	4
Nucula nucleus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Venus gallina	2	**3**	..	..	6	**10**	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	6
Tellina fabula	..	..	..	..	3	**5**	3	**3**	..	.	..	..	..	..	2	**2**	..	..	2	**2**	7
Psammobia ferroensis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
Donax vittatus	2	**2**	..	..	20	**120**	15	**150**	..	..	1	**1**	..	..	..	..	..	..	..	..	9
Mactra subtruncata	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
„ stultorum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
„ sp.?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
Scrobicularia prismatica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	13
„ alba	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	10	**40**	..	..	14
„ sp.?	..	..	..	..	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15
Solen pellucidus	1	**1**	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
„ (ensis and siliqua)	1	**1**	2	**6**	15	**18**	12	**24**	..	..	1	**1**	2	**4**	..	..	..	..	..	..	17
Natica Alderi	..	..	..	..	1	**10**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
Cylichna cylindracea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19
CRUSTACEA	..	..	..	..	2	**2**	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..	20
Remains unidentified	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21
Portunus holsatus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22
Corystes cassivelaunus	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23
Thia polita	..	..	..	..	1	**1**	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..	24
Eupagurus Bernhardus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
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Gastrosaccus spinifer	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	27
Ampelisca sp.?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
Amphipoda unidentified	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
POLYCHÆTA	8	**8**	..	..	9	**9**	3	**3**	1	**1**	9	**20**	8	**17**	25	**650**	13	**16**	22	**70**	30
Remains unidentified	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	31
Sthenelais limicola	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
Phyllodoce grœnlandica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33
Nephthys caeca	3	**3**	..	..	..	..	1	**1**	..	..	..	..	2	**2**	..	..	..	..	..	..	34
„ sp.?	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	35
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Lanice conchilega	..	..	..	..	..	..	..	..	..	..	9	**20**	6	**14**	..	..	..	..	..	..	39
Lagis Koreni	2	**2**	..	..	..	..	1	**1**	..	..	..	..	..	..	25	**650**	13	**16**	22	**70**	40
Ophelia limacina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41
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Cerianthus sp.?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49

—*continued.* † For additional records, *see* p. 161.

	Knoll Deep to Winterton Shoal.																W. of Brown Ridges.				Brown Ridges.							
	58 28 June 19-22 f.g.s.				64† 20 Sept. 22-24 f.g.s,, blk.clay.		58† 26 June 17-20 f.g.s.				49† 2 Mar. 16-19 blk.spk.s.						58† 8 June 19-20 f.g.s. & sh.				58† 16 June 15-18 f.g.s., sh.		58† 18 June 15-17 f.g.s.		58† 10 June 15-21 f.d.s., f.g.s,			
	20+		30+		20+		20+		30+		<20		20+		30+		20+		30+		..		..		20+		30+	
	St. 33	Sp. ..	St. 28	Sp. ..	St. 32	Sp. ..	St. 36	Sp. ..	St. 31	Sp. ..	St. 18	Sp. ..	St. 52	Sp. ..	St. 10	Sp. ..	St. 27	Sp. ..	St. 16	Sp. ..	St 60	Sp. ..	St. 33	Sp, ..	St. 33	Sp. ..	St. 18	Sp. ..
	1	..	1	..	4	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..
	..	..	1	..	2	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
	32	..	26	..	26	..	36	..	31	.	18	..	50	..	6	..	27	..	16	..	60	..	33	..	33	..	18	..
1	2	**3**	..	..	..	..	..	..	1	**2**	1	**1**	18	**24**	..	..	..	..	1	**1**	1	**1**	..	..	..	..	..	..
2	2	**3**	..	..	..	..	..	..	1	**2**	1	**1**	18	**24**	..	..	..	..	1	**1**	1	**1**	..	..	..	..	..	..
3	21	**102**	14	**62**	12	**15**	34	**405**	31	**527**	13	**55**	31	**55**	3	**6**	27	**259**	16	**228**	58	**352**	33	**235**	31	**276**	16	**195**
4	..	..	1	**1**	7	**7**	1	**1**	..	..	..	..	3	**3**	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**
7	6	**14**	6	**26**	1	**3**	20	**140**	18	**190**	1	**1**	6	**13**	..	..	9	**50**	11	**110**	18	**60**	11	**50**	7	**33**	11	**17**
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	16	**80**	5	**13**	..	..	27	**250**	26	**300**	11	**38**	10	**15**	1	**1**	23	**180**	10	**90**	46	**200**	30	**150**	24	**220**	13	**160**
10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	..	..	..	..	..	..	..	..	..	..	4	**4**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	7	**9**	1	**1**	..	..	..	..	..	..	4	**4**	1	**1**	8	**8**	..	..	..	..	..	..	..	..	..	..
13	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	5	**5**	..	..	..	..	2	**2**	..	..
14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	..	..	3	**3**	3	**4**	2	**2**	5	..	..	..	8	**10**	2	**3**	6	**8**	..	..	10	**12**	2	**2**	10	**12**	4	**4**
16	1	**1**	1	**1**	..	..	2	**2**	..	..	.	..	1	**1**	..	..	..	..	2	**2**	2	**2**	1	**1**	1	**1**	..	..
17	1	**1**	2	**2**	..	..	7	**9**	13	**24**	3	**3**	6	**6**	1	**1**	9	**11**	11	**19**	47	**73**	23	**32**	7	**7**	10	**13**
18	..	..	2	**6**	..	..	..	..	2	**9**	2	**9**	1	**1**	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	4	**5**	4	**4**	6	**14**	2	**2**	3	**3**	5	**8**	17	**29**	..	..	2	**2**	2	**3**	6	**6**	1	**1**	3	**4**	..	..
21	..	..	1	**1**	..	..	1	**1**	..	..	..	..	3	**3**	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	..	..	1	**1**	..	..	1	**1**	1	**1**	..	..	1	**1**	..	..	..	..	1	**1**	..	..	1	**1**	..	..	..	..
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	1	**1**	..	..	1	**1**	..	..
25	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..
26	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..
27	4	**4**	1	**1**	6	**14**	..	..	..	..	4	**6**	12	**21**	..	..	1	**1**	1	**1**	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	1	**1**	..	..	..	..	..	..	..	..	1	**1**	3	**3**	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..
30	22	**52**	23	**153**	17	**23**	13	**43**	8	**12**	6	**6**	23	**33**	4	**11**	18	**31**	9	**20**	43	**136**	16	**47**	25	**103**	13	**36**
31	..	..	2	**2**	..	..	4	**4**	..	..	6	**6**	5	**5**	..	..	..	..	2	**2**	6	**6**	1	**1**	7	**7**	1	**1**
32	1	**1**	1	**1**	..	..	1	**1**	..	..	..	..	..	..	..	..	10	**10**	2	**2**	..	..	..	..	1	**1**	..	..
33	1	**1**	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**
34	3	**3**	..	..	6	**6**	1	**1**	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..
35			1	**1**			..	..	1	**1**	..	..	4	**4**	1	**1**	..	..	3	**4**	6	**6**	1	**1**	..	..	2	**2**
36	4	**4**	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	..	..	1	**1**	..	..	..	..	2	**2**
37	4	**4**	2	**2**	..	..	1	**1**	..	..	..	.	..	..	..	..	..	.	2	**2**	4	**4**	..	..	3	**3**	..	..
38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**4**
39	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
40	11	**30**	20	**140**	8	**13**	5	**35**	7	**8**	..	..	13	**21**	4	**10**	1	**1**	4	**4**	4	**9**	4	**4**	6	**12**	1	**12**
41	6	**9**	3	**4**	1	**1**	1	**1**	2	**3**	..	..	1	**1**	..	..	10	**18**	3	**5**	35	**110**	13	**40**	17	**80**	6	**13**
42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
43	5	**6**	6	**12+**	3	**3+**	4	**6**	1	**1**	6	**6**	19	**21+**	1	**1**	5	**6+**	4	**4**	8	**14**	..	..	3	**24**	..	..
44	..	..	..	..	..	..	..	..	..	..	1	**1**	13	**13**	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..
45	..	..	1	**1**	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..
46	3	**3**	2	**7**	2	**2**	4	**6**	1	**1**	..	..	2	**2**	..	..	4	**4**	2	**2**	7	**13**	..	..	2	**23**	..	..
47	..	..	1	?	1	?	..	..	..	..	..	..	6	?	..	..	1	?	2	**2**	..	..	..	..	..	..	..	..
48	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

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Region	Brown Ridges.																Broad Fourteens.				
Voyage	58†						48†\		58†						30†		28†				
Station	12						20		20						39		21				
Month	June						Feb.		June						April		Mar.				
Depth in Fathoms	15-20						14-17		14-18						15		12-16				
Soil	f.g.s., f.g.s. & sh.						f.g.s., f.br.s.		f.g.s.						f.s.		f.g.s.				
Size in cm.	<20		20+		30+		..		<20		20+		30+		20+		30+		20+		30+	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	
Examined	8	..	40	..	27	..	68	..	10	..	33	..	20	..	32	..	23	..	20	..	7	..	
Empty	..	..	..	..	..	..	57	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Unrecognisable food	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	4	..	..	..	
Recognisable food	8	..	40	..	27	..	11	..	9	..	33	..	20	..	32	..	23	.	16	..	7	..	
PISCES	.	..	1	**1**	..	..	..	..	..	..	..	..	..	..	5	**9**	11	**18**	..	..	..	..	1
Ammodytes sp.?	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	5	**9**	11	**18**	..	..	..	..	2
MOLLUSCA	6	**32**	33	**221**	21	**210**	7	**11**	6	**13**	33	**274**	20	**113**	29	**211**	22	**207**	16	**56**	6	**24**	3
Remains unidentified ..	1	**1**	2	**2**	..	..	..	..	1	**1**	..	..	1	**1**	..	..	..	..	2	**2**	..	..	4
Nucula nucleus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Venus gallina	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	..	..	..	..	6
Tellina fabula	..	..	5	**10**	3	**7**	..	..	..	..	8	**60**	13	**40**	15	**42**	10	**60**	3	**35**	1	**6**	7
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	30† 31 April 14-15 f.s.						48 18 Feb. 16 f.g.s,		63† 12 Sept. 7-10 c.s., f.g..spk.s.				63† 11 Sept. 8-12 f.g.s.				41† 27 Oct. 20 f.g.s, & m., f.g.s, & oz.				31† 20 May 10-11 f.s.			
	10+		20+		30+		..		10+		20+		10+		20+		20+		30+		20+		30+	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
	20	..	24	..	6	..	27	..	57	..	26	..	40	..	37	..	22	..	13	..	13	..	28	..
	..	..	..	..	..	..	7	..	6	..	..	..	1	..	3	..	..	..	2	..	..	..	..	..
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	20	..	24	..	6	..	20	..	51	..	25	..	33	..	19	..	22	..	11	..	10	..	28	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	13	**14**
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	13	**14**
3	20	**154**	24	**307**	6	**107**	18	**44**	21	**24**	20	**91**	22	**61**	8	**20**	16	**53**	7	**8**	8	**42**	25	**172**
4	..	..	..	..	..	..	..	..	10	**10**	..	..	1	**1**	1	**1**	1	**1**	..	..	..	..	..	..
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6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	6	**10**	16	**61**	3	**22**	1	**1**	..	..	18	**78**	..	..	7	**19**	..	..	..	..	8	**40**	23	**164**
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..
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10	..	..	..	..	..	..	..	..	..	..	2	**2**	..	..	..	..	..	..	..	..	..	..	..	..
11	..	..	..	..	1	**1**	..	..	ca. 5 mm. long		..	..	ca. 5 mm. long		..	..	..	..	..	..	..	..	..	..
12	1	**1**	..	..	..	..	1	**1**	5	**8**	..	..	16	**50**	..	..	..	..	..	..	..	..	..	..
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14	..	..	..	..	..	..	6	**20**	..	..	7	**11**	1	**1**	..	..	5	**11**	2	**2**	..	..	..	..
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16	..	..	6	**13**	..	..	6	**6**	1	**1**	..	..	2	**2**	..	..	9	**26**	1	**1**	..	..	..	..
17	12	**13**	7	**11**	2	**7**	11	**11**	1	**1**	..	..	3	**3**	..	..	1	**1**	1	**1**	1	**1**	7	**8**
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	..	..	..	..
20	1	**1**	5	**6**	1	**1**	7	**23**	4	**4**	4	**4**	12	**35**	2	**2**	13	**30**	6	**12**	..	..	..	..
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22	..	..	..	..	..	..	..	..	1	**1**	1	**1**	1	**1**	1	**1**	..	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..
24	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
26	..	..	1	.	..	..	5	**21**	1	**1**	1	**1**	..	..	..	..	9	**23**	6	**12**	..	..	..	..
27	..	..	..	..	..	..	..	..	..	..	..	..	11	**33**	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	2	**2**	..	..	..	..	..	..	..	..	5	**5**	..	..	..	..	..	..
29	..	..	2	..	..	..	..	..	2	**2**	..	..	1	**1**	..	..	..	..	..	..	..	..	..	..
30	9	**11**	9	**9**	1	**1**	19	**94**	14	**14**	12	**15**	6	**8**	8	**8**	19	**73**	6	**6**	1	**1**	7	**11**
31	..	..	1	**1**	..	..	..	..	..	..	2	**2**	3	**3**	..	..	..	..	..	..	1	**1**	2	**2**
32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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35	1	**1**	..	..	..	..	1	**1**	9	**9**	1	**1**	..	..	3	**3**	1	**1**	3	**3**	..	..	..	..
36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
37	1	**1**	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	2	**2**	1	**1**	..	..	1	**1**
38	..	..	..	..	..	..	..	..	..	..	..	..	2	**2**	..	..	..	..	..	..	..	..	..	..
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40	..	..	4	**4**	..	..	18	**86**	2	**2**	10	**10**	..	..	2	**2**	9	**30**	2	**2**	..	..	2	**2**
41	8	**8**	4	**4**	1	**1**	1	..	1	**1**	..	..	1	**3**	3	**3**	2	**7**	..	..	..	..	..	..
42	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
43	..	..	..	..	..	..	3	**3+**	29	**31+**	3	?	14	**14+**	5	**5+**	5	**5**	..	..	2	**2**	..	..
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46	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..
47	..	..	..	..	..	..	2	?	29	?	3	?	10	?	3	?	..	..	..	..	..	..	..	..
48	..	..	..	..	..	..	..	..	6	**8**	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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Voyage	60†		31†						56†		59†		59†		65†		65†		59†		
Station	3		12						47		35		38		5		6		8		
Month	July		May						June		June		June		Oct.		Oct.		June		
Depth in Fathoms	9–10		7–11						23–25		16–27		25–27		13–17		17–18		16–17		
Soil	f.d.s. & sh.		f.d.s.						s. & m., f.d.s.		f.d.g.s.		f.d g.s.		f.g.s., gl.		gl., c.s.		f.s., sh., f.g.s.		
Size in cm.	10+		10+		20+		30+		..		29+		..		28+		..		30+		
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp	St.	Sp.	St.	Sp.	St.	Sp.	
Examined	30	..	23	..	14	..	17	..	25	..	18	..	9	..	sev.	..	9	..	21	..	
Empty	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	2	..	
Unrecognisable food	..	..	3	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	
Recognisable food	30	..	20	..	13	..	16	..	25	..	16	..	9	..	all	..	8	..	19	..	
PISCES	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Ammodytes sp.?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
MOLLUSCA	27	**97**	18	**38**	13	**53**	16	**51**	20	**47**	15	**71**	9	**63**	all	..	8	**124**	17	**38**	3
Remains unidentified	8	**8**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	4
Nucula nucleus	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	5
Venus gallina	1	**1**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	**1**	6
Tellina fabula	9	**40**	4	**7**	11	**41**	10	**29**	..	..	..	..	..	..	..	..	..	..	..	..	7
Psammobla ferroensis	..	..	..	..	..	..	..	..	..	..	3	**12**	2	**3**	..	..	2	**4**	5	**11**	8
Donax vittatus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
Mactra subtruncata	..	..	..	..	..	..	1	**1**	..	..	2	**2**	1	**1**	..	..	..	..	..	..	10
„ stultorum	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	11
„ sp.?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
Scrobicularia prismatica	..	..	..	..	..	..	..	..	..	..	1	**1**	..	..	..	..	..	..	..	..	13
„ alba	6	**16**	13	**30**	3	**12**	11	**17**	..	..	2	**3**	..	..	..	..	..	..	..	..	14
„ sp.?	..	..	..	..	..	..	..	..	..	..	2	**6**	..	..	..	..	..	..	..	..	15
Solen pellucidus	8	**24**	..	..	..	..	1	**1**	1	**1**	7	**21**	7	**45**	..	..	..	..	..	..	16
„ (ensis and siliqua)	1	**2**	..	..	..	..	2	**2**	5	**5**	6	**11**	6	**13**	?	..	7	**70**	12	**25**	17
Natica Alderi	..	..	..	..	..	..	..	..	..	..	1	**1**	1	**1**	..	..	..	..	..	..	18
Cylichna cylindracea	..	..	..	..	..	..	..	..	18	**36**	4	**7**	..	..	..	..	..	..	..	..	19
CRUSTACEA	1	**1**	3	**3**	..	..	..	..	7	**14**	2	**3**	..	..	..	..	..	..	3	**20**	20
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4	1	**1**	..	..	1	**1**	1	**1**	..	..	..	..	1	**1**	1	**1**	1	**1**	..	..	..	..	..	..
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10	10	**90**	18	**250**	..	..	..	..	11	**90**	..	..	..	..	2	**21**	..	..	4	**7**	1	**2**	8	**60**
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20	3	**30**	..	..	1	**1**	..	..	4	**4**	..	..	4	**4**	6	**9**	5	**5**	1	**13**	9	**11**	..	..
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40	1	**1**	1	**1**	..	..	..	..	1	**1**	..	..	1	**1**	6	**7**	7	**11**	1	**1**	..	..	1	**1**
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Soil	f.s.		f.s.		d.s. & sh.		..		d.s., gl.				f.s.		f.d.s.		c.s.,gl. sh, f.s.		s.m.,f.s.		f.s.				f.s.		
Size in cm.	2-7		4-7		20+		5-14		<20		20+		..		20+		5-7		5-10		5-10		10-15		6-9		
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(*Pleuronectes limanda*) † For additional records, *see* p. 162.

	Wash.												Leman Ground.				Markhams Hole.		S. of Brown Ridges.				Ijmuiden.		N.E. of Brown Ridges.		Off Haaks L.V.			
	61		61		61		61†		57		28†				66†		43†				29†		30†		30†			
	3		9 & 10		6		16-19		18		15				7		1				4		39		31			
	Aug.		Aug.		Aug.		Aug.		June		Mar.				Oct.		Nov.				Mar.		April		April			
	3-4		4-9		2		1-6		5-8		14-16				20-33		15-18				9-11		15		14-15			
	f.s.		f.s.		f.s.		f.s., f.s. & m., f.s. sh.		sm. sh., s.gl.,s.&m.		f.d.s., f.s.				spk.s., sm.		f.d.s.				f.s.		f.s.		f.s.			
	10-17		7-9		..		6-10		7-9		10-16		5-12		<22		22+		..		10+		20+		..		10+		<20		20+	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
	4	..	7	..	19	..	7	..	15	..	7	..	27	..	21	..	14	..	23	..	19	..	13	..	32	..	23	..	28	..	11	..
	..	..	..	..	15	..	..	..	1	..	..	..	..	..	1	..	4	..	..	..	12	..	3	..	10	..	1	..	..	..	1	..
	3	..	..	..	1	..	1	..	4	..	3	..	4	..	1	..	..	..	..	..	..	..	2	..	2	..	3	..	1	..	..	..
	1	..	7	..	3	..	6	..	10	..	4	..	23	..	19	..	10	..	23	..	7	..	8	..	20	..	19	..	27	..	10	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	5	..	..	.	3	..
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	3	..
3	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	.	5	5	..	..	..	..
4	..	..	..	..	..	..	..	.	..	..	..	..	..	..	10	21	8	22	3	4	5	5	5	6	4	4	16	30	21	36	7	17
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	10	..	..	..	..	..	..	1	1	..	..	..	..	2	3	..	..
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	5	5	1	1
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	12	1	1	1	1
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	9	11	..	..	1	1
13	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	2	2
15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	5	9	2	7
16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	5	6	20	2	2	3	3	4	4	2	2	6	6	10	13	4	4
17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..	..	..
19	1	?	7	?	1	..	6	6	5	7	2	2	5	?	11	14	3	4	7	10	..	..	3	3	7	8	4	4	8	8	3	4
20	..	..	..	..	1	..	2	..	2	..	1	..	..	..	1	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	2	2	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	3	3	..	..	1	1	3	3	2	2	2	2	3	3
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	5	2	2	..	..	..	..	..	..	..	..	..	..	1	1	..	..
25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4	..	..	..	..	..	..
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	1	1
27	..	..	..	..	..	..	1	1	3	5	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	.	..	..	..	..	..	..	7	7	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
30	1	?	7	?	..	..	3	3	..	..	..	..	5	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
31	..	..	..	..	2	2	2	2	6	6	2	2	21	..	2	2	..	..	1	1	..	..	..	..	7	7	3	3	1	1	1	2
32	..	.	..	..	2	..	2	2	6	..	1	1	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..
33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	.	..	..	1	2
34	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..
35	..	..	..	..	..	..	..	..	..	..	..	..	21	?	..	..	.	..	..	..	..	..	..	..	3	3	..	..	..	.	..	..
36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
38	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	1	1	14	17	1	1	1	1	3	3	..	..	7	7	4	4
39	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	3	3	1	1
40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	3	..	..	..	..	..	..
41	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..
44	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	.	..	..	..	..	2	?	3	?
45	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	5	..	2	..	..	..	..	..	..	..	1	..	..	..
46	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	2	..	..	..	..	..	..	..	..	..	..	..

TABLE E.—DABS

Region	Off Terschelling.								Eastern Grounds.								W. of Brucey's Garden.		Dogger.				
Voyage	30†				30†				31†				31†				50†		59†		59†		
Station	24				19				20				16				24		8		6		
Month	April				April				May				May				Mar.		June		June		
Depth in Fathoms	19–20				20–21				10–11				26–27				42–43		16–17		13–16		
Soil	m., s. & m.				m.				f.s.				f.s. & oz., f.s. & m.				f.d.s.		f.s. & sh., f.g.s		f.s. & sh.		
Size in cm.	<20		20+		<20		20+		10+		20+		<20		20+		..		..		20+		30+		
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	
Examined	20	..	18	..	21	..	12	..	21	..	8	..	26	..	13	..	40	..	27	..	25	..	10	..	
Empty	..	..	1	..	..	..	..	..	1	..	..	..	3	..	2	..	19	..	1	..	..	..	..	..	
Unrecognisable food	..	..	..	..	..	..	..	..	5	..	1	..	9	..	..	..	5	..	2	..	4	..	2	..	
Recognisable food	20	..	17	..	21	..	12	..	15	..	7	..	14	..	11	..	16	..	24	..	21	..	8	..	
PISCES	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Remains unidentified	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Ammodytes sp.?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
MOLLUSCA	..	..	1	1	2	2	1	1	12	13	1	2	5	5	2	2	7	8	19	22	8	8	4	5	4
Remains unidentified	..	..	..	..	..	..	1	..	6	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	5
Montacuta ferruginosa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
Tellina fabula	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
Donax vittatus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
Mactra subtruncata	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
„ stultorum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
„ sp.?	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	11
Syndosmya prismatica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
„ nitida	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
„ sp.?	..	..	..	..	1	1	..	..	1	1	..	..	4	4	..	..	..	..	..	..	..	..	..	..	14
Solen pellucidus	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	2	3	..	..	..	..	..	..	15
„ (ensis and siliqua)	..	..	..	..	..	..	..	..	4	5	1	1	1	1	1	1	..	..	17	20	5	5	4	5	16
Natica catena	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17
„ Alderi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
CRUSTACEA	..	..	1	1	3	3	2	2	2	2	4	4	3	3	3	3	..	..	6	18	15	15	15	17	7	7	19
Remains unidentified	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	20
Portunus holsatus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	21
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Ophiura ciliaris	..	..	5	5	8	8	6	6	6	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	39
„ albida	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40
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Echinocardium sp.?	..	..	1	?	5	?	4	?	12	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44
COELENTERA	..	..	3	..	5	..	12	..	9	..	1	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	45
Obelia, sp.?	..	..	3	..	5	..	12	..	9	..	1	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	46

—*continued.*

† For additional records, *see* p. 162.

	Dogger.																												Clay Deep.	
	59		59†					56†					47†		29†		31†			56†	31				56†	
	4		1					40					18		7		30			45	25				47	
	June		June					May					Jan.		Mar.		May			May	May				June	
	12–13		9–15					10–14					11–12		9–11		11–12			18–19	16–21				23–25	
	f.s. & sh.		f.g.br.s., f.s. & sh.					f.g.s. & sh.					f.s.		f.s. & sh.		f.g.s., f.d.s.			f.d.g.s.	f l.gr.s., f.s., f.g.s.				s. & m., f.d.s.	
	30+		10+		20+		30+	<20		20+		30+	..		..		10+		30+	20+	10–24		30+		..	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
	22	..	25	..	27	..	27	..	25	..	22	..	26	..	29	..	15	..	10	..	18	..	25	..	26	..	3	..	33	..
	1	..	1	..	..	.	..	..	..	..	1	..	2	..	2	..	1	..	..	..	..	..	3	..	..	..	..	..	..	..
	..	..	4	..	4	..	3	..	3	..	..	..	..	..	..	..	1	..	4	..	..	..	..	..	16	..	1	..	..	..
	21	..	20	..	23	..	24	..	22	..	21	..	24	..	27	..	13	..	6	..	18	..	22	..	10	.	2	..	33	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..
2	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
4	14	46	16	m	18	33	14	31	10	21	15	23	19	33	16	35	8	10	2	2	11	12	13	?	1	1	..	..	13	13
5	..	..	4	..	7	..	1	..	1	..	..	..	1	..	..	..	1	3	..	..	..	..	..	..	..	..	..	..	1	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	.	..	..	..	..
7	..	..	1	1	2	..	..	..	..	..	2	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
9	6	13	..	..	2	5	2	9	..	..	1	1	1	1	7	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	..	..	1	3	..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	1	1	1	1	..	..	3	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..
15	..	..	ca. 2 mm long		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	7
16	..	..	11	m	5	6	7	7	8	9	13	18	14	24	9	13	5	6	2	2	10	11	12	?	1	1	..	..	2	2
17	12	32	..	..	5	7	7	12	..	..	1	1	4	4	6	10	1	1	..	..	1	1	..	..	..	..	..	..	..	..
18	1	1	1	1	2	5	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	12	12	2	2	9	10	15	18	4	5	9	9	17	18	20	28	3	4	..	..	9	9	9	?	7	32	2	3	7	8
20	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	2	..
21	..	..	..	..	2	2	1	1	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	12	12	2	2	6	6	14	17	3	3	7	7	17	18	20	28	3	4	..	..	9	9	5	?	1	1	2	2	3	3
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	?	..	..	..	..	1	1
25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	30	..	..	..	..
31	1	1	7	7	..	..	3	3	2	2	3	3	2	2	5	5	2	2	1	1	3	3	5	5	1	1	..	..	10	10
32	..	..	6	..	..	..	1	..	1	..	1	..	..	..	1	..	..	..	1	..	..	..	4	..	..	..	..	..	6	..
33	1	..	..	..	..	..	..	..	..	..	..	..	1	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
34	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
35	..	..	..	..	..	..	2	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..
36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3
37	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
38	1	1	..	..	..	..	1	1	2	2	..	..	..	..	1	1	..	..	..	..	..	..	13	31	1	1	.	..	27	204
39	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
41	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	30	..	..	..	..	26	200
43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3
44	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
45	..	..	..	..	1	..	..	..	16	..	12	..	11	..	5	..	6	..	2	..	9	..	2	..	..	..	..	..	..	..
46	..	..	..	..	1	..	..	..	16	..	12	..	11	..	..	..	..	..	2	..	9	..	2	..	..	..	..	..	..	..

TABLE F.—COMMON SOLE.

Region	Lincolnshire Coast.								Wash.		
Voyage	30		57				33		57		
Station	3		22				44		13		
Month	April		June				June		June		
Depth in fathoms	7		7-9				8-10		8		
Soil	fs., c.s.		spk.s.,s.m.				cs.		c.s.gl. sh., f.s.		
Size in cm.	..		20+		30+		19-32		8-9		
	st.	sp.	st.	sp.	st.	sp.	st.	p.	st.	sp.	
Examined	17	...	8	...	5	...	35	...	4	...	
Empty	10	...	2	...	...	...	9	...	...	...	
Unrecognisable food	1	...	1	...	1	...	2	...	4	...	
Recognisable „	6	...	5	...	4	...	24	...	...	...	
PISCES	...	...	...	...	...	...	...	...	...	...	1
Gobius minutus	...	...	...	...	...	...	...	...	...	...	2
Ammodytes sp.?	...	...	...	...	...	...	...	...	...	...	3
Rhombus maximus?	...	...	...	...	...	...	...	...	...	...	4
Pleuronectes limanda	...	...	...	...	...	...	...	...	...	...	5
Amphioxus lanceolatus	...	...	...	...	...	..	...	...	...	...	6
MOLLUSCA	2	2	1	1	1	1	4	4	...	...	7
Remains	2	...	...	...	...	...	...	...	...	...	8
Nucula sp.?...	...	...	...	...	...	...	1	1	...	...	9
Montacuta bidentata	...	...	...	...	...	...	1	1	...	...	10
Mactra sp.?	...	...	...	...	...	...	...	...	...	...	11
Scrobicularia prismatica	...	...	...	...	...	...	...	...	...	...	12
„ alba...	...	...	...	...	...	...	2	2	...	...	13
Mya?...	...	...	...	...	1	1	...	...	...	...	14
Chiton sp ?	...	...	1	1	...	...	...	...	...	...	15
CRUSTACEA	...	...	3	11	1	1	3	3	...	...	16
Remains	...	...	1	...	...	...	...	...	...	...	17
Diastylis sp.?	...	...	...	...	...	...	...	...	...	...	18
Ampelisca sp.?	...	...	2	10	1	1	3	...	...	...	19
Urothoë sp.	...	...	...	...	...	...	...	...	...	...	20
Amphipoda unidentified	...	...	...	...	...	...	...	...	...	...	21
Idothea linearis	...	...	...	...	...	...	...	...	...	...	22
POLYCHÆTA	4	18	2	2	2	4	22	34	...	...	23
Remains	...	...	1	...	1	...	7	...	...	...	24
Sthenelais limicola	...	...	...	...	...	...	...	...	...	...	25
Phyllodoce groenlandica	...	...	...	...	...	...	3	4	...	...	26
„ sp.?	2	2	...	...	...	...	...	...	...	...	27
Nephthys caeca	...	...	...	...	...	...	...	...	...	...	28
„ sp.?	...	...	...	...	...	...	...	...	...	...	29
Lanice conchilega	...	...	...	...	...	...	1	1	...	...	30
Lagis Koreni	...	...	...	...	...	...	11	18	...	...	31
Pectinaria sp.?	1	2	1	...	1	2	...	...	...	...	32
Ophelia limacina	1	14	...	...	1	...	4	4	...	...	33
Sabellaria	...	...	...	...	...	...	...	...	...	...	34
NEMERTINEA	...	...	...	...	...	...	...	...	...	...	35
ECHINODERMA	...	...	...	...	...	...	...	...	...	...	36
Ophiura sp.?	...	...	...	...	...	...	...	...	...	...	37
Echinocyamus pusillus	...	...	...	...	...	..	...	...	...	...	38

(*Solea vulgaris.*)

	Wash.												Middle Ground.		Sylt Outer.	
	Boston Deeps June		61 3 Aug. 3–4 f.s.		61 9 & 10 Aug. 4–9 f.s		61 16 & 19 Aug. 3–6 fs., sh.		61 12 Aug. 4 s.m.		57 21 June 9–16 s.m., c.s.m.				64 16 Sept. 23–24 f.g.s.		31 20 May 10-11 f.s.	
	7–14		9–11		11–14		10–14		16–14		20+		30+		—		30+	
	st. 15	sp. ...	st. 5	sp. ...	st. 3	sp. ...	st. 7	sp. ...	st. 13	sp. ...	st. 11	sp. ...	st. 7	sp. ...	st. 18	sp. ...	st. 9	sp. ...
	...	...	1	...	1	...	...	...	...	...	2	...	2	...	4	...	...	...
	2	...	3	...	...	...	2	...	1	...	1	...	...	...	...	...	...	...
	13	...	1	...	2	...	5	...	12	...	8	...	5	...	14	...	9	...
1	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1	1	9	9
2	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	5
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	3
6	..	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
7	...	...	...	...	...	...	...	...	...	...	3	3	1	1	1	1	...	...
8	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	...	..	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...
13	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	2	2	1	1	1	1	2	2	9	?	3	3	1	2	2	?	...	...
17	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...
18	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...
19	...	...	...	...	...	...	...	...	...	...	1	1	1	1	...	...	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...
21	...	...	1	...	1	...	2	...	9	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...
23	11	11	...	...	1	1	3	3	3	3	3	3	3	5	9	13	...	...
24	11	...	...	...	1	...	3	...	2	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	...	...	...	3	3	1	1	...	...	...	...
29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...
30	...	...	...	...	...	...	...	...	1	1	...	...	...	...	..	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	3	...	...
32	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...
33	...	...	...	...	...	...	...	...	...	...	...	...	2	2	4	7	...	...
34	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...
35	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	16	...	...
37	...	...	...	...	...	...	...	...	...	...	...	...	...	..	1	3	...	...
38	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	13	...	...

TABLE G.—THORNBACK. (*Raia clavata.*)

Region	Bridlington Bay.		Mablethorpe.		Blakeney.		Leman Ground.		Leman Ground.		Brown Ridges.		Southwold.		Southwold.		Southwold.		Sunk.	
Voyage	56		56		26		28		28		58		61						32	
Station	11		31		2		17		15		10		52						14	
Month	May		May		Jan.		Mar.		Mar.		June		Aug.						June	
Depth in Fathoms	6		6-7		10		14-16		14-16		15-19		12						9-10	
Soil	f.d.s.		s. & gl.		c.s. & sh.		f.s., f.d.s.		f.d.s., f.s.		f.d.s., f.g.s.		c.s. & st.						c.s. & gl.	
Size in cm.	23-49		..		..		..		..		62 cm.		25-29		30+		40+		..	
	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.	St.	Sp.
Examined	4	...	11	...	10	...	1	...	7	...	1	...	7	...	10	...	2	...	11	...
Empty	...	...	...	...	4	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
Unrecognisable food	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Recognisable food	4	...	11	...	6	...	1	...	6	...	1	...	7	...	10	...	2	...	10	...
PISCES	1	1	...	...	3	...	...	...	2	2	...	...	...	...	...	...	...	...	1	...
Remains	1	1	...	...	3	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...
Clupea sprattus	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	1?	1
MOLLUSCA	2	3	...	...	2	2	...	...	2	5	...	...	...	...	...	...	...	...	3	33
Solen feet	2	2	...	...	...	...	...	...	1	2	...	...	...	...	...	...	...	...	...	...
Cardium	...	...	...	...	...	...	...	...	1	1	...	...	...	..	...	...	...	...	...	...
Bivalve	1	1	...	...	2	2	...	..	1	2	...	...	...	...	...	...	...	...	3	33
CRUSTACEA	4	4	11	171	5	10	1	10	6	32	1	5	7	44	10	61	2	10	9	33
Portunus holsatus	2	2	3	6	2	2	...	...	2	2	1	3	...	...	...	...	1	1	6	6
„ marmoreus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
„ pusillus	...	...	...	...	..	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...
„ sp.?	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Corystes cassivelaunus	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...	...	...	2	2
Eupagurus Bernhardus	...	...	2	2	...	...	...	...	...	...	...	...	...	...	2	2	1	2	6	9
Crangon vulgaris	...	...	2	2	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...
„ Allmanni	...	...	...	...	...	...	1	10	6	30	...	...	7	35	10	44	2	3	...	...
„ sp.?	...	...	5	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2
Nika edulis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...
Hippolyte varians	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...
Pandalus Montagui	...	...	...	...	3	4	...	...	...	...	...	...	3	4	5	12	2	4	4	11
Gastrosaccus spinifer	...	...	8	50	...	...	...	...	...	...	...	...	2	2	...	...	...	...	2	2
Amathilla homari	...	...	7	47	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ampelisca sp.?	...	...	4	55	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
POLYCHAETA	...	...	4	...	1	9	...	...	...	...	...	...	...	...	...	...	...	...	7	10
Nephthys caeca	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	9
„ sp.?	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nereis longissima	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Ophelia limacina	...	...	...	...	1	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE H.—Comparing, for certain combinations of hauls, from which the food of Plaice with that of Dabs or Haddock or both was examined, the principal food species which were found, together with the percentage of stomachs containing them :—

Number of Stations	5. (*See* p. 128.)			8. (*See* p. 129.)		13. (*See* p. 129.)	
Species	Plaice.	Dabs.	Haddock.	Plaice.	Haddock.	Plaice.	Dabs.
Number containing recognisable food.	113	125	130	212	232	356	303
	%	%	%	%	%	%	%
PISCES	12	2	5	7	9	9	5
Ammodytes sp. ?	12	...	5	7	3	8	2
MOLLUSCA	87	57	59	88	73	90	63
Montacuta bidentata	...	2	11	...	6	...	1
„ ferruginosa ...	...	...	8	...	4	+	1
Tellina fabula	27	...	27	24	22	26	2
Psammobia ferroensis ...	4	...	...	2	+	3	...
Donax vittatus	...	1	...	...	+	28	3
Mactra subtruncata	3	2	2	12	4	11	4
Solen pellucidus	2	6	2	2	9	4	5
„ sp.	39	38	27	41	40	34	38
Natica catena	...	1	...	...	2	+	4
Cylichna cylindracea... ...	23	...	2	13	1	7	...
CRUSTACEA	11	38	38	11	48	10	41
Corystes cassivelaunus ...	3	...	2	1	2	1	1
Eupagurus Bernhardus ...	...	28	9	+	10	1	27
Callianassa subterranea ...	1	4	5	+	6	+	4
Pandalus Montagui	...	1	...	...	...	...	3
Ampelisca sp. ?	5	...	8	5	9	2	...
Bathyporeia sp. ?	...	...	12	...	8	...	...
POLYCHÆTA	44	23	36	33	40	40	11
Phyllodoce grœnlandica ...	...	...	...	...	4	+	1
Nephthys sp.	31	...	7	21	12	19	1
Goniada maculata	10	...	5	6	5	7	...
Lagis Koreni	13	2	15	10	12	8	1
Ophelia limacina	4	...	2	3	6	8	1
GEPHYREA	9	...	1	5	+	3	...
ECHINODERMA	12	34	58	8	38	7	18
Amphiura filiformis	11	31	56	6	34	4	13
Echinocardium sp. ?	...	2	1	1	1	1	3
COELENTERA	1	11	2	2	1	1	5
Obelia sp. ?	...	11	2	...	1	...	5

Table I.

Comparing the results of the investigations described in the 1st
The number of stomachs containing specimens of each food-group is

Species.	Examined.			Containing Recognisable Food.			Pisces.			Tunicata.			Polyzoa.			
	1st.	2nd.	Total.	1st.	2nd.	Total.	1st.	2nd.	Total.	1st.	2nd.	Total.	1st.	2nd.	Total.	
	No.	No.	No.	No.	No.	No.	%	%	%	%	%	%	%	%	%	
Cottus scorpius	9	17	26	7	12	19	28	75	58	..	..	..	..	..	..	1
Trigla gurnardus	78	128	206	76	116	192	5	15	11	..	..	..	..	..	..	2
„ hirundo	67	2	69	58	2	60	81	100	82	..	..	..	..	..	..	3
„ cuculus	..	11	11	..	11	11	..	45	45	..	..	..	..	..	..	4
Lophius piscatorius	4	20	24	3	10	13	100	100	100	..	..	..	..	..	..	5
Trachinus draco	..	41	41	..	7	7	..	86	86	..	..	..	..	..	..	6
„ vipera	..	3	3	..	3	3	..	67	67	..	..	..	..	..	..	7
Cyclopterus lumpus	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	8
Anarrhichas lupus	6	9	15	6	9	15	..	..	..	..	..	..	..	..	..	9
Gadus morrhua	221	443	664	212	402	614	31	36	35	..	..	..	..	..	..	10
„ æglefinus	1,127	634	1,761	1,105	628	1,733	+	13	5	+	..	+	..	..	..	11
„ merlangus	101	293	394	96	206	302	43	38	40	..	..	..	..	..	..	12
„ virens	5	3	8	5	3	8	100	100	100	..	..	..	..	..	..	13
„ luscus	..	20	20	..	20	20	..	30	30	..	..	..	..	..	..	14
Molva vulgaris	3	8	11	1	2	3	100	100	100	..	..	..	..	..	..	15
Hippoglossus vulgaris	1	..	1	1	..	1	100	..	100	..	..	..	..	..	..	16
Drepanopsetta limandoides	40	35	75	38	35	73	24	11	18	..	..	..	..	..	..	17
Rhombus maximus	22	25	47	12	14	26	100	100	100	..	..	..	..	..	..	18
„ laevis	1	2	3	1	1	2	100	100	100	..	..	..	..	..	..	19
Pleuronectes platessa	1,091	2,982	4,073	862	2,318	3,180	1	4	3	1	+	+	+	1	+	20
„ microcephalus	140	59	199	88	53	141	..	..	..	..	..	..	..	15	6	21
„ cynoglossus	3	18	21	3	15	18	..	..	..	..	..	..	..	..	..	22
„ limanda	329	1,041	1,370	258	840	1,098	5	2	2	+	+	+	3	..	1	23
„ flesus	24	27	51	1	5	6	..	..	..	..	..	..	..	..	..	24
Solea vulgaris	192	157	349	104	108	212	12	10	11	..	..	..	1	+	..	25
Salmo trutta	..	1	1	..	1	1	..	100	100	..	..	..	..	..	..	26
Clupea harengus	..	15	15	..	14	14	..	100	100	..	..	..	..	..	..	27
Galeus vulgaris	33	1	34	33	1	34	85	100	85	..	..	..	..	..	..	28
Scyllium canicula	2	..	2	2	..	2	..	..	..	..	..	..	..	..	..	29
Acanthias vulgaris	61	119	180	21	90	111	19	32	30	..	..	..	..	..	..	30
Raia batis	2	1	3	2	1	3	..	100	33	..	..	..	..	..	..	31
„ clavata	68	64	132	63	58	121	8	12	10	..	..	..	..	..	..	32
„ maculata	5	10	15	5	10	15	20	..	7	..	..	..	..	..	..	33
„ blanda	1	..	1	1	..	..	100	..	..	..	..	..	..	..	..	34

Table I.

and 2nd Reports as regards the food of the various species of fish.
expressed as a percentage of the total number containing recognisable food.

	Mollusca.			Crustacea.			Polychæta.			Nemertinea.			Echinoderma.			Gephyrea.			Coelentera.			Porifera.		
	1st.	2nd.	Total.	1st.	2nd.	Total.	1st.	2nd.	Total.	1st.	2nd.	Total.	1st.	2nd.	Total.	1st.	2nd.	Total.	1st.	2nd.	Total.	1st.	2nd.	Total.
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1	14	..	5	57	58	58	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	7	1	3	99	93	95	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
3	17	..	17	26	..	25	..	..	..	..	..	..	2	..	2	..	..	..	..	..	..	..	..	..
4	..	..	..	..	100	100	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	..	..	..	33	..	..	..	..	..	..	..	..	..	10	8	..	..	..	..	10	8	..	..	..
6	..	..	..	..	29	29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	..	..	..	..	100	100	..	33	33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	100	100	..	..	..
9	100	89	93	100	89	93	17	11	13	..	..	..	67	11	33	..	..	..	..	..	..	..	..	..
10	12	8	9	89	80	83	20	14	16	+	..	+	..	+	+	..	+	+	..	..	..	..	..	..
11	64	62	64	26	54	36	54	39	49	+	+	+	59	37	44	..	+	+	+	1	+	..	..	..
12	3	4	4	76	63	67	4	6	6	..	..	..	..	2	1	..	..	..	..	+	+	..	..	..
13	..	33	12	..	33	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	..	20	20	..	100	100	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..
16	100	..	100	100	..	100	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	..	17	8	79	86	82	32	31	31	..	..	..	29	..	15	..	..	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	..	..	..	100	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	78	77	77	15	15	15	38	45	42	1	1	1	17	12	13	..	+	+	+	1	1	..	+	+
21	8	4	6	15	6	11	90	53	76	..	..	..	..	..	..	..	..	..	5	49	21	..	..	..
22	..	7	6	100	33	44	67	80	78	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	60	43	47	35	43	41	17	22	21	3	..	1	7	18	15	..	+	+	9	13	12	..	..	..
24	..	100	83	100	40	50	..	20	17	..	..	..	100	..	20	..	..	..	..	..	..	..	..	..
25	11	12	11	34	26	30	59	58	59	5	1	3	12	6	9	..	..	..	1	..	+	..	..	..
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
28	6	..	6	36	..	36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
29	..	..	..	100	..	100	50	..	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
30	5	3	4	43	22	26	..	2	2	..	..	..	..	..	..	71	..	14	..	65	53	..	..	..
31	..	..	..	100	100	100	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
32	3	15	9	98	96	97	3	21	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
33	..	..	..	80	100	93	40	70	60	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
34	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

SUPPLEMENTARY RECORDS OF SPECIES FOUND IN FISH STOMACHS.

Cod. (*Gadus morrhua.*)

Off Flamborough Head.—Fish eggs, 2. *Sepiola atlantica*, 1. *Cancer pagurus*, 1. *Ophiothrix fragilis*, 1.

29. 8.—*Modiola modiolus*, 1. *Solen* foot, 1.

29. 10 < 62.—Crustacea remains, 1.

35. 5 & 6.—19–53 cm. Crustacea remains, 1.
65–80 cm. Crustacea remains, 3.

35. 7.—*Gadus morrhua*, 1.

40. 41.—*Siriella armata*, 2.

50. 4.—*Gammarus locusta*, 1.

50. 5.—*Gammarus locusta*, 2 in 1.

50. 6.—*Siriella crassipes* and *Schistomysis ornata*, 6. *Idothea linearis*, 2.

50. 7.—*Amathilla homari*, 1.

50. 8.—*Hyas*, 2 in 1. *Galathea*, 1.

50. 9.—50 cm. +. *Clupea*, 6 in 3. *Carcinus mœnas*, 1. *Galathea squamifera*, 5 in 4.

59. 1.—20 cm. +. *Lagis Koreni*, 1.
30 cm. +. *Venus gallina*, 1. *Trochus*, sp. 1.

65. 1.—*Gadus Esmarckii*, 1. *Atelecyclus heterodon*, 4 in 1.

Haddock. (*Gadus aeglefinus.*)

28. 7.—*Pleuronectes limanda*, 1. *Solea lutea*, 1. *Nucula nucleus*, 4 in 2. *Tellina*, 1. *Mactra subtruncata*, 1. *Buccinum undatum*, 1. *Galathea*, 1 *Crangon spinosus*, 2. *Proto pedata*, 1. *Gattyana cirrosa*, 1. *Lanice conchilega*, 7 in 2. *Ophiura albida*, 1. Hydrozoa. 1.

29. 8.—*Mactra subtruncata*, feet, 40 in 8.

29. 10.—*Nucula nucleus*, 1. *Buccinum*, foot, 1. *Fusus antiquus*, foot, 1. *Crangon bispinosus*, 1. *Crangon spinosus*, 1. *Tryphosites*, 7 in 3. Nemertinea, 1. *Ophiura albida*, 12 in 9. *Pleurobracheus pileus*, 2.

29. 15.—*Philine scabra*, 2. *Gebia*, 2. *Cucumaria*, 1. *Ophiura ciliaris*, 1.

29. 20.—*Pleuronectes*, 1. *Solea lutea*, 4 in 2. *Syndosmya alba*, 2. *Phyllodoce*, 1.

31. 20.—Nemertinea, 1. *Crangon trispinosus*, 1.

31. 30.—Bivalve fry, 2. *Natica Alderi*, 1. *Buccinum undatum*, 1. *Echinocardium*, 1. *Obelia*, 1.

38. 3.—*Arnoglossus?*, 1. *Solen siliqua*, 1. *Natica Alderi*, 1. *Crangon trispinosus*, 1. *Proto pedata*, 1. *Sthenelais limicola*, 3.

41. 19.—*Callionymus lyra*, 1. Herring spawn, 13 full. *Bolocera*, 1.

41. 20.—Herring spawn, all full.

41. 23.—*Nucula nitida*, 4. *Cardium*, foot, 1. Bivalve fry, 6. *Crangon trispinosus*, 1. *Sabella pavonina*, 1.

47. 12.—*Nucula nitida*, 1.

47. 18.—*Solea lutea*, 1. *Crangon trispinosus* 7 in 6.

49. 26.—*Psammobia ferroensis*, 1. *Natica Alderi*, 1. *Gebia*, 1. *Crangon trispinosus*, 3 in 1. *Lumbriconereis*, 1. *Glycera*, 1. *Ophiothrix fragilis*, 1.

56. 35.—10 cm. +. *Synchelidium*, 7 in 2. *Phyllodoce*, 1. *Ophiura ciliaris*, 1.

56. 40.—18–22 cm. *Iphinoë*, 1.
30 cm. +. *Venus exoleta*, 1. *Cheirocratus*, 50 in 6. *Synapta*, 1.

56. 43.—17–22 cm. *Urothoë*, 1. *Sthenelais limicola*, 1. *Glycera*, 1.
30–45 cm. *Venus gallina*, 1. *Urothoë*, 1. *Sigalion mathildae*, 13 in 10.

56. 45.—16–23 cm. *Sigalion mathildae*, 1.
35 cm. +. *Scrobicularia alba*, 1. *Mya*, 2. *Sigalion mathildae*, 4.

56. 47.—30 cm. +. *Gebia*, 1. Gephyrean, 1.

59. 1.—< 26 cm. *Tellina*, 1. Bivalve fry, 3. *Caecum glabrum*, 2. *Eulima* 7 in 3. *Cylichna obtusa*, 20 in 3. *Philine scabra*, 1. Gastropod fry, 2. Foraminifera, 1.
30 cm. +. *Amphioxus lanceolatus*, 1. *Venus exoleta*, 1. *Tellina donacina*, 9 in 3. *Caecum glabrum*, 2. *Eulima*, 4 in 2. *Natica* fry, 9 in 3. *Cylichna obtusa*, 24 in 1. Gastropod fry, 1.

59. 8.—*Pecten tigrinus*, 1. *Ophiothrix fragilis*, 10 in 1.

HADDOCK—*continued.*

59. 30.—10 cm. +. Gastropod fry, 1.
20 cm. +. *Actaeon tornatilis*, 1.
30 cm. +. *Eulima bilineata*, 2. *Actaeon tornatilis*, 1. *Glycera*, 1. *Ophiothrix fragilis*, 10 in 1.
59. 51.—*Tritonia Hombergi*, 2 in 1. *Thelepus cincinnatus*, 1. *Cucumaria*, 1.
65. 7.—< 30 cm. *Galathea*, 30 in 2.
30 cm. +. *Callionymus lyra*, 2. Herring spawn, 5 full. *Amphioxus lanceolatus*, 4 in 3. Fish remains, 1. *Pecten tigrinus*, 1. *Donax vittatus*, 1. *Mangelia*, 1. *Tritonia Hombergi*, 1. *Galathea*, 1. *Ophiura ciliaris*, 1.

PLAICE. (*Pleuronectes platessa.*)

Shrimpers Catch, Wash—12–14 cm. Hydrozoa, 2. *Enteromorpha*, 1. 15–25 cm. *Obelia*, 1.
28. 7.—20 cm. +. *Pelonaia*, 1. *Alcyonidium*, 9.
30 cm. +. *Pelonaia*, 20 in 4. *Alcyonidium*, 5. *Ebalia*, 1. *Phyllodoce*, 1.
28. 11.—30 cm. +. *Crangon trispinosus*, 2. *Sertularia abietina*, 1.
28. 15.—20 cm. +. *Ebalia*, 1. *Crangon*, 1.
30 cm. +. *Pecten opercularis*, 1. *Ebalia*, 1. *Phyllodoce*, 1.
28. 21.—20 cm. +. *Crangon*, 1.
30. 16.—*Crangon*, 1. Maldanid, 1. Echinoderm remains, 1. *Ophiothrix fragilis*, 1.
30. 31.—10 cm. +. *Paratylus Swammerdami*, 1. *Scoloplos armiger*, 1.
20 cm. +. *Montacuta ferruginosa*, 1. *Crangon Allmanni*, 3.
30. 39.—20 cm. +. *Tellina*, 1. *Glycera*, 1. *Scoloplos armiger*, 1.
30 cm. +. *Portumnus variegatus*, 1. Mysidæ, 1. *Glycera*, 1.
31. 12.—10 cm. +. *Montacuta bidentata*, 1.
20 cm. +. *Phyllodoce*, 1.
30 cm. +. *Montacuta bidentata*, 1.
31. 20.—30 cm. +. *Nereis longissima*, 2. *Ophelia*, 1.
31. 42.—*Pecten tigrinus*, 1.
31. 43.—*Astarte compressa*, 8 in 3. *Scrobicularia nitida*, 1. *Sabella pavonina*, 1. *Ophiura ciliaris*, 2.
40. 13.—31 cm. +. *Pinnotheres pisum*, 1. *Nerine coniocephala*, 1.
41. 19.—*Pecten opercularis*, 1. *Venus ovata*, 6 in 3.
41. 27.—20 cm. +. *Nucula nitida*, 12 in 8. *Lepton squamosum*, 1. *Conilera*, 1. *Glycera*, 1. *Ophelia*, 1. *Scalebregma inflatum*, 30 in 12.
30 cm. +. *Nucula nitida*, 2.
44. 1. *Pandalus Montagui*, 1.
47. 5. *Ophelia*, sp. 1.
47. 26. *Nucula nitida*, 5 in 2. *Buccinum* spawn, 1. *Ebalia*, 1. *Callianassa*, 1.
48. 10.—*Gobius minutus*, 1. *Nucula*, 1. *Callianassa*, 2. *Hippomedon*, 5.
48. 14.—30 cm. +. *Glycera*, 1.
48. 20.—*Phyllodoce*, 2.
49. 2.—< 20 cm. *Ophiura albida*, 4.
20 cm. +. *Montacuta ferruginosa*, 2. *Glycera convoluta*, 2.
30 cm. +. *Ophiura ciliaris*, 1.
49. 5.—20 cm. +. *Phyllodoce maculata*, 1.
30 cm. +. *Bathyporeia*, 1.
49. 6.—*Montacuta ferruginosa*, 1. *Scrobicularia nitida*, 2.
49. 10.—*Amphioxus lanceolatus*, 7 in 4. *Venus exoleta*, 1. *Pinnotheres pisum*, 1. *Gebia*, 1. *Urothoë*, 2. *Nerine coniocephala*, 1. *Ampharete Grubei*, 1. *Sabella pavonina*, 3 in 1. *Ophiura albida*, 4 in 2. *Echinus miliaris*, 4 in 3.
49. 25 & 26.—30 cm. +. *Odostomia rufa*, 1. Gephyrean, 1. *Ophiura albida*, 3.
40 cm. +. *Montacuta bidentata*, 1.
50. 8.—10 cm. +. *Anomia*, 7 in 2. *Crangon trispinosus*, 1. *Hippomedon*, 11 in 6. *Phyllodoce maculata*, 1.
20 cm. +. *Alcyonidium*, 1. *Mytilus*, 2. *Portunus pusillus*, 1. *Crangon vulgaris*, 1. *Hippomedon*, 9 in 7. *Phyllodoce*, 1. *Arenicola* 1.
30 cm. +. *Nerine coniocephala*, 3.

PLAICE—*continued.*

56. 38.—*Nucula nitida*, 2. *Cardium echinatum*, 1. *Venus exoleta*, 1. *V. ovata*, 1. *Sabella pavonina*, 1.
56. 45.—*Ebalia*, 1. *Ophiura albida*, 2.
56. 47.—*Nucula nitida*, 5 in 2. *Callianassa*, 1. *Gebia*, 1. Gephyrean ?, 16 in 10. *Priapulus*, 1.
57. 13.—*Leucosolenia*, 6.
57. 18.—*Thelepus cincinnatus*, 1.
58. 8.—20 cm. +. *Montacuta ferruginosa*, 1. *Ophiura albida*, 1.
30 cm. +. *Mactra solida*, 1.
58. 10.—20 cm. +. *Lepton squamosum*, 1. *Gebia*, 1. *Bathyporeia*, 1. *Ophiura albida*, 1.
58. 12.—20 cm. +. *Scrobicularia nitida*, 1. *Gebia*, 1. *Marphysa Belli*, 1.
30 cm. +. *Mactra solida*, 1. *Gebia*, 3. *Nereis longissinia*, 2.
58. 16.—*Mactra solida*, 5. *Bathyporeia*, 1. *Urothoë*, 2.
58. 18.—*Phyllodoce*, 1.
58. 20.—30 cm. +. *Tellina*, 1. *Nerine coniocephala*, 1.
58. 26.—20 cm. +. *Scrobicularia nitida*, 1.
30 cm. +. *Mactra solida*, 4. *Pinnotheres pisum*, 1. *Urothoë*, 1.
58. 28.—20 cm. +. *Tellina*, 2. *Mactra solida*, 2. *Ophiura ciliaris*, 1. *O. albida*, 2.
30 cm. +. *Tellina*, 1. *Pinnotheres pisum*, 1. *Ophiura albida*. 3. *Spatangus* ?, 1.
59. 4.—*Natica catena*, 1.
59. 6.—*Pelonaia*, 5 in 2. *Venus ovata*, 1. *Natica catena*, 32 in 1. *Glycera*, 1.
59. 8.—*Pelonaia*, 2. *Cyprina islandica*, 1. *Nereis*, 1.
59. 29.—10 cm. +. Fish remains, 1. *Nucula*, 2. Maldanid, 1.
20 cm. +. *Mytilus*, 1. *Nucula nitida*, 2. Maldanid, 1. Echinoderm remains, 1.
59.—35. *Nucula nitida*, 4 in 3. *Venus exoleta*, 1. *V. ovata*, 1. *Ophiura ciliaris*, 1. *Aphrodite*, 2 in 1.
59. 38.—*Pelonaia*, 3 in 1. *Aphrodite*, 1.
60. 3.—*Buccinum* fry, 6 in 2.
61. 3, 9 & 10.—*Cardium edule* fry, 10 in 3. *Crangon vulgaris*, 4. *Sabellaria*, 4.
61. 6 & 8.—*Cardium edule* fry, ca. 100 in 10. *Crangon*, 3. Crustacean larvae, 1.
61. 23.—*Crangon*, 2.
61. 26–29.—5–10 cm. *Cumacea*, 1. Crustacean fry, 2. Polychæte larvæ, many in 13.
10–15 cm. *Cardium edule* fry, ca. 200 in 14. Echinoderm remains, 2.
61. 32–34.—*Cardium edule* fry, ca. 50 in 6.
63. 1.—20 cm. +. *Montacuta ferruginosa*, 3.
63. 7.—20 cm. +. *Cardium norvegicum*, 1. *Echinus miliaris*, 1.
63. 9.—20 cm. +. *Nerine coniocephala*, 6.
63. 11.—10 cm. +. *Pholas*, sp. 4 in 1.
20 cm. +. Mysidae, 1.
63. 12.—10 cm. +. *Sabella pavonina*, 1. *Chondractinia digitata*, 8 in 6.
20 cm. +. *Crangon*, 2.
64. 20.—*Glycera convoluta*, 3.
64. 22.—*Mactra solida* ?, 5.
65. 5.—*Pecten opercularis*, all full.
65. 6.—*Pecten opercularis*, 50 in 3.
66. 4.—*Venus ovata*, 2. *Ophiothrix fragilis*, 1. *Spatangus* ?, 2.
66. 8.—20 cm. +. *Amphioxus lanceolatus*, 1. *Cardium norvegicum*, 8 in 4. *Nerine coniocephala*, 3. *Ophiopsila annulosa*, 2. *Echinus miliaris*, 1.
30 cm. +. *Amphioxus lanceolatus*, 2. *Cardium norvegicum*, 1. *Venus ovata*, 2. *Portunus pusillus*, 1. *Nerine coniocephala*, 4. *Notomastus* ?, 4.
40 cm. +. *Nucula nitida*, 3 in 2. *Ophiothrix fragilis*, 3 in 1. *Echinus miliaris*, 1.

DAB. (*Pleuronectes limanda.*)

Oithona, 7. Cumacea, 22 full.
28. 15.—22 cm. +. *Nucula nucleus*, 1.
29. 4.—Pipefish, 1. *Thia polita*, 1.
29. 7.—*Ophelia limacina*, 1. *Obelia longissima*, 6.

DAB—*continued.*

30. 11.—20 cm. +. *Gobius minutus*, 1. *Scrobicularia alba*, 6 in 2. *Sepiola atlantica*, 1. *Nika edulis*, 4 in 1. *Hippolyte varians*, 5 in 3. *Idothea linearis*, 2. *Idothea*, sp.? 2 in 1.
30 cm. +. *Idothea linearis*, 1.

30. 19.—< 20 cm. *Gebia*, 1. *Owenia fusiformis*, 6 in 2.
20 cm. +. *Cirolana borealis*, 1. *Aphrodite aculeata*, 1.

30. 24.—< 20 cm. *Cirolana borealis*, 1.
20 cm. +. *Cardium*, 1. *Aricia*, 1.

30. 31.—< 20 cm. *Mactra solida*, 1. *Scrobicularia alba*, 1. *Portumnus variegatus*, 1. *Ophelia limacina*, 1. *Echinus*, 1. *Cerianthus*, 1,

30. 39.—*Gebia*, 1. *Ophelia limacina*, 2.

31. 16.—< 20 cm. Gephyrean, 1.
20 cm. +. *Aphrodite*, 1. Echinoderm remains, 1.

31. 20.—10 cm. +. *Galathea*, 1.

31. 30.—30 cm. +. *Lanice*, 3.

43. 1.—10 cm. +. *Anomia*, 1. Echinoderm remains, 1.

47. 1.—*Doris pilosa*, in all.

47. 18.—*Obelia longissima*, 2. *O. geniculata*, in 5.

50. 4.—*Mysis* larvae, 2.

50. 6.—Bivalve fry, 2. Cumacea, 1.

50. 24.—*Pecten opercularis*, 1. *Cardium* foot, 4. *Eupagurus pubescens*, 1.

56. 40.—< 20 cm. *Galathea intermedia*, 1.
20 cm. +. *Venus gallina*, 1.
30 cm. +. *Venus gallina*, 1.

56. 45.—*Nucula nitida*, 1. *Montacuta bidentata*, 1.

56. 47.—*Fusus*, 2. *Galathea intermedia*, 2. *Harmothoë*, 1. *Spatangus*, 1.

59. 1.—10 cm. +. *Aricia*, 1.
20 cm. +. *Portunus pusillus*, 2.
30 cm. +. Tunicata, 1.

59. 6.—20 cm. +. *Venus exoleta*, 1.

59. 8.—*Thelepus*, 1.

61. 16–19.—10–16 cm. *Arenicola*, 1. Hydrozoa, 2.

61. 23.—Foraminifera, 3.

61. 26–29. 10–15 cm. *Nephthys caeca*, 1. *Arenicola*, 1. Actinian remains, 2. Hydrozoa, 1.

66. 7.—*Anomia*, 1. *Venus ovata*, 1. *Stenorhynchus*, 4 in 1. *Galathea*, 1. *Nika edulis*, 1. *Pycnogonum littorale*, 1. *Echinus miliaris*, 8.

REPORT

ON THE

PLANKTON OF THE ENGLISH CHANNEL

IN

1904 AND 1905,

BY

LEWIS H. GOUGH, Ph.D.

(WITH 8 CHARTS.)

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REPORT

ON THE

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INTRODUCTION.

General Summary of Results.

The plankton samples were taken on the quarterly cruises in 1904 and 1905 in the same way and at the same stations as in 1903*: in addition to these samples, plankton was taken at Plymouth once a week whenever the weather permitted. Fortnightly samples were also taken at Fastnet Lighthouse, Coningbeg, South Arklow, Skulmartin, Bahama Bank, Cardigan Bay, Sevenstones, Shambles, Owers and Varne Lightships. The results of the samples taken in 1904 will be found discussed on pages 168–176; the tables of records for the first four Light-stations will be found in the Annual Report of the Irish Fishery Department; those for the remaining six and of the plankton taken at Plymouth in 1904 and 1905 are appended to this paper as Tables III. and IV., and VI. to XI. The samples taken in 1905 at the Light-stations have yet to be worked out; no samples were however taken at Owers or Shambles in 1905, material taken by the S.S. Devonia halfway between Plymouth and the Channel Islands being substituted.

In Table V. will be found the records of a set of samples taken on board a commercial mackerel fishing boat in 1904.

It has been possible by the aid of all these samples to reconstruct in a fairly conclusive manner the migrations of *Muggiæa atlantica*, an oceanic Siphonophore during the year 1904. The account of its wanderings appeared in November 1905 under the title "On the Distribution and the Migrations of *Muggiæa atlantica*, Cunningham, in the English Channel, the Irish Sea, and off the South and West Coasts of Ireland in 1904." Publication de Circonstance, No. 29. It was concluded that "a shoal of *Muggiæa atlantica* entered the Channel from the south west, passing Ushant (in May). Spreading northwards it divided into two arms, one of which extended eastwards as far as station E. 11 and Portland; the other arm rounded Land's End, reaching the Irish Sea, and following the South Coast of Ireland westwards as far as Fastnet. Then turning northwards along the West Coast of Ireland it passed Valencia and was even observed in Galway Bay. A fresh current setting in past Ushant at the end of October appeared to divide the original shoal into two portions, which were seen for the last time in 1904 off Portland and Coningbeg."

In 1905 a shoal of *Limacina retroversa* entered the Channel, probably from the north-west. Its migrations cannot however be followed, until the Light-station samples have been worked out.

A general result of the comparison of all the tables can be briefly summed up as follows. Most of the neritic species, whose centre of distribution lies in or near our waters, are to be found all the year round at places favourable to their development; such

* *See* Gough: Report on the Plankton of the English Channel in 1903. International Investigations, Marine Biological Association Report I., p. 325 [Cd. 2670].

places are to be found far from the influence of the ocean, for instance in the Eastern Basin of the Channel, or in the Irish Sea. Nearer the ocean these species become periodic in their appearance, many of them being purely winter forms at places like Plymouth, a few are however apparently summer forms. Still nearer the ocean their appearance becomes very irregular and of very short duration, or ceases altogether. Such species play a great part in causing seasonal changes in the plankton. These changes are probably not due to changes in the water, but are dependent on the life-history of the species. More important for the hydrography are changes in the oceanic species, as these are more directly due to variations in the currents. An example for this is furnished by *Muggiæa*.

The percentages of oceanic and neritic species have been worked out for all the cruises in 1904 and 1905 after the same manner as in 1903, and the general results of the two years agree very well. The percentages will be found discussed on page 178, and illustrated by Charts 1–8.

On page 180 will be found some notes on a series of samples taken at 47° 46′ N., 7° 50′ W.; although only 65 miles away from station E. 4, about 30 per cent. of the species have not hitherto been taken on the quarterly cruises. All the animals recorded were oceanic, but the phytoplankton, which was taken exclusively at the surface, has a considerable admixture of neritic forms.

PLANKTON TAKEN AT PLYMOUTH IN 1904 AND 1905, AND AT VARIOUS LIGHT-STATIONS IN 1904.

In Tables III. and IV. will be found the records of the plankton taken at Plymouth during the years 1904 and 1905. Care has been taken to obtain samples which shall be as far as possible comparable. Thus they have always been taken at the same state of the tide, at the same place, with the same nets, and have been towed for the same length of time.

A comparison of the two tables is of interest, especially if we take the most important species and compare their appearance during the two years. In several cases we find a considerable amount of agreement in the dates of their first appearance, and of their ultimate disappearance, but of course there are also species whose ranges during the two years are totally dissimilar. Before proceeding to the discussion, it is perhaps well to state that the results of the 1903 (Plymouth) tow-nettings have not been considered in the comparison, as the samples do not appear to be strictly comparable, the tow-nettings in that year having been taken at various places and at any state of the tide.

The results of the tow-nettings taken at Fastnet Lighthouse, Coningbeg, Skulmartin, South Arklow, Bahama Bank, Cardigan Bay, Sevenstones, Owers, Shambles and Varne Lightships, will also be referred to in connection with the local plankton. The records of the first four named appear in the Annual Report of the Fisheries Department for Ireland, the others are to be found in Tables VI. to XI.

Before commencing the special descriptions of the seasonal range of the most important species, a few generalisations should be referred to. It seems to be quite a general rule, deducable from the plankton tables referred to above, that certain neritic species, possibly most, occur all the year round at spots which are favourable to their development. This is especially the case with the diatoms. Such places are to be sought for in enclosed coast-bound waters, far from the influence of the ocean; near the ocean the neritic species taken off the shore occur only for short periods, either only during the summer, or else only during the winter. In places more remote from the ocean than the last mentioned, but not so entirely removed from its influence as in the first instance, an intermediate state of affairs is to be found, and the neritic species may be expected to remain abundant for long periods, yet not to be present all the year round. A large number of species follow this rule in its general outlines, but yet every species behaves quite independently of the others. Thus it happens that one species may be found all the year round in the most sheltered parts of the Irish Sea, and yet be only a periodic element of the plankton in similar parts of the English Channel. A northern species, conforming to the rule and always present at suitable places, at or near its centre of distribution, might very well be expected to become a periodic species or even only become sporadic in its appearance in similar spots but further south. The most favourable conditions for each species are quite possibly different in varying degrees from those for every other one.

Thus the rule for neritic species given above must not be expected to cover all neritic plankton elements found in our waters, nor to be followed in an apparently absolutely similar way by them. In its general outlines it seems to cover most of the facts concerning the annual range in time and place of the commonest species, whose centre of distribution is certainly near or in our waters, but is necessarily somewhat modified from species to species by other factors, such as their general geographical range and by peculiarities in their life-history ; it is however to be supposed that most of these factors are still unknown. That this should be the case is not at all surprising, considering how little is at present known concerning the biology of any of the diatoms, of the other protophyta or of the animals found in the plankton. Still I consider the rule as given to be generally applicable when considering the annual range in time and place, the modifications being due to factors which are in many cases unknown. In a similar way it will be found that oceanic species invariably occur most frequently near the open ocean, getting rarer and having a shorter period of vegetation in enclosed waters, or being absolutely wanting. But they simulate seasonal changes to a less degree, their presence or absence being due to oceanic currents, or to currents containing a mixture of oceanic water of recent origin, and not to a germination of resting stages, as is probably the case with neritic species having a periodic development. In the case of most oceanic and neritic species it will be found on referring to the tables that they almost invariably commence their periods of distribution at any place in very small numbers, getting common more or less rapidly, then after reaching a maximum of abundance they again get poorer in numbers, ultimately disappearing from the plankton. Sometimes however they recover after getting scanty, and form a second or even a third or fourth maximum before entirely dying out. It is usually only oceanic species that appear at once in large quantities, but such a phenomenon is in any case rare, probably being due to the species being brought in by a change in the currents. In what follows, examples of all three modes of distribution due to locality but exemplified by the same neritic species, will be referred to, as also some examples of oceanic distribution ; it is intended to mention only the most important species to show the basis underlying the above statements, whilst all the necessary information concerning species other than those here treated, can be found by referring to the tables. Before commencing the discussion of the single species, it is perhaps as well to make some remarks relative to the positions of the stations where the plankton samples were taken.

The Plymouth samples were all taken in the West Channel, near the Breakwater Lighthouse, just inside the breakwater : they, as well as all the Light-ship samples, were taken just before high-tide.

Fastnet Lighthouse lies 51° 23′ N., 9° 36′ W.,* off the extreme south-west of Ireland.

Coningbeg Lightship, 52° 2′ N., 6° 40′ W., off the South-east of Ireland.

South Arklow Lightship, 52° 41′ N., 5° 57′ W., on the East Coast of Ireland.

Skulmartin Lightship, 54° 32′ N., 5° 26′ W., off the North-east of Ireland.

Bahama Bank Lightship, 54° 19′ N., 4° 13′ W., lies off the Isle of Man.

Cardigan Bay Lightship, 52° 24′ N., 5° 0′ W., in the middle of Cardigan Bay.

Sevenstones Lightship, 50° 4′ N., 6° 4′ W., between the Scillies and the mainland.

Shambles Lightship, 50° 31′ N., 2° 20′ W., not far from Portland.

Owers Lightship, 50° 39′ N., 0° 41′ W., some distance east of the Isle of Wight.

Varne Lightship, 50° 56′ N., 1° 17′ E., in the middle of the Straits of Dover.

Fastnet and Coningbeg almost always have the most oceanic plankton of any of these stations, except Sevenstones ; Plymouth must be reckoned as intermediate in character. The other stations are all more or less neritic, Owers being perhaps the most purely neritic one of the whole set. Varne, owing to its position in midstream, is less neritic than Owers. On the whole the Irish Sea may be said to be more neritic than the Channel.

Actinoptychus undulatus, Ehbg., was more or less constantly observed at Plymouth in 1904, from January to the middle of April, and from the end of October to the end of

* The positions are quoted from "The Lights and Tides of the World, compiled by H. D. Jenkins," 1905.

the year, in 1905 nearly continuously from January to the beginning of April, and all December, at other times very rarely observed. At Owers Lightship it occurred continuously from January to the end of May, and occasionally in September and October; at Shambles *Antinoptychus* was more or less always present from January to the end of May, and from the beginning of October to the end of the year. At Varne it was continuously present from the end of October to the end of December, being frequently found during the rest of the year. At Bahama Bank it was very frequently seen till the end of April, and continuously from the end of November to the end of December. At Cardigan Bay it was present all the year round, except from the end of June to the end of July. At Skulmartin it was present all the year except in August, and at South Arklow, except from the middle of August to the middle of September. At Sevenstones it was always present till the end of May, and from the end of November on. At Coningbeg it only occurred occasionally, and at Fastnet in February and March, and at intervals during the rest of the year.

It will have been seen that in the case of *Actinoptychus undulatus* the longer periods of vegetation were always in accordance with the rule given above.

Biddulphia mobiliensis, Bail., belongs to the winter plankton at Plymouth, occurring constantly in 1904 and 1905 from January to the 19th or 20th of April, occasionally during the summer, and in 1904 from September, in 1905 from October to the end of the year. (It would perhaps be more correct to say from September 1904 to April 20th, 1905, the other method being adopted for comparison's sake.)

At Owers Lightship it was observed in every sample, at Shambles in every sample except May 14th; at Varne in almost every sample, excepting at the end of April and in May; at Bahama Bank in almost all samples, excepting in July and August; at Cardigan Bay in all samples, excepting from the end of June to the middle of August; at Skulmartin it was always present, except on June 15th; at South Arklow it was never missed throughout the year; at Sevenstones it was observed from January to the end of May, and from the end of November on; at Coningbeg it was continuously present till the end of April, otherwise very rarely seen; at Fastnet it was taken in February and March, being only very occasionally met with during the rest of the year.

Biddulphia mobiliensis conforms very well to the rule governing the seasonal distribution of neritic species, being a winter form in places near the ocean, and a perennial at spots more favourable to its development.

Coscinodiscus excentricus was found at Plymouth in 1904, from January to the end of April, fairly frequently in very small numbers during the summer, and from October to December, on the whole appearing and disappearing at the same time each year. At Owers and Varne it was always present; at Shambles it was missing only at the end of May; at Bahama Bank it was found in every sample until the middle of April and after the middle of September; at Cardigan Bay, until the middle of June and after the middle of August; at Skulmartin, until the middle of May and from the middle of August on; at South Arklow it was observed in every sample (except on September 24th); at Sevenstones it was present until the beginning of June and from October on; at Coningbeg it thrived until the end of April, occurring very rarely in May, June, July, and October, being again a constant element of the plankton during November and December. At Fastnet, *Coscinodiscus excentricus* was observed until the end of March, from the end of May to the end of June, and in December.

It will have been seen that *Coscinodiscus excentricus* is also one of the species which would seem to belong to the winter plankton if their distribution during the year were know only for Plymouth or any other place moderately near the ocean, but which is a permanent species at places further from its influence. The other neritic species of *Coscinodiscus* in our waters are very, though not absolutely, similar in their propagation.

Guinardia flaccida, Perag., was found at Plymouth in 1904, on and off from February to August, forming at least two small maxima during that time; a third small maximum occurring in September, it became common in October, and remained in the plankton from then until April 1905. Excepting for two erratic occurrences during the summer, it was not observed again until October when it came to stay. It will be seen that its occurrences in the two years were dissimilar in spring and summer, but that the chief maxima in winter began at the same season in both years. At Owers it was observed with auxospores in January; it chief period of vegetation however lasted from

the middle of March to the end of November ; at Shambles it was observed all the year round without exception ; at the Varne it was only missing in January and from the beginning of August to the middle of September ; at Bahama Bank it was seen in almost every sample, as also at Cardigan Bay, where it was, however, not seen in November ; at Skulmartin it was in almost all samples except those taken in April, and at South Arklow, except in March ; at Sevenstones *Guinardia* was only observed in June and July, and October and November ; at both Coningbeg and Fastnet it was only taken once, on September 10th and 24th, respectively.

Guinardia flaccida also furnishes an example of a neritic diatom found all the year round at neritic stations, apparently seasonal at others, and only a stray visitor at places near the ocean.

Rhizosolenia alata, Btw., was seen at Plymouth in 1904, occasionally in January, April, May, June, July, and August, from the beginning of September to the end of November, and occasionally in December ; in 1905 it formed three distinct maxima, two small ones from January to March and July to August respectively, and a chief one from the middle of October to the end of December ; at Shambles it was observed once in January and August, and from the end of October to the end of December. It was not observed at Owers, Varne, Bahama Bank or Cardigan Bay ; at South Arklow only once in June, and at Skulmartin only once in July ; at Sevenstones once each in January and March, but was very common from June to the end of the year ; at Coningbeg it was observed occasionally in January and February, and more frequently from September to the end of the year ; at Fastnet it was observed from August to the end of December.

Rhizosolenia alata is an oceanic species, and in its appearance agrees with what has been said concerning such species. It was always absent, or nearly always, at all the more neritic stations. It was longest observed at Sevenstones, appearing suddenly in fairly large numbers, but was less well represented at Coningbeg and Fastnet than might have been expected.

Rhizosolenia semispina, Hensen, was observed at Plymouth in 1904 once in March, was in the plankton for a short period from April 25th to May 8th, and its chief maximum was from June 14th to September 6th or perhaps 21st ; it was also observed once in October. In 1905 it was observed occasionally in January and February, having a lesser, discontinuous maximum from the end of June to the middle of August, and a greater maximum, when it was more common from the commencement of October to the end of the year. At Shambles it was only observed on May 14th, it was never seen at Owers or Varne, at Bahama Bank it flourished almost continuously from the end of April to the end of the year, and at Cardigan Bay from June to October. At Skulmartin it was seen in May, June and July, at South Arklow in February and March, in June and July and in August. At Sevenstones it flourished from the middle of March to the middle of August and from the end of September to the end of October. At Coningbeg it was seen occasionally in January and March, and from the middle of June to the middle of July ; at Fastnet it occurred at intervals in June, August, September and October.

In the case of *Rhizosolenia semispina*, an oceanic diatom, we find a general similarity with the distribution of the last species ; it does not penetrate to many of the neritic stations, but it appears to occur more frequently in the Irish Sea than up the Channel. In unison with *Rhizosolenia alata* it stayed longest at Sevenstones, being relatively infrequent at Coningbeg and Fastnet.

While referring to *Rhizosolenia semispina* it is of interest to state, that the form *hebetata* was frequently observed in 1905 on the quarterly cruises, and specimens were observed in November 1905 at Station E. 6, which as regards one end were identical with *Rh. semispina*, the other end being typically like *Rh. hebetata*. Similar specimens have been recorded by Dr. H. H. Gran, and other observers working further north.

Streptotheca thamensis was found at Plymouth in 1904 fairly often in January and February, once in March and August, and fairly often from the second half of September to the end of the year ; in 1905 it was very frequently observed from January to the beginning of May (not seen in February), occasionally in August and September, and from October to the end of the year. At Shambles it was observed in every sample, except from the beginning of April to the middle of June, at Owers it was observed in all the samples, at the Varne it was nearly always present. At Bahama Bank it was present

until the commencement of April, on June 15th, and almost continuously from the end of October to the end of the year. At Cardigan Bay it was only absent from the middle of June to the middle of August. At Skulmartin it was seen in all samples till the middle of April, once at the end of May, and in all samples but one from August 27th to the end of the year ; at South Arklow it was never wanting. At Sevenstones it was only seen on two occasions, in March and May, at Coningbeg from the end of March to the end of April, and on single occasions in July, September, October and December. It was not recorded from Fastnet.

It will have been seen that *Streptotheca* follows the rule for neritic species almost as well as any other diatom. It is, however, peculiar that it is dormant in the northern part of the Irish Sea longer than in the southern part or in the English Channel. Perhaps this may have some connexion with its general geographical distribution, its headquarters being the south-western part of the North Sea and the Eastern Basin of the English Channel, whilst it seems seldom to have been seen as far north as Norway. This might perhaps explain the peculiarity of its seasonal distribution in the Irish Sea.

Ceratium tripos varied in its distribution at Plymouth very considerably during the two years under consideration. In 1904 it was found very frequently all the year round, being observed quite continuously from August 11th to the end of the year, and during this time it was mostly common. In 1905 it was continuously present till the middle of March, then it disappeared ; it was afterwards only occasionally met with in June, September, October and December. At the Light-stations in 1904 it was only occasionally seen at Shambles in January, March, April, July and November ; at Owers it was seen from the middle of March to the beginning of April ; at the Varne it was taken in very small numbers on single occasions in February, June and August. *Ceratium tripos* was never seen at Bahama Bank, but at Cardigan Bay it was regularly present until the 1st of April, and from August 12th to December 7th ; at Skulmartin it was only seen on July 13th ; at South Arklow only in February and from the end of August to the end of September ; at Sevenstones it was observed throughout the year, being especially common in August and September ; at Coningbeg it was observed occasionally in small numbers in January, March and June, and continuously from the beginning of September to the end of the year ; at Fastnet it was observed all through February and the beginning of March, and nearly continuously from the end of September to the end of the year.

In some respects the range of *Ceratium tripos* can be said to resemble those of the two oceanic diatoms already discussed. For instance, it vegetated longest at Sevenstones, and its periods of life at the various stations became shorter up Channel, although it did not absolutely fail to appear at any of the Channel Stations. In the Irish Sea it was rarest or even absent at the Northern Stations, having a longer range at the Southern ones ; its discontinuous appearances at Coningbeg and Fastnet are also worth mentioning.

Peridinium depressum, Bail., like the preceding species, was more common in 1904 than in 1905 at Plymouth. In 1904 it formed at least four distinct maxima, besides being occasionally observed at other times. It was seen at intervals in January, the first maximum was from April 19th to May 28th, then it was observed again on June 14th and July 13th. The second period lasted from July 17th to August 24th, or perhaps until September 6th (not observed September 1st), the third period began September 28th and continued till November 1st, the fourth period began on November 22nd and lasted till the end of the year. In 1905 it formed only two short periods, but was observed occasionally in January, March and April, the first period reaching from May 12th till May 26th, the next from July 6th till August 15th (interrupted on July 20th) ; it was again observed at intervals in November and December. At Shambles it was seen in the beginning of April, all May, at the end of June, and in the middle of August ; at Owers it was seen from the middle of June to the middle of July and in November ; at the Varne it lasted longer, being observed in almost every sample from the commencement of April to the end of August, and again at the end of November and the beginning of December ; at Bahama Bank it was observed once on October 25th, at Cardigan Bay once in February, from July 27th to October 10th, and once in November ; at Skulmartin it was taken on two occasions, once in November and once in December ; at South Arklow it was commoner, being seen occasionally in February and March, and without a break from June 14th to October 10th ; at Sevenstones it was observed in every month except

March and December, continuous records extending from May 2nd to August 12th; at Coningbeg it was observed more or less continuously all the year excepting in August and September, and at Fastnet from the end of May to the end of the year, interrupted only at times in September and October.

Peridinium depressum is an oceanic form, and its yearly distribution runs on the lines to be expected in the case of oceanic plankton elements. The position of the Varne in the middle of the Channel current shows up in the distribution of this species, as compared with its range at Owers and other places.

Halosphaera viridis, Schmitz, was present at Plymouth in 1904 almost continuously from the beginning of the year to the end of April, and from the end of August till after the middle of October; it was observed only occasionally in November and December. In 1905 it was more or less continuously present from the middle of January to the first week of April, and occasionally from the end of May to the beginning of August; at Shambles in 1904 it was observed in all samples up to March 18th, and again on June 30th, at Owers it was only once doubtfully recorded, and it was not seen at the Varne. At Bahama Bank it was only seen on February 3rd, but was frequently recorded at Cardigan Bay, except in July, August and November; at Skulmartin it was taken twice, in the beginning of March and at the end of April; at South Arklow it was taken regularly until the 2nd of April and on September 24th and October 26th. As is the case with so many oceanic species, it was most regularly taken at Sevenstones, where it was often common or very common; it was, however, not seen there in June or July. At Coningbeg it was observed continuously until the end of March, once in the middle of May, and regularly from the beginning of September to the end of the year; at Fastnet it was taken until the end of March, and more or less frequently from the end of July to the end of the year.

It will have been seen that the two years' records from Plymouth do not agree to any very great extent except in the early part of the year. Further up Channel its period of vegetation becomes shorter, until the species ultimately died out. It lasted longest at Sevenstones, and proceeding from there into the Irish Sea we find its period getting shorter the further we go away from the St. George's Channel. Its irregularity at Fastnet and Coningbeg was to be expected from what we already know of other species at those stations.

Phaeocystis globosa, Scherffel, was more abundant at Plymouth in 1904 than in 1905; it was present usually in very large quantities all through April and May 1904, and in smaller numbers during the whole of September. In 1905 a few colonies were seen on March 10th, the chief period of vegetation commencing on April 12th and lasting until May 12th, it being specially common at the end of April. It was again observed during the last week of August and the first of September, and during the third week of October. At Shambles in 1904 it lasted from the middle of March to the end of May, getting very common at the end of May; at Owers it was observed in great quantities in the middle of June, at the Varne it lasted from the end of April to the middle of June; at Bahama Bank it appeared at the end of June and lasted to the end of July, but it was not seen at Cardigan Bay, South Arklow, or Skulmartin; at Sevenstones it was observed in very small quantities at the end of September, but was not seen at Coningbeg or Fastnet.

Phaeocystis globosa is a neritic species which plays a very important part in the plankton ot the Channel. It will have been noticed that its longest spring period took place at Shambles, starting there earlier than at Plymouth, and lasting till about the same date. Further up Channel it appeared later in the year but did not last so long, its latest appearance was in the Irish Sea; it was not seen at a number of stations, at Fastnet and Coningbeg, perhaps on account of their proximity to the ocean; at Sevenstones, as already stated, only once, and in extremly small numbers. Its non-appearance at some of the Irish Sea stations is rather hard to understand, but then very little is known of its biology.

Muggiaea atlantica, Cunningham. The distribution of this species was discussed by me in a paper "On the Migrations of Muggiaea Atlantica, Cunningham, in 1904," Publication de Circonstance No. 29, to which I must refer for fuller particulars of its known distribution in 1904. It was found at Plymouth in 1905 from the middle of August to the end of the year. The first record of this species in 1904 was at Shambles Lightship on January 19th, when a single specimen was observed, probably a remnant of the swarm seen in November 1903, at Stations E. 19, E. 18, and E. 17. It was not

again observed until it was taken on the quarterly cruise during the last days of April and the first ones of May, at Stations E. 2, E. 3, and at E. 8. This is evidently a new flow from the south-west, coming from the Bay of Biscay past Ushant. It continued spreading northwards, being found in a sample taken 18 miles S.W. of the Eddystone on May 22nd. On June 3rd it was observed 14 miles S. of the Eddystone. On June 15th it was taken at Sevenstones Lightship, where it was regularly observed until December 8th. On June 21st it was observed 42 miles S. of Plymouth, and on July 3rd 20 miles S.S.W. of Plymouth. On July 6th it first appeared in Plymouth Sound, continuous observations of it being made there (with only one exception) until November 30th. On the August cruise it was shown to be present at E. 3, E. 2, E. 7, E. 6, E. 1, E. 20, E. 19, E. 17, E. 9, and E. 11. It must, however, have already passed E. 6 towards the north, being observed at Cardigan Bay Lightship from August 26th till September 25th. By the middle of September it had spread from Cardigan Bay to South Arklow (IX. 9 to IX. 24) and Coningbeg (IX. 10 to XII. 23), reaching Fastnet on September 24th. In the middle of September it also reached Shambles, where it was continuously observed until December 24th. In October it had retreated from Cardigan Bay and South Arklow. In November it was observed at Stations E. 5, E. 8, E. 9, E. 6, E. 7, E. 1, E. 20, E. 19, E. 18, and E. 17, and also at Shambles, Plymouth, Sevenstones, Coningbeg, and Fastnet. It will be seen that its southern limit has now been pushed further northwards than it was in August. In December it was only observed at Coningbeg, Sevenstones, and Shambles.

These facts seem to suggest that a flow of water containing *Muggiaea* set in from the South West in May, advancing in a North East direction towards Plymouth, splitting into two arms, one of which advanced eastwards up Channel, the other moving northwards into the Irish Sea, and westwards along the south coast of Ireland. An inflow of water not containing *Muggiaea* occurring at the beginning of November and coming from the South West then drove the southern limit of the species in question northwards.

The other oceanic species do not give such a clear insight into the motion of the water as *Muggiaea* does, and for two reasons. In the first place *Muggiaea* is a large species, which cannot well be overlooked, occurring as it usually does in large numbers. In the second place it is decidedly a southerly species, which probably reaches its most northern limits in our district. This cannot be said of most of the other species, many of which occur from the Antarctic to the Arctic, and which can consequently be introduced into the Channel with any flow of oceanic water, thus apparently obliterating the limits of the water systems they belong to when studied from the plankton point of view.

Tomopteris helgolandica, Greef, was seen at Plymouth in 1904 on June 27th and August 19th and 24th, in 1905 only on September 23rd. At Shambles in 1904 it only occurred on March 3rd, at Owers and Varne it was never taken. At Bahama Bank specimens were taken on February 3rd, and it occurred regularly throughout October and November. At Skulmartin *Tomopteris* were observed in all samples taken between August 27th and November 8th, and again at the end of December, at South Arklow it was seen at the end of February, and again from the end of September almost uninterruptedly to the end of the year. At Sevenstones it was observed only on February 3rd. At Coningbeg it was recorded from all samples taken in February and March, again at the end of May, in the middle of August and at the end of September, and continuously through November and December. At Fastnet it was seen in February, continuous records extending from the end of July to the end of the year.

Tomopteris helgolandica is without doubt an oceanic species; the greater abundance and frequence in the Irish Sea than in the English Channel are a peculiarity in the distribution of the species for which it is impossible to assign a reason.

Centropages hamatus, Lillj, was only rarely observed at Plymouth in 1904, the only records being in June and August. It was somewhat commoner in 1905, being observed once in April, from May 12th to June 5th, at the end of June, and in the beginning of August. At Shambles in 1904 it was first seen in the middle of February, and after May 2nd was continually observed until the end of the year, being at times very common. At Owers and Varne it was present practically all the year round, and at times common or extremely common; at Bahama Bank it occurred chiefly during the summer, the records covering from the middle of April to the end of July, all September and the end of October. At Cardigan Bay it was taken regularly from the commencement of March to the middle of July and frequently during the rest of the year excepting in January. At

Skulmartin it was seen in almost all samples dated between March 31st and October 10th. At South Arklow it occurred all the year round except perhaps in March. *Centropages hamatus* was not seen at Sevenstones, but at Coningbeg it was observed in most samples between the end of March and the middle of August, and at Fastnet frequently from the end of March to the end of August.

Centropages hamatus is a neritic form, which belongs to the regular plankton elements of the eastern parts of the Channel ; further west, and in the Irish Sea it is a seasonal species occurring only in the summer. Most of the neritic species discussed above were, it will be remembered, winter forms at places where they occurred periodically.

Centropages typicus, Kroyer, occurred very frequently at Plymouth in 1904 until the third week of October ; in 1905 it was very often observed throughout the year, especially after May 12th. At Shambles in 1904 it was almost constantly present, except in December ; at Owers it was only recorded once on August 15th, September 16th and October 9th. At the Varne it was constantly found until March 3rd, and occasionally in most months, except July, November and December. At Bahama Bank it was observed only on June 15th, but was commoner at Cardigan Bay, being found there all February, in the middle of April, all May and from the end of June to the beginning of November, being at times very common. *Centropages typicus* was observed at Skulmartin from the end of May to the end of June and at the end of September and commencement of October. At South Arklow it appeared occasionally in February, March and May, and continuously from August 27th to November 7th. At Sevenstones this species was taken in every sample but one from March 18th to the end of the year, usually in large quantities. At Coningbeg it occurred all the year round, excepting in April and November, but at Fastnet only from the end of July to the end of November.

It will be seen that *Centropages typicus* was on the whole always rarer at the more neritic stations, and commoner towards Sevenstones ; its distribution has most interest, however, when compared with that of the preceding species.

Metridia lucens, Boeck., was observed at Plymouth in 1904 only on May 17th and 25th, in 1905 from the end of April to the middle of June and in September ; at Shambles it occurred only in January ; it was not observed at Owers, Varne or Bahama Bank ; at Cardigan Bay it occurred occasionally in March and April ; at Skulmartin it occurred fairly regularly from the end of June to the middle of October, at South Arklow from the middle of February to the beginning of April, during May, and at the end of September ; at Sevenstones it was fairly constantly present till the end of May ; at Coningbeg and Fastnet Metridia was present in almost every sample, often in huge quantities.

Metridia lucens is an oceanic species, as can be seen by its absence from the neritic parts of the Channel. Its presence at times in the neritic parts of the Irish Sea is worthy of note, especially as compared with its behaviour in the Channel.

Temora longicornis (O. F. Muller) was observed at Plymouth in 1904 occasionally in all the months of the year, but almost regularly in every sample from the middle of March to the beginning of October, being commonest during the summer ; in 1905 it was more regularly observed throughout the year, but still can be said to have been commoner on the whole during the warmer period of the year. At Shambles in 1904 it was regularly observed from the beginning of March to the end of the year ; at Owers and Varne it was seen in very nearly every sample ; at Bahama Bank it was present in all but two of the samples taken between March 18th and November 10th ; at Cardigan Bay its period also commenced about the same time, but ended on the 9th of September, a few specimens being observed on December 7th ; at Skulmartin its range, though shorter, resembled that at Bahama Bank, the species being observed from March 31st to October 25th ; at South Arklow it was regularly taken from the beginning of March to the end of December, and commonest during the warmer part of the year ; at Sevenstones it appeared on April 5th and May 2nd, all June and July, and from the middle of October to the end of the year ; at Coningbeg it was observed in January, from the end of March to the end of May, and from the middle of July to the end of the year ; at Fastnet it also appeared in May, and from the middle of July to the end of the year.

Temora longicornis is a neritic species conforming more or less to the rule given above. It will have been seen that it was regularly present at many of the more neritic stations ; at others, especially those in the Irish Sea, it can be said to be a summer form,

but it stayed rather longer than usual for a neritic species at Sevenstones, Coningbeg and Fastnet. Perhaps this may also be due to the westward flow in autumn 1904, past these three stations (*see* "The Migrations of Muggiaea").

Seasonal changes in the plankton taken at the lightships were not very marked, and took place very slowly when they did occur. It might, however, be said that on the whole the phytoplankton in winter consisted more especially of diatoms, the Peridinidæ being commoner in summer than in winter. *Halosphaera viridis* was mostly present, except in June and July; it was, however, very rarely or never seen at the most neritic stations.

Coelentrates and larvæ of Echinodermata were commonest during the warmer part of the year. The Copepoda showed very slight changes attributable to the seasons. *Anomalocera Patersoni*, however, seems to be a summer form, as also *Labidocera Wollastoni* and *Parapontella brevicornis*; all three belong to the Pontellidæ, and are the only members of that family found in our samples. The Cladocera are also summer forms.

The interesting larval crustacean *Jaxea nocturnea*, Scott, was observed in a sample from Fastnet.

The samples from Shambles Lightship have not been worked out exhaustively, owing to the great amount of sand, mud, and fragments of algæ always present in them.

A glance at the tables is sufficient to show that the phytoplankton at the more western positions is almost always poorer in species and individuals than it is further east. At the same time the bulk of the plankton in the samples taken at the western positions was almost always greater than that taken at the Eastern Lightships. The increase in quantity being chiefly due to *Calanus finmarchicus*, and sometimes to *Metridia lucens*.

THE SEASONAL CHANGES OBSERVED IN THE PLANKTON TAKEN ON THE QUARTERLY CRUISES.

After what has been pointed out concerning the plankton taken at Plymouth and at the Light stations, it will be seen that the greatest periodic changes in the plankton of the Channel are to be expected in the western basin, the smallest amount of change being looked for in the eastern basin, in the more neritic parts, and at the stations outside the Channel.

The seasonal changes are caused by two factors, by the periodic development of neritic species at places where the conditions are only partly favourable to the neritic organisms, and by the immigration of oceanic species.

The periodic development of neritic species has already been referred to on page 168. It was there stated with regard to the oceanic species that their appearance was more directly due to the currents, as for example is the case with *Muggiaea*. In the case of the Peridinidae, most of which are oceanic, a certain periodicity will also be found, due to their life-history, of which, however, little is known. Although most of the species are present all the year round, their chief period of development lies in the summer; multiplying at a great rate when the conditions are most favourable for life to them they soon assume an important place in the plankton.

The seasonal changes can best be studied from Tables I. and II., or from the original tables in the Bulletin des Resultats acquis pendants les Courses periodiques, Conseil permanent international pour l'Exploration de la Mer. By examining Tables I. and II. we find that almost all the important neritic species are found all the year round at several of the up-channel stations, and that at the stations nearer the western mouth of the Channel they are more seasonal in their distribution. The large bulk of the neritic diatoms spreads westwards in winter (November and February), but they are alway to be found at the innermost stations. In the case of the neritic copepods the advance westwards usually takes place in the summer (May and August); when found in the winter they are, like the neritic diatoms, confined to the inner waters of the Channel.

The oceanic species keep to the mouth of the Channel, at many of the most westerly stations they are taken on every cruise; when they appear only at times, they do not usually show the same marked periodicity that the neritic species do at stations where they are not found all the year round. An apparent exception is furnished by the Peridinidae, which as already stated are commonest in summer.

The medusae, mostly neritic species, are always commonest in the warmer part of the year ; their periodicity is, however, easily understood, their life history being on the whole better known than that of most of the other plankton-elements. It is in the summer that the hydroids, from which they are liberated, are in the most flourishing condition, and the budding off of the medusae, and breeding season, seems in the case of most of the species to take place only in the warmer season of the year. Changes in the hydrographical conditions seem to play but a small part, if any, in the life of most of these animals.

The pelagic larvae of many of the bottom species also seem to be commoner in the warmer part of the year, due to the breeding season of most of the species not being in winter.

The periodic appearance of *Phaeocystis globosa*, Scherffel, has already been referred to on page 173. As its life-history is not yet understood, it is useless to attempt to assign any cause for its periodic appearance, or to conjecture what happens to it during the remainder of the year.

THE DISTRIBUTION OF OCEANIC AND NERITIC SPECIES IN 1904—1905.

The distribution of the oceanic and neritic species during the eight cruises from February, 1904, to November, 1905, has been worked out in percentages, as explained in the report for 1903, but the list of species has been increased so as to include almost all that were recorded.

On all the cruises during the two years under consideration, as also in 1903, the proportion of oceanic to neritic species is greatest in the West at Stations E. 4 and E. 5 ; it diminishes fairly regularly towards the East, rising again a little after the Isle of Wight—Cherbourg line has been passed.

It was mentioned in the last report that in 1903 the highest number of oceanic species present at any station was not actually found at the most westerly stations, but usually at some of those which lie just within the mouth of the Channel. This seems to be the rule, as it has reoccurred on almost all the cruises in 1904 and 1905. In a similar way, the highest number of neritic species found at one station on any cruise is often not found at the stations with the highest percentage of neritic species. Thus, for example, the highest number of neritic species is not found at stations lying on the Isle of Wight—Cherbourg line, but at places somewhat to the west of that line. It has already been pointed out by Ostenfeld that many oceanic diatoms seem to thrive best in the neighbourhood of the coast, or where two currents meet. Gran supposes this to be due to the presence in the water of a greater quantity of dissolved matter necessary for the proper nutrition of the diatoms. The observations made in the Channel would seem to agree with Gran's supposition, and the increase in the total number of oceanic and neritic species towards the middle of the western basin of the Channel could be attributed to the mixing of the waters by which more favourable conditions of life are offered to several species than they would find in purely oceanic or purely neritic water.

Van Breemen (1905), in considering the decrease in number, and the ultimate extinction of some oceanic species in their advance through the Channel, suggests (p. 105) that they are poisoned by the presence, though in perhaps very small quantities, of poisonous substances. These he supposes to have been dissolved out of the bottom. The shallower the water the more such substances will be dissolved. He also draws attention to the fact that the bottom fauna and flora is richer in comparatively shallow water than it is in deep places. There must be a proportional increase of the products of their decomposition.

Van Breemen's theory appears to cover the facts very well. Most of the species of the phytoplankton seem to need more than pure sea-water alone for their development. They require larger or smaller quantities of dissolved substances other than the normal constituents of sea-water, the oceanic species probably requiring less than the neritic ones. This would account to some extent for the sudden increase of oceanic diatoms at some distance from the shore (or at the meeting of two currents) ; in our case just within the mouth of the Channel. Then, as the concentration of these substances rises, the oceanic species begin to die off, giving place to neritic ones which are better adapted to live in

such conditions, or which may actually be dependent on them. In a recent paper by A. Nathansohn (" Vertikale Wasserbewegung und qualitative Verteilung des Planktons im Meere " Ann. d. Hydrographie and Marit. Meterol. 1906), it is shown that vertical motion of water has great influence on the plankton. Supposing that in still water the topmost layers are filled with rich plant and animal life, through the constant sinking of dead organisms to deeper layers, the quantity of nutrient substance in the surface layers would constantly be reduced, ending after a time in the complete extermination of the surface life through the entire removal of all nutrient substances, and a great concentration of organic substances in the depths, where they would be useless. Now suppose the deeper layers to be driven upwards by the action of the currents striking upon submarine ridges, or by the shelving upwards of the bottom of the sea near a coast. The consequence would be that the deeper water containing the reserves of nutrient substances would be brought to the surface, and a rich plankton flora and fauna would develop and thrive finding plentiful nourishment. Nathansohn similarly supposes the great increase of plankton found where two currents meet, to be due to a vertical motion of the water. Currents flowing past each other in opposite directions are liable to drag with them any stiller water lying between them ; this water, however, must be compensated for by water from the depths.

Nathansohn's theory also seems to fit the facts very well, but the vertical motion of the water as described by him, is probably of less importance in shallow water, such as is found in the greater part of the English Channel than the motion due to the waves ; this reaches to the bottom in many places, as is proved by the large quantities of sand and mud almost always found in suspension in the inner portions of the Channel.

As pointed out last year, the absolute salinity does not seem to be the chief factor in determining the distribution of the species of the plankton in the Channel, many of the species standing a greater change of salinity than usually occurs in our waters. As already pointed out, a fall in the salinity is not always accompanied by a corresponding decrease in the percentage of oceanic forms present at the same spot. The probable explanation of this is that where there is a high salinity and a low percentage of oceanic forms, the water has been long over a shallow bottom ; where there is a low salinity and a high percentage, the freshening of the water has been very recent ; where high salinity and high percentage occur together, the water is of recent oceanic origin, and where low percentage and low salinity are found, it can be supposed that the water has been long under conditions which favour the formation of neritic plankton, for instance lying over a shallow bed and mixing with fresh water.

The percentages of oceanic species will be found plotted out on Charts 1–8. The large figures represent the percentages ; the actual numbers of oceanic and neritic species are shown under the station numbers in smaller figures.

Examining the Charts (and Table A, page 179,) we find that in every case the highest percentage is reached at Station E. 4, where its values vary from 65 to 90. Similarly at Station E. 14, the lowest percentages 15 to 30 are always to be found (except in February 1904), equally low figures being of frequent occurrence at E. 13. In this connection it is of interest to point out, that the highest number of oceanic species present at any station is not usually found at E. 4, neither is the highest number of neritic species ever found at E. 14. On the other hand it is a very well obeyed rule that the lowest number of oceanic species is always to be found at E. 14, and the lowest number of neritic species at E. 4. Thus in the cases of the extreme percentages the oceanic character at E. 4, is due to the low number of neritic species, and the neritic character at E. 14, to the scarcity of oceanic species. This shows, that absence of neritic species, not multitude of oceanic ones, is the leading criterion of oceanic plankton.

Further examination of the charts can be made with reference to the places where the highest and lowest absolute numbers of species were found. It will be found that at certain stations there is a tendency for the plankton to be composed of a larger number of species than is met with at others. This is also the case with the lowest numbers.

The stations at which large numbers of species are to be expected all lie within the western basin of the Channel, within the lines Land's End—Ushant (including E. 3) and Portland—La Hague. The highest numbers found on each cruise were 79 in February 1904 at E. 18, 70 in May 1904 at E. 7, 60 in August 1904 at E. 7, 73 in November 1904 at E. 3, 71 in February 1905 at E. 3, 70 in May 1905 at E. 17, 61 in August 1905 at E. 18, and 62 in November 1905 at E. 19 and 20. It will be seen that these form

TABLE A.—Showing the PERCENTAGE OF OCEANIC SPECIES, the TOTAL NUMBER OF SPECIES, and the NUMBER OF OCEANIC AND NERITIC SPECIES, present at each STATION in 1904 and 1905.

Station E.	February 1904.				May 1904.				August 1904.				November 1904.				February 1905.				May 1905.				August 1905.				November 1905.			
	Percentage of Oceanic Species.	Total Number of Species.	Number of Neritic Species.	Number of Oceanic Species.	Percentage of Oceanic Species.	Total Number of Species.	Number of Neritic Species.	Number of Oceanic Species.	Percentage of Oceanic Species.	Total Number of Species.	Number of Neritic Species.	Number of Oceanic Species.	Percentage of Oceanic Species.	Total Number of Species.	Number of Neritic Species.	Number of Oceanic Species.	Percentage of Oceanic Species.	Total Number of Species.	Number of Neritic Species.	Number of Oceanic Species.	Percentage of Oceanic Species.	Total Number of Species.	Number of Neritic Species.	Number of Oceanic Species.	Percentage of Oceanic Species.	Total Number of Species.	Number of Neritic Species.	Number of Oceanic Species.	Percentage of Oceanic Species.	Total Number of Species.	Number of Neritic Species.	Number of Oceanic Species.
1	50	63	32	31	55	50	22	28	55	58	25	33	50	50	24	26	50	47	23	24	50	44	23	21	75	30	8	22	40	49	30	19
2	50	63	31	32	60	69	28	41	70	45	13	32	45	66	36	30	55	66	31	35	70	43	13	30	75	34	9	25	50	48	23	25
3	55	54	25	29	60	63	25	38	55	59	28	31	55	73	32	41	60	71	27	44	65	52	19	33	70	45	14	31	60	54	21	33
4	65	37	13	24	75	38	10	28	75	21	5	16	80	39	7	32	70	46	13	33	80	35	7	28	90	22	2	20	80	44	8	36
5	60	45	18	27	60	49	19	30	75	26	6	20	60	61	23	38	55	42	18	24	65	30	11	19	65	29	10	19	70	48	15	33
6	45	54	30	24	55	39	18	21	65	53	19	34	55	52	23	29	50	50	26	24	55	25	11	14	60	31	12	19	55	60	26	34
7	50	52	25	27	45	70	39	31	65	60	22	38	50	66	33	33	40	45	27	18	45	54	29	25	75	31	7	24	60	42	17	25
8	...	...	...	...	55	58	25	33	65	36	12	24	50	52	26	26	50	55	28	27	60	36	15	21	70	21	6	15	55	53	25	28
9	...	...	...	...	50	54	28	26	60	42	17	25	50	49	25	24	50	59	29	30	50	60	30	30	75	26	7	19	50	58	30	28
10	35	51	32	19	50	56	28	28	50	44	22	22	45	55	29	26	40	63	38	25	50	48	24	24	50	37	19	18	45	55	29	26
11	40	34	20	14	40	42	26	16	30	56	40	16	30	38	26	12	45	41	23	18	45	38	20	18	30	47	33	14	35	38	24	14
12	25	46	34	12	35	42	28	14	30	48	34	14	30	46	32	14	45	36	20	16	40	47	28	19	25	35	27	8	30	37	25	12
13	25	40	30	10	25	37	27	10	35	46	30	16	30	44	31	13	30	48	33	15	30	47	33	14	20	43	34	9	30	29	20	9
14	30	36	26	10	15	33	28	5	15	43	36	7	25	37	27	10	30	37	26	11	30	41	29	12	20	31	25	6	30	27	19	8
15	...	...	...	...	25	55	42	13	...	...	...	...	30	38	27	11	...	...	...	...	30	42	29	13	...	...	...	...	...	...	...	...
16	30	53	37	16	30	61	42	19	35	56	37	19	...	...	...	...	45	63	36	27	35	60	39	21	30	43	30	13	35	45	30	15
17	45	52	29	23	60	43	18	25	55	42	18	24	45	67	38	29	50	68	34	34	45	70	40	30	60	36	15	21	40	55	33	22
18	40	79	47	32	45	63	35	28	50	48	24	24	40	60	35	25	40	55	33	22	50	54	28	26	45	61	33	28	45	47	26	21
19	55	59	28	31	45	56	30	26	60	50	19	31	45	60	33	27	50	64	31	33	55	44	19	25	60	33	13	20	50	62	32	30
20	40	58	36	22	50	58	28	30	55	56	24	32	45	53	28	25	50	63	32	31	45	58	32	26	55	39	17	22	45	62	33	29
21	40	43	26	17	45	27	15	12	25	46	35	11	30	49	35	14	30	48	33	15	40	42	26	16	35	35	23	12	30	42	30	12
22	35	46	31	15	55	36	17	19	40	48	30	18	40	53	33	20	40	36	21	15	40	40	24	16	40	48	30	18	30	45	31	14
24	40	44	26	18	35	29	19	10	40	31	19	12	35	45	29	16	35	55	37	18	35	40	27	13	40	37	23	14	35	43	27	16

three centres, one of which lies off Ushant, the other two off Land's End and Start Point respectively. All these three centres, and especially the first two, have much in common. Thus they all lie in proximity to the land, and are under the influence of strong currents, producing great mixture of water. In the case of the first two, oceanic water meets inshore water and is mixed with it, whilst the third centre is in the path of the strong current which passes the Start into the Great West Bay; much mixing of the water certainly takes place here, as the end of the tongue of high-salinity water (35·4 per thousand) is usually to be found in the vicinity, and here mixes with the inshore water. In each of these cases the mingling is effected by the currents. Close proximity of water of different origin, if it were not mixed by currents, or currents without water of different origin, would probably have little influence on the plankton; it is the combination of both which has the effect of increasing the number of species.

As the greatest number of species are to be found at places where waters of different origin are mixed by strong currents, the smallest numbers are to be expected at spots where the least amount of mixture takes place. Such places are apparently Stations E. 4, E. 5, E. 14, E. 13, E. 12, E. 11, E. 22, E. 24, E. 21. Stations E. 4 and 5, especially the former, need hardly any comment; the water there is only approaching the shore, and has hardly begun to mix with inshore water; the percentage of oceanic forms is also always high. The other stations all practically form one large area in the eastern half of the Channel, where the water can hardly be said to be undergoing much change. Yet this area must be divided into two, the western portion containing E. 14, 13, 12, and 11, and the eastern portion containing E. 21, 22, and 24, the former differs chiefly from the latter in the somewhat lower percentage of oceanic forms. Strong currents flow over E. 14, where the minimum number was found on two cruises; it is hard to say why this should have been the case, but probably not much mixture of different waters takes place here, as is shown by E. 14 also always having the minimum number of oceanic species, and perhaps the muddy condition of the water has also something to do in this connection.

If we now study the distribution of the oceanic species on the charts, we find that the highest number usually occurs at E. 3 or E. 2, E. 4 and E. 5 usually having less species than stations just inside the mouth of the Channel; the reverse was, however, the case in November 1904 and 1905. The lowest number was always found at E. 14. It is of interest to point out, that whereas the stations west of a line joining Lyme Regis and Cape La Hague almost always had more than twenty oceanic species, the stations east of that line had in the majority of cases considerably less. The numbers at the most western stations also often fell to below twenty.

The neritic species were found in greatest numbers at Stations E. 10, 11, 13, 16, 17, 18 and 20. It will be observed that these stations were all (with exception of E. 13) west of the Isle of Wight—Cherbourg line, and that they form a more or less continuous area. Large numbers were also found at various other stations, where favourable conditions obtained, as, for instance, occasionally at E. 21 and 24, and E. 2, E. 3, E. 6, etc. It is, however, more difficult to find a rule for the distribution of the higher numbers of neritic species than for that of the oceanic ones. The lowest numbers wers always found at E. 4.

NOTES ON A SERIES OF SAMPLES TAKEN AT 47° 46′ N., 7° 50′ W.

On November 8th, 1905, a set of samples was taken at 47° 46′ N., 7° 50′ W., being about 65 miles S. 50° W. true of Station E. 4. A comparison of the list of species taken at this spot, with the list of species observed in the Channel, or at any of the usual stations, is of greatest interest.

The list of diatoms taken only includes three forms (in italics) otherwise not taken on the cruises, one of which is but doubtfully identified, but it is remarkable for the fact that many of the species are neritic. The list* includes—

Bacteriastrum varians	... ...	Oceanic.
Chaetoceras criophilum	... ...	,,
,, *criophilum forma volans*	... ...	,,
,, *pelagicum*	... ...	,,
,, peruvianum	... ...	,,
,, Schütti ...	... ...	Neritic.

* The species in these lists printed in italics have not yet been observed in the Channel on any of the cruises.

Corethron hystrix	Oceanic.
Coscinodiscus radiatus	,,
Ditylum Brightwelli	Neritic.
Eucampia zoodiacus	,,
Hyalodiscus stelliger...	,,
Rhizosolenia semispina	Oceanic.
,, Shrubsolei	Neritic.
Thalassiothrix nitzschioides...	,,
,, *longissima* ?	Oceanic.

Of these species it will be seen that six are neritic and nine oceanic. A percentage (*see* page 178) drawn from these species alone would be as low as 60. The other protophyta all belong to species which have already been recorded on the cruises, they are all oceanic except the last—

Ceratium furca.	Halosphaera viridis.
,, fusus.	Trichodesmium sp.
,, longipes.	Distephanus speculum.
,, tripos.	Trochiscia Clevei.
Peridinium depressum.	

The percentage given by these species is 89, that for all the protophyta combined about 71.

The protozoa are all new, and probably all oceanic—

Coelodendrium ramosissimum.	*Petalotricha ampulla.*
Collozoum sp.	Fragments of *Aulacanthidae.*
Dictyocysta templum ?	

The percentage for protophyta and protozoa together would be about 76.

The greatest number of unfamiliar species are, however, to be met with among the Copepoda ; the following is a list of the species, all of which are oceanic :—

Acartia Clausi.	*Metridia lucens.
*Aetidius armatus.	*Microsetella atlantica.
Anomalocera Pattersoni.	Oithona similis.
Calanus finmarchicus.	,, plumifera.
Candacia pectinata.	Oncaea (media ?).
Centropages typicus.	Paracalanus parvus.
*Clausocalanus arcuicornis.	*Pleuromamma xiphias.*
*Ctenocalanus vanus.	Pseudocalanus elongatus.
*Euchaeta hebes.	*Scolecothrix dentata.*
Gaetanus minor.	*Undeuchaeta minor.*

The species marked with * are usually only seen in the extreme West when found in the Channel.

The remaining metazoa taken were all oceanic ; with the possible exception of some Lamellibranchiate larvae, they were :—

A species of Agalmida (possibly Cupulita Sarsi).	*Cymbulia sp.*
Diphyes sp.	Limacina retroversa.
Sagitta bipunctata.	Fritillaria borealis.
,, *furcata* ?	*Oikopleura sp.*
	Salpa fusiformis.

The percentage given by all species together would be about 88, rounded up to compare with the figures given on the Charts, 90.

The great difference between the phytoplankton and zooplankton is perhaps due in part to the phytoplankton having been taken exclusively in the surface layers, and the rest of the plankton having been recorded chiefly from oblique hauls.

It is of great interest to note that a distance of only 65 miles further towards the ocean should produce about 30 per cent. of species hitherto not taken in the Channel ; as most of these were taken in the oblique hauls, it is to be supposed that it is at least in part due to the greater depth of the water at the place where they were caught.

TABLE I.—1904.

Station Number / Month	Oceanic or Neritic.	E. 1. II.	E. 1. V.	E. 1. VIII.	E. 1. XI.	E. 2. II.	E. 2. V.	E. 2. VIII.	E. 2. XI.	E. 3. II.	E. 3. V.	E. 3. VIII.	E. 3. XI.	E. 4. II.	E. 4. V.	E. 4. VIII.	E. 4. XI.	
DIATOMACEAE.																		
Actinoptychus undulatus, (Bail.)	N.	×	...	×	...	×	×	...	×	×	×	...	×	×	×	...	...	1
Asterionella glacialis, Castr.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Bacillaria paradoxa, Gmel.	N.	×	...	...	×	×	×	...	×	×	×	...	...	...	...	...	...	3
Bacteriastrum delicatulum, Cleve	O.	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	4
Bellerochea malleus, Btw.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Biddulphia alternans, (Bail.)	N.	×	...	...	×	×	...	..	×	×	...	...	...	×	...	...	...	6
— aurita, (Lyngb.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
— granulata, Roper	N.	×	...	...	...	×	×	...	×	×	×	×	...	...	×	...	...	8
— mobiliensis, (Bail.)	N.	×	×	×	×	×	×	...	×	×	×	...	×	×	×	×	×	9
Cerataulina Bergoni, Perag.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
Chaetoceras boreale, Bail.	O.	...	...	+	...	...	...	...	...	...	...	+	+	...	...	...	...	11
— breve, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
— constrictum, Gran	N.	...	...	...	...	...	...	...	×	...	×	...	×	...	...	...	...	13
— contortum, Schütt	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
— convolutum, Castr.	O.	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	+	15
— criophilum, Castr.	O.	+	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	16
— crinitum, Schütt	N.	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	17
— curvisetum, Cleve	N.	×	...	...	...	...	...	...	×	...	...	×	×	...	...	...	...	18
— danicum, Cleve	N.	×	...	...	...	×	...	...	...	×	×	...	×	×	...	...	...	19
— debile, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	20
— decipiens, Cleve	N.	×	×	...	×	×	×	...	×	×	...	×	×	...	...	...	...	21
— densum, Cleve	O.	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	22
— diadema, (Ehbg.)	N.	...	...	...	...	...	...	...	...	...	...	...	×	...	...	..	...	23
— didymum, Ehbg.	N.	...	...	...	×	×	...	...	×	...	...	×	×	...	...	...	...	24
— laciniosum, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
— lorenzianum, Grun.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
— peruvianum, Btw.	O.	+	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	27
— pseudocrinitum, Ostf.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
— Schütti, Cleve	N.	×	...	×	...	×	...	...	×	...	...	×	...	...	×	...	...	29
— scolopendra, Cleve	N.	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	30
— seiracanthum, Gran	N.	?	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
— teres, Cleve	N.	...	...	...	...	...	...	...	×	...	...	×	×	×	...	...	...	32
— Willei, Gran	N.	×	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	33
Corethron hystrix, Hensen	O.	+	...	...	+	+	+	...	...	...	...	+	+	...	...	...	...	34
Coscinodiscus concinnus, W. Sm.	N.	×	×	...	...	×	×	...	...	×	...	...	...	...	×	...	...	35
— excentricus, Ehbg.	N.	×	...	×	...	×	×	...	×	×	×	...	×	×	×	×	×	36
— Grani Gough	N.	×	...	...	×	×	...	...	...	...	...	...	×	...	...	...	...	37
— oculis iridis, Ehbg.	O.	+	...	...	+	+	+	...	...	...	...	...	+	...	...	...	...	38
— radiatus, Ehbg.	O.	+	+	+	...	+	+	+	+	+	+	+	+	+	+	+	...	39

TABLE I.—1904.

	E. 5.				E. 6.				E. 7.				E. 8.				E. 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI,	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	×	×	...	...	×	×	...	×	×	...	...	...	...	×	...	×	...	×	...	×	×	×	...	×	...	...	...	...	×	×	...	×
2	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	×	×	×	...	×	×
3	...	...	...	...	×	...	...	...	×	...	...	...	...	×	...	×	...	×	...	×	×	×	...	×	×	×	×	×	×	×	×	×
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	×	×
6	×	×	...	...	×	×	...	...	×	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	×	×	...	...	×	...	...	...	×	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	×	×	...	...	×	×	×	×	×	×	×	×	...	×	...	×	...	×	×	×	×	×	...	×	×	×	×	×	×	×	×	×
10	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	×	...	×	...	×	×	×	...	...	×	...	...	×	×	×
11	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	...	...	+	+	...	...	+	+	...	...	...	+	...	+	...	+	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	...	...	...	?	...	...	...	...	×	×	...	×	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	×	...	×	...
14	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...
18	...	...	...	×	×	...	...	...	×	×	...	×	..	...	...	...	...	...	...	...	...	...	×	×	...	...	×	...	×	...	×	×
19	×	...	...	×	×	...	×	...	×	...	...	...	...	×	...	...	...	...	...	...	×	...	...	×	...	...	...	...	×	...	...	×
20	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	×	...	...	...	...	...	×	×	...	...	...	...	...
21	×	×	...	×	×	×	...	×	×	×	...	×	...	...	×	×	...	×	×	×	×	...	×	×	×	...	×	×	×	...	...	×
22	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	+
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...
24	...	...	...	×	×	×	...	×	×	×	...	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	×	×
25	×	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	.	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...
27	+	...	...	...	...	..	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	×	×	...	×	×	...	×	×	...	×	×	×	...	...	×	×	...	...	...	×	×	...	×	×	×	×	×	×	...	...	...	×
30	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...
31	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	×	...	×	...	...	...
33	×	...	...	...	×	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	×	...	...	×	...	...	...	...	...	...	...	...
34	...	+	...	+	+	...	...	+	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	...	×	...	...	...	...	...	...	...	×	..	×	...	×	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...
36	×	×	...	×	×	×	...	×	×	×	...	×	...	×	...	×	...	×	...	×	×	×	×	×	×	×	×	×	×	×	×	×
37	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	×	×	...	×	...	...	×	×	×	...	...	×
38	...	...	...	...	...	...	...	+	...	...	...	+	...	+	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...
39	+	+	...	...	+	+	...	...	+	+	+	+	...	+	...	+	...	+	+	+	+	+	...	+	+	+	...	+	+	+	...	+

TABLE I.—1904.

Station Number	Oceanic or Neritic.	E. 13.				E. 14.				E. 15.				E. 16.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
DIATOMACEAE.																		
Actinoptychus undulatus, (Bail.)	N.	×	×	...	...	×	...	×	×	...	×	...	×	×	...	...	...	1
Asterionella glacialis, Castr.	N.	×	×	...	×	...	×	...	×	...	×	...	×	...	...	×	...	2
Bacillaria paradoxa, Gmel.	N.	×	×	×	×	×	×	×	×	...	×	...	×	×	×	×	...	3
Bacteriastrum delicatulum, Cleve	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Bellerochea malleus. Btw.	N.	...	...	...	×	×	...	×	×	...	...	...	×	×	×	×	...	5
Biddulphia alternans, (Bail.)	N.	...	...	...	×	...	...	...	×	...	...	...	×	...	...	×	...	6
— aurita, (Lyngb.)	N.	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	7
— granulata, Roper	N.	...	×	...	...	×	...	...	...	...	...	...	...	×	...	...	...	8
— mobiliensis, (Bail.)	N.	×	×	...	×	×	×	×	×	...	×	...	×	×	×	×	...	9
Cerataulina Bergoni, Perag.	N.	...	...	×	×	...	...	×	...	...	×	...	...	...	×	×	...	10
Chaetoceras boreale, Bail.	O.	...	...	+	...	...	...	...	...	...	...	...	...	...	...	+	...	11
— breve, Schütt	N.	...	...	×	...	...	...	×	...	...	×	...	...	...	...	...	...	12
— constrictum, Gran	N.	×	...	×	...	...	×	...	...	...	×	...	...	×	×	×	...	13
— contortum, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
— convolutum, Castr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
— criophilum, Castr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
— crinitum, Schütt	N.	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	17
— curvisetum, Cleve	N.	...	...	×	...	×	×	×	...	...	×	...	...	...	×	×	...	18
— danicum, Cleve	N.	×	...	...	...	×	...	...	...	...	×	...	...	×	×	×	...	19
— debile, Cleve	N.	...	×	...	...	...	×	...	...	...	×	...	...	×	×	...	...	20
— decipiens, Cleve	N.	×	...	×	×	×	...	×	...	...	×	...	×	×	×	×	...	21
— densum, Cleve	O.	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...	22
— diadema, (Ehbg.)	N.	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	23
— didymum, Ehbg.	N.	×	...	×	...	...	...	×	...	...	...	...	...	×	×	...	...	24
— laciniosum, Schütt	N.	...	...	×	...	...	×	...	...	...	×	...	...	...	×	×	...	25
— lorenzianum, Grun.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
— peruvianum, Btw.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	27
— pseudocrinitum, Ostf.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
— Schütti, Cleve	N.	×	...	...	×	...	...	×	...	...	×	...	...	×	×	×	...	29
— scolopendra, Cleve	N.	...	...	...	...	...	×	×	...	...	...	...	...	...	×	...	...	30
— seiracanthum, Gran	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
— teres, Cleve	N.	×	...	...	...	...	...	×	...	...	×	...	...	...	×	...	...	32
— Willei, Gran	N.	×	...	...	...	×	...	...	...	...	×	...	...	...	×	...	...	33
Corethron hystrix, Hensen	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	34
Coscinodiscus concinnus, W. Sm.	N.	×	...	...	...	×	×	...	...	...	×	...	...	×	×	...	...	35
— excentricus, Ehbg.	N.	×	×	...	×	×	×	×	×	...	×	...	×	×	...	×	...	36
— Grani Gough	N.	×	×	...	×	...	...	...	×	...	×	...	...	×	...	×	...	37
— oculus iridis, Ehbg.	O.	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	38
— radiatus, Ehbg.	O.	+	+	+	+	+	+	...	+	...	+	...	+	+	+	...	...	39

TABLE I.—1904.

	E. 17.				E. 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II	V.	VIII.	XI.
1	×	...	...	×	×	...	...	×	×	×	...	×	×	...	...	×	...	...	...	...	×	...	...	×	...	...	...	×
2	...	...	...	...	×	×	...	...	...	...	...	×	...	...	...	...	×	...	...	...	...	...	...	...	...	×	...	...
3	×	...	...	×	×	×	×	×	×	×	×	×	×	×	...	×	×	×	×	×	×	...	×	×	×	×	...	×
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	×	×	...	...	...	×	...	...	...	×
6	×	...	...	×	×	...	...	×	×	...	...	×	×	...	×	×	...	...	...	×	...	...	...	×	...	...	...	×
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	...	...	...	...	×	×	...	×	×	...	...	×	×	×	...	×	...	...	...	×	...	...	...	...	...	...	...	...
9	×	×	×	×	×	×	×	×	×	×	...	×	×	×	...	×	×	...	...	×	×	×	×	×	×	...	...	×
10	...	...	...	...	...	×	×	×	...	×	...	×	...	...	...	...	...	×	×	×	×	...	...	×	...	×	×	×
11	...	...	+	...	...	+	+	...	...	+	+	...	...	+	+	...	...	...	...	...	...	...	+	...	...	...	...	...
12	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...
13	...	...	...	...	...	×	×	...	...	×	×	×	...	...	×	×	×	...	×	...	...	...	×	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	+	...	...	+	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...
18	×	...	...	...	×	×	...	...	×	×	×	×	×	...	...	...	×	...	×	...	...	...	×	×	...	...	...	...
19	×	...	×	×	×	×	×	...	×	...	...	×	×	...	...	×	...	...	×	...	...	...	×	×	...	...	...	...
20	...	...	...	×	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	×	×	×	...	...	×	×	...	×
21	×	...	×	×	×	×	...	×	×	×	×	×	×	×	×	×	×	...	×	×	×	...	×	×	...	...	...	×
22	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	+
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	...	...	...	×	×	×	...	...	×	×	...	×	×	×	...	×	...	...	×	×	...	...	×	...	...	...	...	...
25	...	...	...	...	×	×	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...
26	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	×	...	...	×	×	×	×	×	×	...	...	×	×	...	...	×	×	...	×	×	×	...	...	...	...	...	...	×
30	...	...	...	...	×	×	...	...	...	×	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...
31	...	...	...	...	×	...	...	...	?	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	×	...	×	...	×	...	×	...	...	...
33	×	...	...	...	...	×	...	...	...	...	...	...	×	×	×	...	...	...	...	...	...	...	...	...	×	...	...	...
34	...	...	...	+	+	...	...	+	...	...	...	+	...	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...
35	...	×	...	...	×	×	...	...	×	×	...	...	×	×	...	...	×	...	...	...	×	...	...	...	×	×	...	...
36	×	...	...	×	×	...	...	×	×	×	...	×	×	...	...	×	×	×	×	×	×	×	...	×	×	×	...	×
37	...	...	...	×	×	...	...	×	...	×	...	×	×	×	×	×	×	...	...	×	×	...	...	×	×	...	...	×
38	...	...	...	+	...	...	...	+	...	...	...	+	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...
39	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	...	+	+	+	...	+	+	+	...	+

TABLE I.—1904—*continued.*

Station Number		E. 1.				E. 2.				E. 3.				E. 4.				
Month	Oceanic or Neritic.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
DIATOMACEAE—*continued.*																		
Coscinosira polychorda, Gran	N.	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Ditylum Brightwelli, (West)	N.	×	...	×	×	×	×	...	×	×	...	...	×	...	×	...	...	2
Eucampia zoodiacus, Ehbg.	N.	...	...	...	...	..	...	...	...	...	...	×	...	...	...	...	...	3
Eupodiscus argus, (Ehbg.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Guinardia flaccida, (Castr.)	N.	×	×	×	×	×	...	×	×	...	...	×	×	...	...	...	...	5
Hyalodiscus stelliger, Bail.	N.	×	...	×	×	×	×	×	×	×	×	×	×	×	×	×	×	6
Lauderia borealis, Gran	N.	×	×	...	...	×	...	...	×	×	...	...	×	...	...	...	...	7
Leptocylindrus danicus, Cleve	N.	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	8
Lithodesmium undulatum, Ehbg.	N.	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	9
Navicula membranacea, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	10
Nitzschia seriata, Cleve	N.	...	...	...	...	...	...	...	...	...	...	×	×	...	...	...	...	11
Paralia sulcata, (Ehbg.)	N.	×	×	...	×	×	×	×	×	×	×	×	...	×	...	...	...	12
Pleurosigma sp.	N.	×	...	...	×	×	...	...	×	×	×	×	×	...	...	...	...	13
Rhizosolenia alata, Btw.	O.	+	+	+	+	+	+	+	...	+	...	+	+	+	+	+	+	14
— delicatula, Cleve	N.	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	15
— robusta, Norman	O.	+	+	...	+	+	+	+	...	...	+	...	...	...	...	...	...	16
— semispina, Hensen	O.	...	...	+	...	...	...	...	...	+	..	...	+	+	+	...	+	17
— setigera, Btw.	N.	...	...	...	...	...	×	...	×	...	...	...	×	...	...	...	...	18
— Shrubsolei, Cleve	N.	×	×	×	×	×	×	...	×	...	×	×	×	...	...	...	...	19
— Stolterfothi, Perag.	N.	...	×	×	×	...	...	...	×	...	...	×	×	...	...	...	...	20
— styliformis, Btw.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	21
Skeletonema costatum, (Grev.)	N.	...	...	...	...	×	...	...	...	×	×	..	...	...	...	...	...	22
Streptotheca tamesis, Shrubsole	N.	×	×	×	×	×	×	...	×	×	×	...	×	...	...	...	...	23
Thalassiosira condensata, Cleve	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
— decipiens, (Grun.)	N.	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	25
— gravida, Cleve	N.	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
— Nordenskiöldi, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	27
Thalassiothrix nitzschoides, Grun.	N.	×	×	...	...	×	×	...	×	×	×	...	×	...	...	...	...	28
PERIDINIALES.																		
Ceratium arcticum	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	29
— bucephalum, Cleve	O.	+	+	...	+	...	+	+	...	...	...	+	...	...	+	...	...	30
— furca, (Ehbg.)	O.	...	...	+	...	...	+	+	...	...	+	...	...	...	+	...	+	31
— fusus, (Ehbg.)	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	32
— hexacantha, Gourret	O.	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	33
— horridum, Gran	O.	...	+	+	...	...	+	+	+	...	...	+	...	...	...	...	...	34
— lineatum, (Ehbg.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
— longipes, (Bail.)	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	...	36
— *macroceras*, Ehbg.	O.	+	+	+	+	...	+	+	...	...	+	...	+	...	+	...	...	37
— tripos, (O.F. Müll.)	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	38
Dinophysis acuminata, Clap. & Lachm.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	39
— acuta Ehbg.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	40
— ovum, Schütt	O.	...	...	+	...	..	...	...	...	...	...	...	...	...	...	...	..	41

TABLE I.—1904—*continued.*

	E. 5.				E. 6.				E. 7.				E. 8.				E. 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...
2	...	×	×	...	×	...	×	×	...	...	...	×	...	×	...	×	...	×	...	×	×	×	×	×	×	×	×	×	×	...	...	×
3	...	...	...	...	...	...	...	..	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	×	×	×	...	×	×	...	×	×	×	...	×	×	...	...	×	×	...	×	×	×	×	...	...	×	...	×	×	×	×
6	×	×	×	×	×	×	×	×	×	×	×	×	...	×	...	×	...	...	×	×	×	...	...	×	×	×	...	×	×	...	...	×
7	×	...	...	...	×	...	...	×	×	×	×	×	...	×	...	×	...	×	...	×	×	×	×	×	×	×	×	×	×	×	×	×
8	...	...	...	...	...	...	...	...	...	×	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	×	...	...	...	×	...	...	...	×	×
11	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...
12	×	×	...	...	×	×	...	×	×	×	×	×	...	×	×	×	...	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
13	×	×	...	...	×	×	...	×	×	×	...	×	...	×	...	×	...	...	...	×	×	×	×	×	×	...	×	×	×	×	×	×
14	+	+	...	+	+	...	+	+	+	...	+	+	...	..	+	...	...	...	...	+	+	...	...	+	...	...	...	...	+	...	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	...	...	..	...	+	...	...	...	...	+	...	+	...	+	...	...	...	...	...	...	+	+	...	...	...	...	...	...	...	...	...	...
17	+	+	...	+	+	+	...	+	+	+	...	...	...	+	+	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...
18	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	×	×	...	×	×	×	×	...	×	×
19	...	...	...	×	×	...	...	×	..	×	×	×	...	×	×	...	...	×	×	×	×	×	...	×	×	×	×	×	×	×	×	×
20	...	...	...	×	...	...	×	×	...	×	×	×	...	...	...	...	...	×	×	...	×	×	×	...	...	...	×	...	...	×	×	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	×	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...
23	×	×	...	×	...	×	...	...	...	×	...	...	...	×	...	×	...	×	...	×	×	×	×	×	×	×	×	×	×	×	×	×
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...
25	×	...	...	...	×	...	...	...	×	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...
26	...	...	...	...	×	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	×	...	...	...
27	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...
28	×	×	...	×	×	×	×	×	×	×	×	×	...	×	...	×	...	×	...	...	×	×	...	...	×	×	×	...	×	...	×	...
29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	+	+	...	...	...	+	...	...	+	...	...	+	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	...	+	...	...	...	...	+	...	...	...	+	...	...	+	+	...	...	+	+	+	...	+	+	...	...	+	...	...	...	...	...	...
32	+	+	...	+	+	+	+	...	+	+	+	...	...	+	+	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
33	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	...	+	...	+	...	...	+	+	...	+	+	+	...	+	+	+	...	+	+	...	...	+	+	+	...	..	...	...	...	...	...	...
35	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	+	+	...	+	+	...	+	+	+	+	+	+	...	+	+	+	...	+	...	+	+	+	...	+	+	+	...	+	...	+	...	+
37	+	+	+	+	...	...	+	+	+	...	+	...	...	+	...	...	...	+	...	...	+	...	...	...	+	...	...	...	+	+	...	...
38	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	...	...	+	+	+	...	+	+	+	...	...	...	+	...	...	...
39	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
40	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE I.—1904—*continued.*

Station Number	Oceanic or Neritic.	E. 13.				E. 14.				E. 15.				E. 16.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
DIATOMACEAE—*continued.*																		
Coscinosira polychorda, Gran	N.	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	1
Ditylum Brightwelli, (West)	N.	×	×	...	×	...	×	×	...	...	×	...	×	×	×	×	...	2
Eucampia zoodiacus, Ehbg.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	. .	...	3
Eupodiscus argus, (Ehbg.)	N.	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	4
Guinardia flaccida, (Castr.)	N.	×	×	×	×	×	×	×	×	...	×	...	×	×	×	×	...	5
Hyalodiscus stelliger, Bail.	N.	×	×	×	×	×	×	×	×	...	...	...	...	×	×	×	...	6
Lauderia borealis, Gran	N.	×	×	...	...	×	×	×	...	...	×	...	...	×	×	...	...	7
Leptocylindrus danicus, Cleve	N.	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	8
Lithodesmium undulatum, Ehbg.	N.	...	...	...	×	...	...	×	×	...	...	...	×	...	...	...	...	9
Navicula membranacea, Cleve	N.	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	10
Nitzschia seriata, Cleve	N.	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	11
Paralia sulcata, (Ehbg.)	N.	×	×	×	×	×	×	×	×	...	×	...	...	×	×	...	...	12
Pleurosigma sp.	N.	×	...	×	×	×	×	×	×	...	...	...	×	×	×	...	...	13
Rhizosolenia alata, Btw.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
— delicatula, Cleve	N.	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	15
— robusta, Norman	O.	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	16
— semispina, Hensen	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	17
— setigera, Btw.	N.	×	×	×	×	×	×	×	×	...	×	...	×	×	×	×	...	18
— Shrubsolei, Cleve	N.	×	×	×	×	...	×	×	×	...	×	...	...	×	×	×	...	19
— Stolterfothi, Perag.	N.	...	×	×	...	...	...	×	×	...	...	...	...	×	...	×	...	20
— styliformis, Btw.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
Skeletonema costatum, (Grev.)	N.	×	×	...	...	...	×	...	...	...	...	...	×	...	...	×	...	22
Streptotheca tamesis, Shrubsole	N.	×	×	×	×	×	×	×	×	...	×	...	×	×	×	×	...	23
Thalassiosira condensata, Cleve	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
— decipiens, (Grun.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
— gravida, Cleve	N.	...	×	...	...	...	×	...	...	...	×	...	...	×	×	...	...	26
— Nordenskiöldi, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	27
Thalassiothrix nitzschoides, Grun.	N.	×	×	...	...	...	...	...	...	...	×	...	×	×	×	...	...	28
PERIDINIALES.																		
Ceratium arcticum	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
— bucephalum, Cleve	O.	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
— furca, (Ehbg.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
— fusus, (Ehbg.)	O.	...	...	...	+	+	...	...	...	...	+	...	...	+	+	+	...	32
— hexacantha, Gourret	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33
— horridum, Gran.	O.	...	+	+	...	...	+	...	...	...	...	...	...	...	...	...	...	34
— lineatum, (Ehbg.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
— longipes, (Bail.)	O.	+	...	...	+	+	...	...	...	...	...	...	+	+	+	+	...	36
— macroceras, Ehbg.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	37
— tripos, (O. F. Müll.)	O.	+	...	...	...	+	...	...	...	...	...	...	...	+	+	...	...	38
Dinophysis acuminata, Clap. & Lachm.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	39
— acuta, Ehbg.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	40
— ovum, Schütt	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	41

TABLE I.—1904—*continued.*

	E. 17.				E. 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	×	×	...	...	×	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	×	...	...	×	×	×	×	×	×	×	...	×	×	×	...	×	×	...	×	×	×	...	...	×	×	...	...	×
3	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...
5	...	×	...	×	×	×	...	...	...	×	×	×	×	×	...	×	×	×	×	×	×	×	×	×	...	×	×	×
6	×	×	×	×	×	×	×	×	×	×	...	×	×	×	×	×	×	×	×	×	...	×	...	×	...	...	...	×
7	×	×	...	×	×	×	...	×	×	×	...	×	×	×	...	×	×	×	×	×	×	...	...	×	×	×	...	×
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	...	...	×	...	...	...	×	...
9	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	×	×	...	...	×	...	...	...	×	×
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...
12	×	×	...	×	×	×	...	×	×	×	×	×	×	...	×	×	×	...	×	×	×	×	...	×	×	×	×	×
13	×	×	...	×	×	...	×	×	×	×	×	×	×	×	×	×	...	...	×	×	×	...	...	×	...	...	×	×
14	+	+	+	+	+	+	...	+	+	...	+	+	+	+	+	+	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	×	...	...	...	×	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	+	+	...	+	+	+	...	+	...	+	...	...	+	+	...	+	...	...	...	...	...	...	...	...	...	...	...	...
17	...	+	+	...	...	+	+	+	...	+	+	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...
18	×	...	×	×	×	...	×	×	×	...	...	×	×	...	×	...	×	...	×	×	×	...	×	...	×	...	...	×
19	×	×	...	×	×	×	...	×	×	×	...	×	×	×	...	×	×	×	×	×	×	×	×	...	×	×	×	×
20	...	×	×	×	×	×	×	×	...	×	×	×	...	×	×	...	...	...	×	×	×	...	×	×	...	×	×	×
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...
22	...	...	...	×	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	×	×	...	×	×	×	×	×	×	×	...	×	×	×	...	×	×	×	..	×	×	×	×	×	×	×	...	×
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...
25	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
26	...	...	...	×	×	×	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...
28	×	×	...	×	×	×	...	...	×	×	...	×	×	×	...	..	×	...	...	...	×	...	×	×	×	...	...	...
29	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	...	...	...	...	...	...	...	...	+	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...	+	+	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
32	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	...	+	+	...	...	...	+	...	...	+	+	+	...	+	+	+	...	...	...	...	...	...	+	...	...	...	...	...
35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	...	+	+	...	...	+
37	+	...	...	...	+	...	...	...	+	...	+	..	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38	+	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	...	...	+	+	...	+	+	...	...	+
39	...	...	...	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	+	...
40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...
41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE I.—1904—*continued.*

Station Number	Oceanic or Neritic.	E. 1.				E. 2.				E. 3.				E. 4.				
Month...		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
PERIDINIALES—*continued.*																		
Dinophysis rotundata, Clap. & Lachm.	O,	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	1
— tripos, Gourret	O.	...	...	...	...	...	+	+	...	...	...	...	...	...	...	...	...	2
Diplopsalis lenticula, Bergh	O.	...	...	+	+	...	...	+	+	...	...	...	+	...	...	...	...	3
Gonyaulax polygramma, Stein	N.	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	4
— spinifera, (Clap. & Lachm.)	N.	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	5
Glenodinium sp.	N	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	6
Peridinium conicum, Gran	O.	...	+	+	...	...	...	...	+	...	...	...	+	...	...	...	...	7
— decipiens, Jörg.	O.	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	8
— depressum, Bail.	O.	+	+	+	+	...	+	+	+	...	+	+	+	...	+	+	...	9
— divergens, Ehbg.	O.	...	+	+	...	...	+	...	...	...	...	...	+	...	...	...	+	10
— globulus, Stein	O.	...	+	...	...	...	...	...	...	...	+	...	...	...	...	...	...	11
— oceanicum, Vanhöff	O.	+	+	+	...	...	...	+	...	...	...	+	...	...	...	...	...	12
— ovatum, Pouchet	O.	...	+	+	...	...	+	+	...	...	+	+	...	...	...	...	...	13
— pallidum, Ostf.	O.	+	...	+	...	...	...	...	...	...	+	...	...	...	+	...	...	14
— pentagonum, Gran	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	15
— Steini, Jörg.	O.	...	...	+	...	...	+	...	...	...	...	...	...	...	...	...	...	16
— vexans, Murr. & Whitt.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
Prorocentrum micans, Ehbg.	N.	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	18
Pyrocystis lunula, Schütt	N.	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	19
PROTOPHYTA CETERA.																		
Coccosphaera atlantica, Ostf.	O.	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	20
Dinobrion pellucidum, Lev.	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
Dictyocha fibula, Ehbg.	O.	+	...	+	...	+	...	...	...	+	+	...	...	...	...	...	...	22
Distephanus speculum, (Ehbg.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
Halosphaera viridis, Schmitz	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	24
Hexasterias problematica, Cleve	N.	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	25
Pediastrum boryanum, (Turp.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
Phaeocystis globosa, Scherffel	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	..	...	27
Trochiscia brachiolata, (Möb.)	N.	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	28
— Clevei, Lemm.	N.	×	...	×	...	×	×	×	...	...	×	..	×	...	...	...	×	29
— Moebiusi, Jörg.	N.	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	30
— multispinosa (Möb.)	N.	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
— paucis pinosa, (Cleve)	N.	...	...	×	...	...	...	...	...	×	...	...	...	...	...	...	...	32
Trichodesmium contortum, Wille ?	O.	...	...	...	...	...	...	..	...	...	...	...	+	...	...	+	+	33
PROTOZOA.																		
Acanthometron sp.	O.	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	34
Lithomelissa sp.	O.	+	...	...	...	+	...	...	+	+	...	...	...	...	...	...	...	35
Cyttarocylis serrata, (Möb.)	O.	...	...	+	...	...	+	...	...	...	+	...	...	...	...	...	...	36
Tintinnopsis beroidea, Stein	N.	×	×	...	...	...	...	×	×	...	×	×	...	...	×	...	...	37
— campanula, (Ehbg.)	N.	...	...	...	...	×	...	...	×	×	×	...	...	...	...	...	...	38
Amphorella subulata, (Ehbg.)	N.	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	39
Noctiluca miliaris, Suriray	N.	...	...	...	×	...	×	...	...	...	...	×	...	...	...	...	...	40

TABLE I.—1904—*continued.*

	E. 5.				E. 6.				E. 7.				E. 8.				E. 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	...	...	+	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	+	...	+	+	+	+	+	...	+	...	+	...	...	...	+	+	...	+	+	...	...	+	+	...	...	...	+	+	..	+	+	...
4	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	×	...	...	...	×	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...
7	...	...	+	...	+	...	+	...	+	+	...	...	...	+	...	...	...	...	...	+	..	...	+	...	...	+	+	+	...	..	+	+
8	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	+	...	..	...	+	+	...	...	...	...	...	...	+	...
9	+	+	...	+	+	+	+	+	+	+	+	+	...	+	...	+	...	+	...	+	...	+	+	+	...	...	+	+	...	...	...	...
10	...	+	...	...	...	..	...	..	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
11	...	...	...	...	...	...	...	..	...	+	...	...	...	...	...	...	...	...	+	...	+	...	...	...	...	...	...	...	...	...	...	...
12	...	+	...	+	+	...	+	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	+	..
13	...	...	...	...	...	...	+	...	...	+	+	...	...	+	+	+	...	+	+	+	...	+	+	+	...	+	+	...	...	...	...	...
14	...	+	...	...	...	+	+	...	...	+	...	...	...	...	...	...	...	+	+	...	...	+	...	...	...	+	+	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	+	...	+	...	+	...	+	+	+	...	...	...	...	...	...	...	+
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	..	...	...	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	×	×	...	...	×	×	×	...	...	...	...
19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...
21	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	×	...	...
22	+	+	...	...	+	...	+	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	...	+	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	..	...	+	...	...	...	...	...	...	...	+
24	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	...	...	...	+	+	+	...	+	+	...	...	...	+	...	...	...
25	...	...	...	...	...	...	...	..	×	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	...	×	...	...	..	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	..	...	...	...	...	...	...	...	...	...	...	...
29	...	...	...	×	...	×	×	×	×	×	×	...	...	×	...	...	...	...	×	×	...	...	×	...	...	×	×	..	...	...	...	...
30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	...	...	...	...	×	...	...	...	.	...	...	...	...	×	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...
33	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...
36	...	...	...	...	...	...	+	...	...	...	...	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	×	×	...	×	×	×	...	...	×	...	...	×	...	...	...	×	...	...	...	×	×	×	...	×	...	×	×	×	...	×	×	×
38	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	×	...	...	...	...	×	...	...	...	×
39	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
40	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	×	×	...	...	...

TABLE I.—1904—*continued.*

Station Number / Month	Oceanic or Neritic.	E. 13. II.	E. 13. V.	E. 13. VIII.	E. 13. XI.	E. 14. II.	E. 14. V.	E. 14. VIII.	E. 14. XI.	E. 15. II.	E. 15. V.	E. 15. VIII.	E. 15. XI.	E. 16. II.	E. 16. V.	E. 16. VIII.	E. 16. XI.	
PERIDINIALES—*continued.*																		
Dinophysis rotundata, Clap. & Lachm. ...	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
— tripos, Gourret	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Diplopsalis lenticula, Bergh	O.	...	...	+	+	...	...	+	...	..	?	...	...	...	...	...	...	3
Gonyaulax polygramma, Stein	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
— spinifera, (Clap. & Lachm.) ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Glenodinium sp.	N.	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	6
Peridinium conicum, Gran	O.	...	+	...	...	...	+	...	+	...	+	...	...	...	+	+	...	7
— decipiens, Jörg.	O.	...	...	+	...	...	...	...	...	...	...	...	...	...	+	...	...	8
— depressum, Bail.	O.	...	...	...	+	...	...	...	...	...	+	...	...	...	+	+	...	9
— divergens, Ehbg.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	10
— globulus, Stein	O.	+	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	11
— oceanicum, Vanhöff	O.	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	12
— ovatum, Pouchet	O.	...	...	+	+	...	...	...	...	...	+	...	...	...	+	...	...	13
— pallidum, Ostf.	O.	...	+	...	...	+	...	...	...	...	+	...	...	+	+	...	...	14
— pentagonum, Gran	O.	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	15
— Steini, Jörg.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
— vexans, Murr. & Whitt. ..	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
Prorocentrum micans, Ehbg.	N.	...	...	...	...	...	...	×	...	...	×	...	×	...	×	...	...	18
Pyrocystis lunula. Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
PROTOPHYTA CETERA.																		
Coccosphaera atlantica, Ostf.	O.	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	20
Dinobrion pellucidum, Lev.	N.	×	×	...	...	×	...	...	...	...	...	...	...	×	...	...	...	21
Dictyocha fibula, Ehbg.	O.	+	+	...	...	...	...	...	...	...	...	...	+	...	...	...	...	22
Distephanus speculum, (Ehbg.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
Halosphaera viridis, Schmitz	O.	+	+	+	...	+	...	...	...	...	...	...	...	+	...	...	...	24
Hexasterias problematica, Cleve	N.	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	25
Pediastrum boryanum, (Turp.)	N.	...	...	..	...	×	...	...	...	...	...	...	...	...	...	...	...	26
Phaeocystis globosa, Scherffel	N.	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	27
Trochiscia brachiolata, (Möb.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	28
— Clevei, Lemm.	N.	...	...	...	×	...	...	...	...	...	...	...	...	×	...	..	...	29
— Moebiusi, Jörg.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	30
— multispinosa, (Möb.)	N.	×	...	...	...	×	×	...	...	...	...	...	...	...	...	...	...	31
— paucis pinosa, Cleve	N.	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32
Trichodesmium contortum, Wille? ...	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	33
PROTOZOA.																		
Acanthometron sp.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	34
Lithomelissa sp.	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	35
Cyttarocylis serrata, (Möb.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36
Tintinnopsis beroidea, Stein	N.	×	×	×	×	...	...	×	×	...	×	...	×	×	×	×	...	37
— campanula, (Ehbg.) ...	N.	...	...	×	×	×	...	×	×	...	...	...	×	...	...	×	...	38
Amphorella subulata, (Ehbg.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	39
Noctiluca miliaris, Suriray	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	40

TABLE I.—1904—*continued.*

	E. 17.				E. 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	+	...	...	+	+	...	...	...	+	...	..	...	+	...	...	...	+	...	...	+	+	+	...	...	+	+
4	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...
7	..	...	...	+	...	+	...	...	...	+	...	...	...	+	+	...	...	+	...	+	...	+	...	+	...	. .	...	+
8	...	...	...	+	...	...	+	...	...	...	...	...	..	...	+	...	...	...	+	...	...	...	+	...	...	...	...	...
9	...	+	+	+	...	+	+	+	...	+	+	+	+	+	+	+	...	+	...	...	...	+	+	+	...	...	+	...
10	...	+	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...	...	...	+	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	...	+	+	+	...	+	...	+	...	+	+	+	...	+	+	+	...	...	+	...	...	+	+	+	...	+	...	...
14	+	+	...	...	+	+	+	...	+	+	+	...	+	+	+	...	+	+	+	...	+	+	+	...	+	+	...	...
15	...	...	...	+	...	+	+	...	...	...	...	...	...	...	...	...	...	...	+	...	+	...	+	+	...	...	+	...
16	..	...	...	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	×	...	×	...	...	...	...	...	×	...	...	...	×	...	...	×	×	...	...	×	×	...	...	...	...	...
19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...
22	...	...	...	+	+	+	...	...	+	...	...	...	+	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	+	+	...	...	...	+
24	+	+	...	+	+	...	...	...	+	+	...	+	+	+	+	+	+	...	...	...	...	...	+	...	+	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	..	...	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	×	...	...	...	×	...	×	...	...	...	×	...	...	×	×	...	...	...	...	...	...	...	...	...	...	...	...	...
30	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	...	..	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...
35	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...
36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	..	...	×	×	×	×	×	...	...	...	×	...	×	×	×	×	...	...	...	×	×	×	...	×	×	...	×	×
38	...	...	...	×	...	...	×	×	...	...	...	...	...	...	...	×	...	...	×	...	...	...	×	×	...	...	...	...
39	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	..	..
40	...	...	...	×	...	...	...	×	..	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...

TABLE I.—1904—*continued.*

Station Number / Month	Oceanic or Neritic.	E. 1. II.	E. 1. V.	E. 1. VIII.	E. 1. XI.	E. 2. II.	E. 2. V.	E. 2. VIII.	E. 2. XI.	E. 3. II.	E. 3. V.	E. 3. VIII.	E. 3. XI.	E. 4. II.	E. 4. V.	E. 4. VIII.	E. 4. XI.	
COELENTERATA.																		
Cupulita Sarsi, Haeckel	O.	..	...	...	...	...	+	+	...	...	+	...	+	...	+	...	+	1
Muggiaea atlantica, Cunningham	O.	...	...	+	+	...	+	+	...	...	+	+	...	...	...	...	...	2
Beroe ovata, (Eschsch.)	O.	...	...	...	...	...	...	+	+	...	...	...	+	...	...	...	...	3
Pleurobrachia pileus, Flem.	O.	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	4
Arachnactis Bournei, Fowler	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Aequorea sp.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	6
Aglantha rosea, (Forbes)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	7
Amphinema dinema, (Per. & Les.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
Cytaeandra areolata, Alder	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
Dipurena halterata, (Forbes)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
Euchilota pilosella, Forbes	N.	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	11
Gemmaria implexa, (Alder)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Gossea corynetes, (Gosse)	N.	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	13
Hybocodon prolifer, Agass.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Laodice calcarata, Agass.	N.	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	15
Lizzia blondina, Forbes	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
Margellium octopunctatum, (Sars)	N.	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	17
Obelia nigra, E. T. Browne	N.	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	18
— sp.	N.	...	...	×	×	...	×	×	...	...	×	×	...	...	...	...	...	19
Pelagia perla, Slabber	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	20
Phialidium cymbaloideum, V. Beneden	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
— temporarium, E. T. Browne	N.	...	×	...	×	...	×	...	...	...	...	...	...	...	...	...	...	22
Sarsia gemmifera (+ sp.), Forbes	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
Saphenia mirabilis, (Stethill-Wright)	N.	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	24
Solmaris sp.	O.	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	..	25
Tiara pileata, Forsk	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
VERMES.																		
Autolytus prolifer, O. F. Müll.	N.	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	27
Sagitta bipunctata, Quoy & Jaim.	O?	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	28
Tomopteris helgolandica, Greeff	O.	...	...	+	...	+	+	+	+	+	+	+	+	...	+	...	+	29
CRUSTACEA.																		
Acartia Clausi, Giesbr.	O.	+	+	+	...	+	+	+	+	+	+	+	+	+	...	...	+	30
— longiremis, (Lilljeb.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
Alteutha bopyroides, Claus	N.	...	...	...	...	×	...	×	×	×	×	×	×	...	...	...	...	32
Anomalocera Patersoni, Templt.	O.	...	+	+	...	...	+	+	...	...	+	+	...	...	+	...	+	33
Bradyidius armatus, (Brady)	O.	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	34
Calanus finmarchicus, Gunn.	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	35
Candace pectinata, Brady	O.	...	...	...	...	...	+	...	+	+	+	+	+	...	...	...	...	36
Canuella perplexa, Scott	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	37
Centropages hamatus, (Lilljeb.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	38
— typicus, Kröyer	O.	+	+	+	...	+	+	+	+	+	+	+	+	...	+	...	+	39

TABLE I.—1904—*continued.*

	E. 5.				E. 6.				E. 7.				E. 8.				E. 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	IX.	II.	V.	VIII.	IX.	II.	V.	VIII.	IX.	II.	V.	VIII.	IX.	II.	V.	VIII.	IX.	II.	V.	VIII.	IX.	II.	V.	VIII.	IX.	II.	V.	VIII.	IX.
1	...	...	...	+	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	+	...	...	+	+	...	...	+	+	...	+	...	+	...	...	+	+	...	...	...	...	...	...	+	...	...	...	...	...
3	+	...	...	+	...	...	...	+	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	..	+	...	...	+	...	...	...	...	+	...	...	+	...	...	...	+	...	...	+	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	×	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...
13	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...
15	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...
16	...	...	...	...	...	...	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	×	...	...	×	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	...	...	...	...	...	×	...	...	...	×	×	×	..	×	×	...	...	×	×	...	...	...	×	...	...	×	×	...	...	×	×	...
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...
22	...	...	...	...	...	...	...	×	...	×	...	×	...	...	...	...	...	...	...	...	...	...	×	×	...	...	...	...	...	×	...	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	×	...	...
24	...	...	...	...	...	...	...	...	..	...	...	×	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	×	...	...	...	×	...	...	...	...	×	...	...
28	+	+	+	+	+	+	...	+	+	+	+	+	...	...	+	+	...	+	+	+	+	...	+	+	+	+	+	...	+	+	+	+
29	+	+	+	+	+	+	...	...	+	...	+	...	...	+	...	+	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...
30	...	...	+	+	...	+	+	+	...	+	+	+	...	+	+	+	...	+	+	+	+	+	+	+	...	+	+	+	+	+	+	+
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...
32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	×	...	...	×	×	...	...	×	×	×
33	...	...	+	+	...	+	+	+	...	+	+	+	...	+	...	...	...	+	+	...	...	+	+	...	...	...	+	...	...	...	...	+
34	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	...	+	+	+	+	+	+	+	+	+	+	...	+	+	+	...
36	...	...	+	+	...	...	+	+	...	...	+	...	...	...	...	...	...	...	...	...	...	+	...	+	+	...	...	...	...	...	...	...	...
37	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	×	×	×	×	×	×	×	×	×	×	×	×
39	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	...	+	+	+	...	+	+	+	...	+	+	...	...	...	+	...

TABLE I.—1904—*continued.*

Station Number	Oceanic or Neritic.	E. 13.				E. 14.				E. 15.				E. 16.				
Month...		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
COELENTERATA.																		
Cupulita Sarsi, Haeckel	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Muggiaea atlantica, Cunningham ...	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Beroe ovata, (Eschsch.)	O.	...	...	...	...	...	...	...	+	...	...	...	+	...	...	+	...	3
Pleurobrachia pileus, Flem.	O.	...	+	+	+	...	...	+	+	...	...	...	...	...	+	+	...	4
Arachnactis Bournei, Fowler	N.	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	5
Aequorea sp.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
Aglantha rosea, (Forbes)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
Amphinema dinema, (Per. & Les.) ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
Cytaeandra areolata, Alder	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	9
Dipurena halterata, (Forbes)	N.	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	10
Euchilota pilosella, Forbes	N.	...	...	...	...	...	...	...	...	...	..	...	...	...	×	...	...	11
Gemmaria implexa, (Alder)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Gossea corynetes, (Gosse)	N.	..	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	13
Hybocodon prolifer, Agass.	N.	...	...	...	...	...	...	...	...	...	×	...	...	×	×	...	...	14
Laodice calcarata, Agass.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
Lizzia blondina, Forbes	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
Margellium octopunctatum, (Sars) ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	17
Obelia nigra, E. T. Browne	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
— sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	19
Pelagia perla, Slabber	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
Phialidium cymbaloideum, V. Beneden ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
— temporarium, E. T. Browne ...	N.	...	...	×	×	...	...	×	×	...	...	...	...	...	...	...	...	22
Sarsia gemmifera (+ sp.), Forbes ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
Saphenia mirabilis, (Stethill-Wright) ...	N.	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
Solmaris sp.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
Tiara pileata, Forsk	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
VERMES.																		
Autolytus prolifer, O. F. Müll.	N.	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	27
Sagitta bipunctata, Quoy & Jaim. ...	O.?	+	+	+	+	...	+	+	+	...	+	...	+	+	...	+	...	28
Tomopteris helgolandica, Greeff	O.	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	29
CRUSTACEA.																		
Acartia Clausi, Giesbr.	O.	...	+	+	+	...	+	+	+	...	+	...	+	+	+	+	...	30
— longiremis (Lilljeb.)	N.	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	31
Alteutha bopyroides, Claus	N.	...	...	×	...	...	×	...	...	...	×	...	×	...	...	×	...	32
Anomalocera Patersoni, Templt.	O.	...	...	+	...	...	...	...	...	...	...	...	...	...	...	+	...	33
Bradyidius armatus, (Brady)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	34
Calanus finmarchicus, Gunn.	O.	+	...	+	+	+	...	+	+	...	+	...	+	...	+	+	...	35
Candace pectinata, Brady	O.	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	36
Canuella perplexa, Scott	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	37
Centropages hamatus, (Lilljeb.)	N.	...	×	×	×	...	×	×	×	...	×	...	×	...	×	×	...	38
— typicus, Kröyer	O.	...	...	+	...	...	...	...	...	...	+	...	...	+	...	+	...	39

TABLE I.—1904—*continued.*

	E. 17.				E. 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II	V.	VIII.	XI.	II.	V.	VIII.	XI	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	..	+	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	+	+	...	...	...	+	...	...	+	+	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	..	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...
4	...	...	+	+	...	...	+	+	...	...	+	+	...	...	+	...	...	...	...	+	...	+	+	+	...	+	+	+
5	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...
10	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...
13	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×
14	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	..	...	...	...	...	...	...	...	×	...
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...
17	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	..	...	...	...	...	...	...	...	...
19	...	...	...	×	...	...	...	...	...	...	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	×	×	×	×	...	...	×	...	...	...	×	...	...	×	×	...	×	×	...	...	...	×	×	...	×	×	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...
24	...	...	...	...	..	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	×	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...
27	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...
28	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	+	+	+	+	+	+	+
29	+	...	...	...	+	...	...	...	+	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
30	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...
32	×	...	×	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	×	...	×	×	×	×	...	×	...
33	...	+	...	...	...	+	...	...	...	+	+	...	...	...	+	...	...	+	...	...	...	...	...	...	...	...	...	...
34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
36	+	...	+	...	+	...	+	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	..
37	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...
38	...	×	×	...	...	...	×	...	...	×	...	...	...	...	...	...	..	×	×	×	×	×	×	×	×	×	×	×
39	+	+	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+	...	...	...	+	...	...	...	...	...	...	...

TABLE I.—1904—*continued.*

Station Number		E. 1.				E. 2.				E. 3.				E. 4.				
Month	Oceanic or Neritic.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
CRUSTACEA—*continued.*																		
Clausocalanus arcuicornis, (Dana)	O	...	...	...	...	+	+	...	...	+	+	+	...	+	...	...	+	1
Clytemnestra rostrata, Brady	O.	...	...	...	...	+	+	...	...	+	+	...	...	...	...	...	...	2
Corycaeus anglicus, Lubb.	O.	+	+	+	+	+	+	+	+	+	+	+	+	...	+	...	...	3
Ctenocalanus vanus, Giesbr.	O.	...	...	...	...	+	+	...	...	+	+	+	...	+	...	...	...	4
Diaixis pygmaea, Th. Scott	O.	...	...	...	...	...	...	...	...	+	...	...	+	...	...	...	...	5
Euchaeta hebes, Giesbr.	O.	...	...	...	...	+	+	...	...	+	+	+	+	...	...	...	...	6
Euterpe acutifrons, (Dana)	N.	×	×	×	×	×	×	...	×	×	×	×	×	...	..	...	...	7
Haemocera sp.	N.	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	8
Isias clavipes, Boeck	N.	...	...	...	...	...	×	...	...	...	×	×	...	...	...	...	...	9
Labidocera Wollastoni, Lubb.	N.	...	...	...	...	...	...	...	×	...	...	...	...	...	...	..	...	10
Longipedia coronata, Claus	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
Metridia lucens, Boeck	O.	+	+	...	...	+	+	+	+	+	+	+	+	+	+	+	+	12
Microsetella atlantica, Brady & Rob.	O.	...	...	...	...	+	...	...	...	...	...	+	+	+	...	...	+	13
— rosea, Giesbr.	O.	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	14
Monstrilla sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
Oithona nana, Giesbr.	N.	×	×	×	×	×	×	...	×	×	×	×	×	...	...	...	...	16
— plumifera, Baird	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	17
— similis, Claus	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	18
Oncaea ornata, Giesbr.	O.	+	...	+	...	+	+	+	...	...	+	...	+	+	+	+	...	19
— sp.	O.	+	+	...	+	+	+	...	+	+	+	...	+	...	...	...	...	20
Paracalanus parvus, Claus	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	21
Parapontella brevicornis, (Lubb.)	N.	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	22
Pseudocalanus elongatus. Boeck	O.	+	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+	23
Temora longicornis, (O. F. Müll.)	N.	×	×	×	...	...	×	×	×	×	×	×	×	...	...	...	...	24
Thalestris Crohni, Kröyer	O.	+	...	...	...	...	...	...	...	+	...	...	...	...	..	...	+	25
Thaumaleus sp.	N.	...	...	...	×	..	...	...	...	...	...	...	...	...	...	...	...	26
Evadne Nordmanni, Lovén	N.	...	×	×	...	...	...	...	...	...	...	×	...	...	...	...	...	27
— spinifera, P. E. Müller	N.	...	...	...	..	..	...	...	...	...	...	...	...	...	...	...	...	28
Podon intermedius, Lilljeb	N.	...	×	×	...	...	...	×	...	...	...	×	×	...	...	...	...	29
Anchialus agilis, G. O. Sars.	N.	...	...	...	×	×	...	...	...	...	...	...	...	×	...	...	×	30
Erythrops microphthalma, G. O. Sars	N.	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	31
Gastrosaccus Normani, G. O. Sars	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32
— sanctus, (van Beneden)	N.	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	33
Leptomysis gracilis, G. O. Sars	N.	...	...	...	...	...	...	...	...	..	...	...	...	×	...	...	...	34
Macropsis Slabberi, (van Beneden)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
Mysidopsis didelphys. Norman	N.	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	36
Nyctiphanes Couchi, Bell	N.	...	...	...	...	×	×	...	×	×	×	×	×	×	...	×	×	37
Schistomysis ornata, (G. O. Sars)	N.	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	38
Siriella Clausi, G. O. Sars	N.	...	...	...	...	...	×	...	...	...	...	...	...	..	...	...	...	39
— crassipes, G. O. Sars	N.	...	...	...	×	...	×	...	...	...	...	...	...	...	...	...	×	40
Eurydice inermis (+ sp.), Hensen	O.?	...	...	...	+	...	+	...	+	...	+	...	...	+	+	...	+	41
Futhemisto compressa (+ sp.), Goes	O.	...	...	...	+	...	...	...	+	...	+	+	+	+	+	...	+	42

TABLE I.—1904—*continued.*

	E. 5.				E. 6.				E. 7.				E. 8.				E. 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	+	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	+	...	+	+	...	...	+	+	+	+	+	+	...	+	...	+	...	...	+	+	...	...	+	+	...	...	+	+	...	...	...	+
4	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	+	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
6	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	×	×	...	×	...	×	...	×	×	×	...	...	×	×	×	×	×	×	×	×	...	×	×	×	×	×
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...	...	...	×	...	...	×	...	×	...	×	×	...	...	×	×	...	...	×	...	...	...	×	×	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	+	+	+	+	+	+	...	+	+	+	+	+	...	+	...	+	...	+	...	...	+	+	...	...	...	+	...	...	...	+	...	...
13	...	...	...	...	...	...	+	...	+	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	...	?	...	...	×	...	...	...	×	×	...	...	...	×	×	×	...	×	...	×	×	×	×	×	×	...	×	×	×	×	×	×
17	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	...	+	+	+	...	+	...	+	...	...	...	...	...	...	...	...
19	...	...	+	...	+	...	+	...	...	+	...	+	...	+	...	...	...	...	...	...	+	+	...	...	+	+	...	...	...	...	...	...
20	+	+	...	...	...	...	...	...	...	+	...	+	...	..	...	+	...	...	...	...	+	+	...	...	+	+	...	...	...	+	...	...
21	+	+	...	+	+	+	+	+	+	+	+	+	...	+	+	+	...	+	+	+	+	+	+	+	+	...	+	+	+	...	+	+
22	...	...	...	...	...	×	...	...	...	..	...	...	...	...	...	...	...	×	...	...	...	×	×	...	...	×	×	×	×	×	×	...
23	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	...	+	+	+	+	+	+	+	+	+	...	+	+	+	+	+
24	...	...	...	...	...	...	×	×	...	×	×	×	...	×	×	×	...	×	×	×	×	×	×	×	...	×	×	×	×	×	×	×
25	...	+	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...
26	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	×	×	...	×	×	×	...	...	×	...	...	...	...	×	...	...	...	...	...	...	...	..	...	...	...	...	...
28	...	...	..	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	...	...	...	...	...	...	...	...	..	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...
30	...	...	...	×	...	...	...	...	...	...	×	×	...	...	...	×	...	...	...	×	×	...	...	...	...	...	...	...	...	×	...	...
31	...	...	...	×	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...
33	..	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	..	...	...	...	...	...	×	...	...	...
36	...	...	...	×	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
37	...	×	×	×	×	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	×	...	...	...	...	...	...	...
40	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	×	×	...	..	..	...	...	.	...	...	...	×
41	...	+	+	+	...	+	...	...	...	...	+	+	...	...	...	+	...	+	...	...	...	...	+	+	...	...	...	...	...	...	...	...
42	...	...	+	+	...	...	...	+	...	...	+	+	...	..	...	+	...	...	...	...	...	+	..	...	...	...	...	...	...	+	+	...

TABLE I.—1904—*continued*.

Station Number	Oceanic or Neritic.	E. 13.				E. 14.				E. 15.				E. 16.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
CRUSTACEA—*continued.*																		
Clausocalanus arcuicornis, (Dana) ...	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Clytemnestra rostrata, Brady	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Corycaeus anglicus, Lubb.	O.	...	...	...	...	...	...	...	...	...	..	...	...	+	+	+	...	3
Ctenocalanus vanus, Giesbr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Diaixis pygmaea, Th. Scott	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Euchaeta hebes, Giesbr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
Euterpe acutifrons, (Dana)	N.	...	...	...	×	...	...	×	×	...	×	...	×	×	×	×	...	7
Haemocera sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
Isias clavipes, Boeck	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	9
Labidocera Wollastoni, Lubb.	N.	...	...	...	×	...	...	...	...	...	×	...	×	...	×	×	...	10
Longipedia coronata, Claus	N.	...	×	...	×	...	...	×	...	...	×	...	...	...	...	×	...	11
Metridia lucens, Boeck	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Microsetella atlantica, Brady & Rob. ...	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
— rosea, Giesbr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Monstrilla sp.	N.	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	15
Oithona nana, Giesbr.	N.	...	...	×	×	...	...	...	...	...	×	...	×	×	×	×	...	16
— plumifera, Baird	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
— similis, Claus	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	+	+	...	18
Oncaea ornata, Giesbr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	19
— sp.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
Paracalanus parvus, Claus	O.	...	...	...	+	...	...	...	+	...	+	...	+	+	+	+	...	21
Parapontella brevicornis, (Lubb.) ...	N.	...	...	×	...	...	...	...	×	...	...	...	...	...	...	×	...	22
Pseudocalanus elongatus, Boeck	O.	+	+	+	+	+	...	+	+	...	+	...	+	+	+	+	...	23
Temora longicornis, (O. F. Müll.) ...	N.	×	×	×	×	×	×	×	×	...	×	...	×	×	×	×	...	24
Thalestris Crohni, Kröyer	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
Thaumaleus sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
Evadne Nordmanni, Lovén	N.	...	...	×	...	...	...	...	...	...	×	...	...	...	×	...	...	27
— spinifera, P. E. Müller	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
Podon intermedius, Lilljeb	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
Anchialus agilis, G. O. Sars	N.	...	...	...	...	...	...	...	...	...	...	...	...	×	...	×	...	30
Erythrops microphthalma, G. O. Sars ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
Gastrosaccus Normani, G. O. Sars ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32
— sanctus, (van Beneden) ...	N.	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	33
Leptomysis gracilis, G. O. Sars	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	34
Macropsis Slabberi, (van Beneden) ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
Mysidopsis didelphys, Norman	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36
Nyctiphanes Couchi, Bell	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	37
Schistomysis ornata, (G. O. Sars) ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	38
Siriella Clausi, G. O. Sars	N.	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	39
— crassipes, G. O. Sars	N.	...	...	...	×	...	...	...	×	...	...	...	×	...	...	×	...	40
Eurydice inermis (+ sp.), Hensen ...	O.?	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	41
Euthemisto compressa (+ sp.), Goes ...	O.	...	..	+	...	...	...	...	...	...	...	...	...	...	...	...	...	42

TABLE I.—1904—*continucd.*

	E. 17.				E 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	...	...	...	...	...	+	...	...	...	+
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	×	...	×	×	×	...	×	×	×	×	×	×	×	×	...	×	×	×	×	×	×	...	×	×	×	×	...	×
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...
10	...	...	×	×	...	...	×	...	...	...	...	...	...	...	×	...	..	...	...	×	...	...	×	×	...	...	...	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	+	+	..	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...
13	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	..	...	...
16	×	...	×	×	×	×	×	×	...	×	...	×	×	...	...	×	×	...	...	×	×	...	...	×	×	×	×	×
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	...	...	...	...	...	...	...	...	...	...	...
19	+	...	+	...	+	+	...	...	+	...	...	...	+	+	...	...	+	...	...	...	...	+	..	...	+	...	...	...
20	+	...	...	+	+	...	...	+	+	...	...	+	...	...	...	+	...	+	...	...	...	+	...	...	+	...	...	...
21	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	...	+	+	+	...	+	+	+	...	+	+
22	...	...	×	...	...	...	...	...	...	...	×	...	×	×	...	...	...	...	×	×	×	×	×	×	×	...	×	×
23	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	+	+	+	+	...	+
24	×	×	×	...	×	×	×	...	×	×	×	×	×	×	×	...	×	×	×	×	×	×	×	×	×	×	×	×
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	...	...	×	...	×	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	...	×	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...
30	×	...	...	×	...	...	...	×	×	..	...	...	...	...	...	..	...	...	...	...	...	×	...	...	...	...	×	...
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	...	...	...	×	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...
34	×	...	...	...	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	...	...	...	×	×	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...
40	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	×	...	...	...
41	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	+	...	+	+	...	...	...
42	+	...	...	+	...	...	...	...	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	+	...	+	...

TABLE I.—1904—*continued.*

Station Number	Oceanic or Neritic.	E. 1.				E. 2.				E. 3.				E. 4.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
CRUSTACEAE—*continued.*																		
Hyperia galba, (Montagu)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	1
Hyperoche Kröyeri, Bovall.	O.	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	2
Urothoë elegans (+ sp.), Sp. Bate.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
TUNICATA.																		
Doliolum nationalis, Borgert	O.	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	4
Fritillaria borealis, Lohm.	O.	+	+	...	...	...	...	...	+	...	...	...	+	+	...	...	...	5
Oikopleura dioica, Fol	O.	...	+	...	+	+	+	...	+	...	+	...	+	+	+	+	+	6
Salpa fusiformis, Cuv.	O.	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	+	7
VERTEBRATA.																		
Amphioxus lanceolatus, Yarr.	N.	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	8

TABLE II.—1905.

DIATOMACEAE.																		
Actinoptychus undulatus, (Bail.)	N.	×	...	...	...	×	...	...	×	×	×	×	×	×	×	...	×	1
Asterionella glacialis, Castr.	N.	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	2
Bacillaria paradoxa, Gmel.	N.	×	...	...	×	×	...	...	...	×	...	...	...	...	...	...	...	3
Bellerochea malleus, Btw.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Biddulphia alternans, Bail.	N.	×	...	...	...	×	...	...	×	×	×	...	×	×	...	...	...	5
— aurita, (Lyngb.)	N,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
— granulata, Roper	N.	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	7
— mobiliensis, Bail.	N.	×	...	...	×	×	...	...	×	×	...	...	×	×	×	...	×	8
Cerataulina Bergoni, Perag.	N.	...	×	...	×	...	...	...	...	...	...	...	...	...	...	...	...	9
Chaetoceras boreale, Bail.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
— breve, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
— constrictum, Gran	N.	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	12
— contortum, Schütt	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
— convolutum, Castr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
— criophilum, Castr.	O.	...	...	...	+	...	...	...	+	+	...	...	+	+	...	...	+	15
— crinitum, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
— curvisetum, Cleve	N.	...	...	...	×	×	...	...	...	×	...	...	...	...	...	...	...	17
— danicum, Cleve	N.	×	...	...	×	...	...	...	...	×	...	...	×	...	...	...	...	18
— debile, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
— decipiens, Cleve	N.	×	×	...	×	×	...	...	×	×	...	...	×	...	×	...	×	20
— densum, Cleve	O.	+	+	...	...	+	+	...	...	...	...	...	...	...	...	...	...	21
— diadema, (Ehbg.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
— didymum, Ehbg.	N.	×	...	...	×	×	...	...	...	...	...	×	×	...	...	...	...	23
— gracile, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
— holsaticum, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25

TABLE I.—1904—*continued.*

	E. 5.				E. 6.				E. 7.				E. 8.				E. 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	+	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	..	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	+	...	...	..	...	...	+	...	...	+	+	...	...	+	...	...	...	...	+	...	...	+	...	+	...	...	...	...	...	...	...	...
6	...	...	...	...	...	+	+	+	...	+	+	...	...	+	+	+	...	+	+	+	+	+	+	+	...	+	...	+	...	+	+	+
7	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...
8	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE II.—1905.

1	×	×	×	×	×	×	...	×	×	×	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	×	...	×	...	...	×
2	...	...	...	...	×	...	...	×	×	×	...	...	...	×	...	...	×	×	...	×	×	...	...	...	...	...	×	...	...	×	×	...
3	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	×	×	×	...	×	×	...	...	×	×	...	×	×
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	×	×	...	...	...	×	×	×	×
5	×	×	...	...	×	...	...	×	×	...	...	...	×	...	...	×	×	...	...	×	×	...	...	×	×	...	...	×	×	...	...	×
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	×	×	×	×	×	..	...	...	×	...	...	×	×	×	..	×	×	...	...	×	×	×	×	×	×	...	×	×	×	...	...	×
9	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	×	×	×	...	×	...	×	...	...	...	×	×	×
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...
15	+	+	...	+	+	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...
17	...	...	...	...	...	...	...	×	...	×	...	...	×	...	...	×	...	×	...	×	×	...	...	×	...	×	...	...	...	×	×	...
18	×	...	...	×	×	...	...	×	×	...	...	×	...	...	...	...	×	×	...	...	×	...	...	×	...	...	...	...	...	...	...	..
19	...	...	...	...	×	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...
20	×	...	...	×	×	...	...	×	×	×	...	×	×	...	...	×	×	...	...	×	×	...	...	×	×	...	×	×	...	...	×	×
21	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	+	+	+	...	...	...	+	+	+	+	+	+	...	...	+	...	+
22	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	?	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	...	...	...	...	×	...	...	×	×	...	...	...	×	...	...	...	×	...	...	...	×	...	×	...	...	...	×	...	...	...	×	...
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...

TABLE I.—1904—*continued.*

Station Number / Month	Oceanic or Neritic.	E. 13. II.	E. 13. V.	E. 13. VIII.	E. 13. XI.	E. 14. II.	E. 14. V.	E. 14. VIII.	E. 14. XI.	E. 15. II.	E. 15. V.	E. 15. VIII.	E. 15. XI.	E. 16. II.	E. 16. V.	E. 16. VIII.	E. 16. XI.	
CRUSTACEAE—*continued.*																		
Hyperia galba, (Montagu)...	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Hyperoche Kröyeri, Bovall.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Urothoë elegans (+ sp.), Sp. Bate. ...	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
TUNICATA.																		
Doliolum nationalis, Borgert	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Fritillaria borealis, Lohm.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	5
Oikopleura dioica, Fol	O.	...	...	+	+	...	...	...	...	...	+	...	+	+	+	+	...	6
Salpa fusiformis, Cuv.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
VERTEBRATA.																		
Amphioxus lanceolatus, Yarr.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8

TABLE II.—1905.

DIATOMACEAE.																		
Actinoptychus undulatus, (Bail.) ...	N	×	×	×	×	×	×	×	...	...	×	...	...	×	×	×	×	1
Asterionella glacialis, Castr.	N.	...	×	...	...	×	×	...	...	...	×	...	...	×	×	...	...	2
Bacillaria paradoxa, Gmel.	N.	×	×	×	...	×	×	×	×	...	×	...	...	×	×	×	×	3
Bellerochea malleus, Btw....	N.	×	...	×	×	×	...	...	×	...	...	...	...	...	...	×	×	4
Biddulphia alternans, Bail.	N.	×	...	...	×	×	...	×	×	...	...	...	...	×	...	×	×	5
— aurita, (Lyngb.)	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
— granulata, Roper	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
— mobiliensis, Bail.	N.	×	×	×	×	×	×	×	×	...	×	...	...	×	×	×	×	8
Cerataulina Bergoni, Perag.	N.	×	×	...	...	×	×	...	...	...	×	...	...	×	×	...	...	9
Chaetoceras boreale, Bail.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
— breve, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	11
— constrictum, Gran	N.	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	12
— contortum, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
— convolutum, Castr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
— criophilum, Castr.	O.	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
— crinitum, Schütt	N.	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	16
— curvisetum, Cleve	N.	...	...	×	...	...	×	×	...	...	×	...	...	...	...	...	...	17
— danicum, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	18
— debile, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
— decipiens, Cleve	N.	×	×	×	...	...	...	...	...	...	...	...	...	×	×	...	...	20
— densum, Cleve	O.	+	+	+	...	+	+	...	...	...	+	...	...	+	...	+	...	21
— diadema, (Ehbg.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
— didymum, Ehbg.	N	...	...	×	...	...	×	...	...	...	...	...	...	×	...	×	...	23
— gracile, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
— holsaticum, Schütt	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25

TABLE I.—1904—*continued.*

	E. 17.				E. 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	+	...	+	...	+	+	+	+	+	...	+	...	+	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
6	+	+	...	+	+	+	+	+	...	+	+	+	+	+	+	+	...	+	+	+	+	+	+	+	+	+	+	+
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE II.—1905.

1	×	×	...	...	×	×	×	×	×	...	...	×	×	×	...	...	...	...	...	×	...	×	...	...	×	...	...	...
2	...	×	×	×	×	...	...	×	×	...	...	×	...	...	...	×	...	...	...	...	...	×	...	...	×	×	...	...
3	×	...	...	×	×	×	×	×	×	...	...	×	×	×	...	×	×	×	...	×	×	×	×	×	×	×	×	...
4	...	...	...	×	...	...	×	×	...	...	...	...	...	...	...	...	×	...	...	×	...	...	...	×	×	...	×	×
5	×	×	×	×	×	...	×	×	×	...	...	×	×	...	×	×	×	...	...	×	×	...	...	×	×	...	...	×
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	×	×	×	×	×	×	×	×	×	...	×	×	×	×	...	×	×	×	...	×	×	×	...	×	×	×	...	×
9	×	×	...	...	...	×	...	...	×	×	...	×	×	×	...	...	×	×	...	...	...	...	...	×	×	×	×	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...
13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	×	...	...	...	...	...	...	...	×
17	×	×	...	×	...	...	...	...	...	...	...	×	×	×	×	...	...	...	×	...	...	...	...	...	×	×	...	...
18	×	...	...	×	×	...	×	×	×	...	...	...	×	...	...	×	...	...	...	...	×	...	...	...	×	×	...	...
19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	×	×	...	×	×	×	×	...	×	...	...	×	×	...	...	×	...	...	×	...	...	×	×	...	...	...	×	...
21	+	+	+	...	...	+	+	...	+	+	...	+	+	+	...	...	+	+	...	...	+	+	+	...	+	+	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	×	×	...	×	...	×	×	...	×	...	...	×	×	...	×	×	...	...	...	...	...	...	×	...	...	...	...	...
24	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×

TABLE II.—1905—*continued.*

Station Number	Oceanic or Neritic.	E. 1.				E. 2.				E. 3.				E. 4.				
Month...		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
DIATOMACEAE—*continued.*																		
Chaetoceras laciniosum, Schütt	N.	...	...	...	×	×	...	...	×	...	...	...	...	...	...	...	...	1
— peruvianum, Btw.	O.	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	2
— Schütti, Cleve	N.	×	×	...	×	×	...	...	...	×	...	...	×	...	...	...	...	3
— scolopendra, Cleve	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
— sociale, Lauder	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
— teres, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
— Willei, Gran	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
Corethron hystrix, Hensen	O.	+	...	...	...	+	...	...	...	+	...	+	+	+	+	...	+	8
Coscinodiscus concinnus, W. Sm.	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
— excentricus, Ehbg.	N.	×	×	...	×	×	×	..	×	×	...	×	×	×	×	...	×	10
— Grani, Gough	N.	×	...	...	×	×	...	...	...	×	...	...	×	...	...	...	...	11
— oculus iridis, Ehbg.	O.	+	...	...	+	+	...	...	...	+	...	...	...	...	...	...	...	12
— radiatus, Ehbg.	O.	+	...	...	...	+	+	+	+	+	+	+	+	+	...	+	+	13
Coscinosira polychorda, Gran	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Ditylum Brightwelli, (West)	N.	×	...	...	×	×	...	...	...	×	×	...	×	...	...	...	...	15
Eucampia zoodiacus, Ehbg.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
Eupodiscus argus, (Ehbg.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
Guinardia flaccida, (Castr.)	N.	...	×	...	×	×	...	...	...	×	...	×	...	...	...	...	...	18
Hyalodiscus stelliger, Bail.	N.	×	×	...	...	×	...	×	×	×	...	×	×	×	...	...	×	19
Lauderia borealis, Gran	N.	×	...	...	×	×	...	...	...	×	...	...	...	...	...	...	...	20
Leptocylindrus danicus, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
Lithodesmium undulatum, Ehbg.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
Navicula membranacea, Cleve	N.	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	23
Nitzschia seriata, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
Paralia sulcata, (Ehbg.)	N.	×	...	...	×	×	...	×	×	×	×	×	×	×	...	...	×	25
Pleurosigma sp.	N.	...	×	...	...	×	...	...	×	×	...	...	×	×	...	...	...	26
Rhizosolenia alata, Btw.	O.	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	27
— delicatula, Cleve	N.	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	28
— hebetata, Bail.	O.	...	...	...	...	...	...	...	...	+	...	...	+	+	...	...	...	29
— robusta, Norman	O.	+	...	...	...	...	...	...	...	+	+	...	...	...	...	...	...	30
— semispina, Hensen	O.	...	...	...	...	...	+	...	...	+	+	...	+	+	+	...	+	31
— setigeria, Btw	N.	...	...	...	...	...	...	...	...	×	×	...	×	...	...	...	...	32
— Shrubsolei, Cleve	N.	×	×	...	×	×	×	...	×	×	×	...	×	...	...	...	×	33
— Stolterfothi, Perag.	N.	...	...	...	×	×	...	...	...	...	...	...	...	...	...	...	...	34
— styliformis, Btw.	O.	...	...	...	+	...	+	...	...	...	...	...	...	...	+	...	...	35
Skeletonema costatum, (Grev)	N.	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	36
Streptotheca tamesis, Shrubsole	N.	×	×	...	×	×	×	...	×	×	×	×	×	×	×	...	...	37
Thalassiosira condensata, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	38
— decipiens, (Grun.)	N.	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	39
— gravida, Cleve	N.	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	40
— Nordenskiöldi. Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	41
Thalassiothrix nitzschoides, Grun.	N.	×	×	...	×	×	...	...	×	×	×	×	×	×	...	...	...	42

TABLE II.—1905—*continued.*

	E. 5.				E. 6.				E. 7.				E. 8.				E. 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	×	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	×	...	...	...	...	...	...	×	×	×	...	×	...	...	...	×	×	...	...	...	×	...	...	×	×	...	...	...	...	...	...	...
4	...	...	...	...	...	..	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	...	...
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	...	×	...	...
8	+	...	...	+	+	...	...	+	+	+	...	+	...	...	...	+	+	...	...	+	+	...	...	+	...	...	...	+	...	...	...	...
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	×	×	×	×	×	×	...	×	×	×	...	×	×	...	...	×	×	×	×	×	×	×	×	×	×	...	×	×	×	×	×	×
11	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	×	×	...	...	×	×	...	...	×	×	...	...	×	×	...	...	×
12	...	...	...	...	+	...	...	...	+	+	...	...	+	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	...
13	+	+	...	+	+	+	...	+	+	+	...	+	+	...	...	+	+	+	+	+	+	+	...	+	+	...	...	+	+	+	...	+	+
14	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	×	...	...	...	...	...	...	...
15	×	...	...	...	×	...	...	×	×	×	...	...	×	...	...	×	×	...	...	×	×	...	...	×	×	...	...	×	×	...	...	×	×
16	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	×	×	×	...	×	×	×	×	×	×	×	×	×	...	×	×	×	×
19	×	×	×	×	×	×	...	×	×	×	...	×	×	...	×	×	...	×	×	×	×	×	×	×	×	...	×	×	...	×	×	...	×
20	×	...	...	...	×	...	...	×	×	×	...	...	×	...	...	×	×	×	...	×	×	×	...	×	×	×	×	×	...	...	...	×	×
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	×	...	×	×	×	...	×	...	...	×	...	...	×	×	...	...
24	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...
25	×	×	×	×	×	×	...	×	×	×	...	×	×	×	×	×	×	×	...	×	×	×	×	×	×	...	×	×	×	×	×	×	×	×
26	×	...	...	...	×	...	...	×	×	×	...	×	×	...	...	×	...	...	...	×	×	×	...	×	...	...	×	×	...	×	...	×	×
27	...	...	+	+	...	...	+	+	+	...	+	+	+	...	...	+	+	+	...	...	...	...	...	+	+	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	×	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	...	×	...	...	...
29	+	...	...	+	+	...	...	+	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...	+	+	...	...	+	...	...	+	...	+	+	...	...	+	+	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...
32	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	×	...	...	×	?	...	×	×	...	...	×	×	...	...	×	×	×
33	×	...	...	×	×	...	...	×	×	×	...	×	×	×	...	×	×	×	...	×	×	×	...	×	...	×	×	...	...	×	×	×	×
34	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	×	×	...	×	×	...	...	×	×	×	×
35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
36	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	×	×	...	...	×	×	...	×	×	×	...	...	×	×	...	×	×	×	...	×	×	×	×	×	×	×	×	×	×	×	×	×	×
38	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...
39	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×
40	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	×	×	...	...	...	×	...	...	...	×	...	...	...	...
41	...	...	...	...	...	...	...	...	...	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
42	×	...	×	×	×	×	...	×	×	×	...	×	×	...	...	×	...	×	...	×	×	×	...	...	×	...	×	...	...	×	...	...	...

TABLE II.—1905—*continued.*

Station Number	Oceanic or Neritic.	E. 13.				E. 14.				E. 15.				E. 16.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
DIATOMACEAE—*continued.*																		
Chaetoceras laciniosum, Schütt	N.	...	...	×	...	...	...	...	...	...	...	...	...	...	×	×	...	1
— peruvianum, Btw.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
— Schütti, Cleve...	N.	×	...	×	...	...	...	...	...	...	...	...	...	×	...	...	...	3
— scolopendra, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
— sociale, Lauder	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
— teres, Cleve	N.	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	6
— Willei, Gran	N.	...	×	×	...	...	...	×	...	...	×	...	...	...	×	...	...	7
Corethron hystrix, Hensen...	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	8
Coscinodiscus concinnus, W. Sm.... ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
— excentricus, Ehbg.... ...	N.	×	×	×	×	×	×	×	×	...	×	...	...	×	×	×	×	10
— Grani, Gough	N.	×	×	...	×	×	...	...	...	...	×	...	...	×	...	...	×	11
— oculus iridis, Ehbg. ...	O.	+	...	...	+	...	...	...	...	...	...	...	...	+	...	...	+	12
— radiatus, Ehbg.	O.	+	+	...	+	+	+	+	+	...	+	...	...	+	+	+	+	13
Coscinosira polychorda, Gran	N.	×	×	...	...	...	...	...	...	...	...	...	...	×	...	...	...	14
Ditylum Brightwelli, (West)	N.	...	×	×	×	×	×	...	...	...	×	...	...	×	×	...	×	15
Eucampia zoodiacus, Ehbg.	N.	...	×	...	...	...	...	×	...	...	×	...	...	...	×	...	...	16
Eupodiscus argus, (Ehbg.)	N.	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	17
Guinardia flaccida, (Castr.)	N.	×	×	×	×	×	×	×	×	...	×	...	...	×	×	×	×	18
Hyalodiscus stelliger, Bail.	N.	...	×	...	×	×	×	×	...	...	×	...	...	×	×	×	×	19
Lauderia borealis, Gran	N.	×	×	...	×	×	×	...	×	...	×	...	...	×	×	...	×	20
Leptocylindrus danicus, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
Lithodesmium undulatum, Ehbg. ...	N.	...	...	×	×	×	...	×	×	...	...	...	...	×	...	...	...	22
Navicula membranacea, Cleve	N.	×	...	...	...	×	...	...	...	...	...	...	...	×	×	...	...	23
Nitzschia seriata, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
Paralia sulcata, (Ehbg.)	N.	×	×	×	×	...	×	×	×	...	×	...	...	×	×	×	×	25
Pleurosigma sp.	N.	×	...	×	...	...	...	×	×	...	...	...	...	×	×	...	×	26
Rhizosolenia alata, Btw.	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	+	+	...	27
— delicatula, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
— hebetata, Bail.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
— robusta, Norman	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
— semispina, Hensen	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	+	+	...	31
— setigera. Btw.	N.	×	×	×	×	×	×	×	×	...	×	...	...	×	×	×	×	32
— Shrubsolei, Cleve	N.	×	×	×	...	...	...	...	...	...	×	...	...	×	×	×	...	33
— Stolterfothi, Perag.... ...	N.	×	×	×	...	...	×	×	...	...	×	...	...	×	×	×	×	34
— styliformis, Btw.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	35
Skeletonema costatum, (Grev.)	N.	×	×	...	×	...	×	...	×	...	×	...	...	×	...	...	...	36
Streptotheca tamesis, Shrubsole	N.	×	×	×	×	×	×	...	×	...	×	...	...	×	×	×	×	37
Thalassiosira condensata, Cleve	N.	×	...	...	...	...	×	...	...	...	...	...	..	...	...	...	...	38
— decipiens, (Grun.)	N.	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	39
— gravida, Cleve ... —	N.	×	...	...	...	...	...	...	...	...	×	...	...	×	...	...	...	40
— Nordenskiöldi, Cleve ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	41
Thalassiothrix nitzschoides, Grun. .	N.	×	×	×	×	...	×	...	...	...	×	...	...	×	×	...	...	42

TABLE II.—1905—*continued.*

	E. 17.				E. 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	×	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	×	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	×	×	...	×	×	...	...	×	×	...	...	×	×	...	...	×	...	...	...	...	...	...	...	...	×	...	...	...
4	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...
7	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	×	...	...	×	×	...	...	×	...	...
8	...	+	...	...	+	+	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...
10	×	×	×	×	×	×	×	×	×	...	...	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
11	×	×	...	×	×	...	...	×	×	...	...	×	×	...	...	×	×	×	...	×	×	×	...	×	×	...	...	×
12	+	...	...	...	+	...	..	+	+	...	...	...	+	...	...	+	+	...	...	...	+	...	...	...	+	...	...	...
13	+	+	...	+	+	+	+	..	...	+	...	+	+	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+
14	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...
15	×	...	...	×	×	×	...	×	×	...	...	×	×	...	...	...	...	...	...	×	...	×	...	×	×	×	...	×
16	×	×	...	...	×	×	...	...	×	×	...	×	×	×	...	×	...	×	...	..	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	×	×	...	×	×	×	×	...	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
19	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	...	×	×	×	×	×	×	...	×	×	×
20	×	×	...	×	×	×	...	...	×	...	...	×	×	×	...	×	×	×	...	×	×	...	...	×	×	...	...	×
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	×	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...
23	×	×	...	...	...	×	×	...	...	×	...	...	...	...	...	...	×	×	×	...	×	...	×	...	×	×	×	×
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	×	×	...	...	...	...	...	...	...	×	...
25	×	×	×	×	×	×	×	×	×	...	×	×	×	×	...	×	×	×	×	×	×	×	×	×	×	×	×	×
26	×	×	...	×	×	×	×	×	...	×	...	×	×	×	...	×	×	...	...	×	...	×	×	×	×	×	×	...
27	+	+	+	+	+	+	+	...	+	...	...	+	+	+	+	+	...	...	...	...	...	+	...	...	...	...	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	+	+	...	...	...	+	...	...	+	...	...	...	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...
31	+	...	+	...	+	+	+	+	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	×	...	×	×	×	×	×	...	...	...	...	×	...	..	...	...	×	×	×	×	×	×	×	×	×	...	×	...
33	×	×	...	...	×	×	...	...	×	×	...	×	×	×	...	×	×	×	×	×	×	×	×	×	×	×	×	...
34	×	×	×	×	...	×	×	×	×	×	...	×	×	×	...	×	×	×	×	×	...	×	×	×	×	...	...	×
35	...	+	...	+	...	+	+	...	...	+	...	+	...	+	...	+	...	+	...	...	...	...	...	...	...	...	...	...
36	...	...	...	×	×	...	...	×	...	...	...	...	...	...	...	...	×	...	...	×	...	...	...	×	...	...	...	...
37	×	×	...	×	×	×	×	×	×	×	×	...	...	×	...	×	×	×	...	×	×	×	×	×	×	×	×	×
38	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	×	...	...	...
39	...	...	...	...	...	...	..	×	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	×	...	...	...	...
40	×	×	...	...	×	...	...	..	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	×	..	...	...
41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...
42	×	×	...	...	×	×	...	×	×	...	...	×	...	×	...	...	...	×	...	×	...	...	...	...	×	...	...	...

TABLE II.—1905—*continued.*

Station Number	Oceanic or Neritic.	E. 1.				E. 2.				E. 3.				E. 4.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
PERIDINIALES.																		
Ceratium azoricum, Cleve	O.	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	1
— candelabrum, Schütt	O.	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	2
— furca, (Ehbg.)	O.	...	...	...	...	...	...	...	...	+	+	+	...	+	+	...	+	3
— fusus, (Ehbg.)	O.	+	...	+	...	+	+	...	+	+	+	+	+	+	+	+	+	4
— horridum, Gran	O.	...	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	5
— lineatum, (Ehbg.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
— longipes, (Bail.)	O.	+	+	+	+	+	+	+	+	+	+	...	+	+	+	...	+	7
— macroceras, Ehbg.	O.	+	...	...	...	...	...	...	...	+	...	...	...	+	+	+	...	8
— tripos, (O. F. Müll.)	O.	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	9
Dinophysis acuminata, Clap. & Lachm.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
— acuta, Ehbg.	O.	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	11
— norvegica, Clap. & Lachm.	O.	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	12
— rotundata, Clap. & Lachm.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	13
Diplopsalis lenticula, Bergh	O.	...	...	+	...	...	...	+	+	+	...	+	+	+	...	...	+	14
Glenodinium sp.	N.	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	15
Gonyaulax polygramma, Stein	N.	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	16
— spinifera, (Clap. & Lachm.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
Peridinium conicum, Gran	O.	...	+	...	...	...	+	...	...	+	...	...	...	+	...	...	...	18
— decipiens, Jörg	O.	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	19
— depressum, Bail.	O.	...	+	...	...	...	+	...	...	...	...	+	+	+	+	+	...	20
— globulus, Stein	O.	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	21
— oceanicum, Vanhöff	O.	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	22
— ovatum, Pouchet	O.	...	+	...	...	+	...	...	...	...	+	...	...	...	...	...	...	23
— pallidum, Ostf.	O.	...	+	...	...	+	+	+	...	+	+	+	...	...	+	...	...	24
— pentagonum, Gran	O.	+	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	25
— Steini, Jörg	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
Prorocentrum micans, Ehbg.	N.	...	...	×	...	...	×	...	...	...	...	×	...	...	...	...	...	27
PROTOPHYTA CETERA.																		
Coccosphaera atlantica, Ostf.	O.	...	...	...	...	...	...	+	...	+	...	...	+	+	...	...	...	28
Dictyocha fibula, Ehbg.	O.	+	...	...	...	+	...	...	...	+	...	...	...	...	...	...	+	29
Distephanus speculum, (Ehbg.)	O.	...	...	...	...	+	...	...	...	+	...	...	...	+	+	...	...	30
Halosphaera viridis, Schmitz	O.	+	+	+	...	+	+	+	+	+	+	+	+	+	+	...	+	31
Hexasterias problematica, Cleve	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32
Phaeocystis globosa, Scherffel	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33
Trochiscia brachiolata, (Möb.)	N.	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	34
— Clevei, Lemm.	N.	...	...	...	...	×	...	...	...	...	×	...	...	...	...	...	...	35
— dictyon, (Jörg.)	N.	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	36
— Moebiusi, Jörg	N.	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	37
Trichodesmium sp.	O.	...	...	...	...	...	...	...	...	...	+	...	...	...	+	+	+	38
PROTOZOA.																		
Lithomelissa sp.	O.	+	...	...	...	+	...	...	...	+	...	...	+	...	...	...	...	39
Noctiluca miliaris, Suriray	N.	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	40

TABLE II.—1905—*continued.*

	E. 5.				E. 6.				E. 7.				E. 8.				E 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...
4	+	...	...	+	+	...	+	+	...	...	+	...	+	+	+	+	+	+	+	+	+	+	...	+	...	+	+	+	+	+	+	+
5	...	...	...	...	+	...	...	...	...	...	+	...	...	...	+	...	+	+	+	+	+	...	...	...	...	+	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...
7	+	+	...	+	...	...	...	+	+	+	...	+	+	+	...	+	+	+	...	+	+	+	+	+	+	+	+	+	+	+	...	...
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	+	+	+	+	+	+	+	+	+	...	+	+	+	...	+	+	+	+	+	+	...	...	+	...	+	...	...	...	+	...	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	...	...	+	...	...	...	+	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	+	..	...	+	+	...	...	+	...	...	+	...	...	+	+	...	...	...	+	+	...	+	+	...	...	...	+	+	...	+	+	...
15	...	...	...	×	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...
16	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	...	..	×	...	...	...	...	..	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	...	+	...	...	...	...	+	...	...	+	...	...	...	+	+	+	+	+	+	...	+	...	+	+	+	...	...	...	...
19	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	+	...	...	+	...	...	...	...	...	...	...	...	...	..	...
20	+	+	+	+	...	...	...	...	...	...	...	...	+	...	...	...	+	...	+	+	+	...	+	+	+	...	...	...	+	...	...	...
21	...	...	...	...	...	...	...	+	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	...	...	...	...	+	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	..	...	...
23	+	...	...	...	...	...	...	..	...	+	...	+	+	+	+	...	+	+	...	+	+	+	...	...	+	+	...	...	...	+	...	...
24	...	+	...	...	...	...	...	+	...	+	...	+	+	+	+	...	...	+	...	...	+	...	...	...	...	...	...	+	...	...	...	+
25	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...	+	...	...
27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	×	...	...	×	...	...
28	+	...	+	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	+	...	...	...	...	...	...	...	...
29	+	...	...	...	+	...	...	+	+	+	...	+	+	...	...	+	...	...	...	+	+	...	...	+	...	+	+	..	...	...	...	...
30	...	...	...	...	...	...	...	+	...	...	...	...	+	...	...	...	...	+	...	+	...	+	...	...	...	...	+	...	...	...	...	...
31	+	+	+	+	+	+	+	+	+	+	+	+	...	+	...	+	+	+	+	...	+	+	...	...	...	...	...	...	...	...	...	...
32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	. .	...	...
34	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38	...	+	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	+	...	+	...	+	...	...	+	...	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...

TABLE II.—1905—*continued.*

Station Number	Oceanic or Neritic.	E. 13.				E. 14.				E. 15.				E. 16.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
PERIDINIALES.																		
Ceratium azoricum, Cleve	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
— candelabrum, Schütt	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
— furca, (Ehbg.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
— fusus, (Ehbg.)	O.	+	...	...	...	...	...	...	...	...	+	...	...	+	+	+	+	4
— horridum, Gran	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	5
— lineatum, (Ehbg.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
— longipes, (Bail.)	O.	+	+	+	...	+	+	...	+	...	+	...	...	+	+	+	+	7
— macroceras, Ehbg.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
— tripos, (O.F. Müll.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	9
Dinophysis acuminata, Clap. & Lachm. ...	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
— acuta, Ehbg.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
— norvegica, Clap. & Lachm. ...	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
— rotundata, Clap. & Lachm. ...	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
Diplopsalis lenticula, Bergh	O.	...	+	+	...	...	...	...	...	...	...	...	...	+	...	+	...	14
Glenodinium sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	15
Gonyaulax polygramma, Stein	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
— spinifera, (Clap. & Lachm.) ...	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
Peridinium conicum, Gran	O.	+	...	...	+	...	+	...	+	...	+	...	...	+	...	...	+	18
— decipiens, Jörg	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
— depressum, Bail.	O.	+	+	...	...	+	...	...	...	...	...	...	...	+	...	+	...	20
— globulus, Stein	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
— oceanicum, Vanhöff	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
— ovatum, Pouchet	O.	+	+	...	...	+	...	...	+	...	...	...	...	+	+	...	...	23
— pallidum, Ostf.	O.	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	24
— pentagonum Gran	O.	+	...	...	...	+	...	...	...	...	...	...	...	+	...	...	...	25
— Steini, Jörg	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
Prorocentrum micans, Ehbg.	N.	×	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	27
PROTOPHYTA CETERA.																		
Coccosphaera atlantica, Ostf.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
Dictyocha fibula, Ehbg.	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	+	29
Distephanus speculum, (Ehbg.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
Halosphaera viridis, Schmitz	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	31
Hexasterias problematica, Cleve	N.	...	...	...	...	...	×	...	...	...	...	...	...	...	...	×	...	32
Phaeocystis globosa, Scherffel	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33
Trochiscia brachio ata, (Möb.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	34
— Clevei, Lemm.	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
— dictyon, (Jörg.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36
— Moebiusi, Jörg....	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	37
Trichodesmium sp.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	38
PROTOZOA.																		
Lithomelissa sp.	O.	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	39
Noctiluca miliaris, Suriray	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	40

TABLE II.—1905—*continued.*

	E. 17.				E. 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	..	...	...	...	...	...	...	...	+	...	...	...
4	+	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	+	+	+	+	+
5	+	+	...	+	+	+	...	...	+	+	...	+	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
8	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	+	+	...	...	+	+	...	...	+	+	+	+	+	...	+	+	...	...	...	...	...	+	...	...	...	...	...	...
10	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
13	+	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	+	...	+	...	...	...	+	...	...	...	+	...	...	+	+	...	...	+	+	...	...	...	+	...	+	...	+	+
15	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	×
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	+	+	...	+	+	+	+	+	...	+	+	+	+	+	...	+	+	+	...	+	...	...	...	+	...	...	...	+
19	+	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	+	+	+	...	+	...	+	...	+	+	+	+	+	+	+	+	...	...	...	...	+	...	+	...	+	...	...	...
21	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	+	+	+	...	...	+	+	+	+	+	...	+	+	+	...	+	+	+	...	...	+	+	+	+	+	+	...	...
24	+	...	...	...	...	...	+	+	...	+	...	+	+	+	...	...	+	...	+	+	+	...	...	+	...	+	...	...	...
25	+	+	...	...	...	...	...	...	+	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	+	...	+	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	×	...	...	...	×	...	...	×	×	×	×	...
28	...	+	+	...	...	...	...	...	...	...	...	+	...	+	...	+	...	...	...	...	...	...	...	+	...	...	...	...
29	+	...	...	+	+	+	+	+	+	...	...	+	+	+	...	+	...	...	...	+	...	...	...	+	...	...	...	...
30	+	+	...	...	...	...	...	...	+	+	...	...	...	...	...	...	...	...	...	...	+	...	...	+	...	...	...	+
31	+	...	...	...	...	...	...	...	+	...	...	...	+	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...
32	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	...	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	...	×	...	...	...	...	...	...	...	...	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	...	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
40	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	×	...	...	...	...	×	...	...	×	...	...	...	...

TABLE II.—1905—*continued.*

Station Number	Oceanic or Neritic.	E. 1.				E. 2.				E. 3.				E. 4.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
PROTOZOA—*continued.*																		
Rhaphidiophrys marina, Ostf.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Tintinnus acuminatus, Clap. & Lachm.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	2
Tintinnopsis beroidea, Stein	N.	×	×	...	×	×	×	×	×	×	×	×	×	×	×	...	×	3
— campanula, (Ehbg.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
COELENTERATA.																		
Cupulita Sarsi, Haeckel	O.	...	+	...	...	+	+	...	+	...	+	...	+	...	...	+	+	5
Muggiaea atlantica, Cunningham	O.	+	...	...	+	...	...	...	+	...	...	+	+	...	...	...	...	6
Beroe ovata, (Eschsch.)	O.	...	...	...	...	...	...	+	...	...	...	...	...	...	...	+	...	7
Pleurobrachia pileus, Flem.	O.	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	8
Arachnactis Bournei, Fowler	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
Amphinema dinema, (Per. & Les.)	N.	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	10
Corymorpha nutans, M. Sars.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
Ectopleura Dumortieri, Agass.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Euchilota pilosella, Forbes	N.	...	×	×	...	...	×	...	...	...	...	...	...	...	...	...	...	13
Eutima insignis, Haeckel	N.	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Euphysa aurata, Forbes	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
Dipurena halterata, (Forbes)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
Gossea corynetes, (Gosse)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
Hybocodon prolifer, Agass.	N.	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	18
Laodice calcarata, Agass.	N.	...	...	×	...	...	...	×	...	...	...	×	×	...	×	...	...	19
Lizzia blondina, Forbes	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
Margelis bella (+ sp.)	N.	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	21
Obelia nigra, E. T. Browne	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
— sp.	N.	...	×	×	×	...	×	...	×	...	×	...	...	...	...	...	...	23
Octorchis Gegenbaueri, Haeckel	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
Phialidium cymbaloideum, van Beneden	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
— temporarium, E. T. Browne	N.	...	×	×	×	...	×	×	×	...	...	...	...	...	...	...	...	26
Sarsia gemmifera, Forbes	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	27
— prolifera, Forbes	N.	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
— sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
Tiara pileata, Forsk.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
Turris sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
Willia stellata, Forbes	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32
VERMES.																		
Autolytus prolifer, O. F. Müll.	N.	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	33
Sagitta bipunctata, Quoy & Gaim.	O ?	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	34
Tomopteris helgolandica, Greeff	O.	...	...	+	...	+	+	+	+	+	+	+	+	+	...	+	+	35
CRUSTACEA.																		
Acartia bifilosa, (Giesbr.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36
— Clausi, Giesbr.	O.	+	+	+	+	+	+	+	+	...	+	+	+	+	+	...	+	37
— discaudata (Giesbr.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	38

TABLE II.—1905—*continued.*

	E. 5.				E. 6.				E. 7.				E. 8.				E. 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	×	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	×	×	×	×	×	×	×	...	×	×	...	×	×	×	...	...	×	×	...	×	×	×	×	...	×	×	...	...	...	×	...	×
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	×	...	...	...	...
5	+	...	...	+	...	...	+	+	...	...	...	...	...	...	...	+	...	+	...	+	...	...	...	+	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	+	+	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...
7	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	+	...	...	+	...	+	...	...	+	...	+	+	+	...	+	+	+	...	+	+	...	+	+	...	...
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...
10	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...
13	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	×	...	...	×	...	...
14	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...
15	...	×	...	×	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...
19	...	×	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	×	...	...	...	×	×	...	...	...	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	×	×	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	×	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...
26	...	...	...	...	...	...	×	×	...	×	×	×	...	...	...	×	...	×	...	×	...	...	...	×	...	...	...	...	...	...	×	...
27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...
29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...
34	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
35	...	...	+	+	+	...	+	+	+	...	+	+	+	...	+	+	...	...	...	...	...	...	+	+	...	...	...	...	...	...	...	...	...
36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	...	+	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
38	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE II.—1905—*continued.*

Station Number		Oceanic or Neritic.	E. 13.				E. 14.				E. 15.				E. 16.				
Month			II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
PROTOZOA—*continued.*																			
Rhaphidiophrys marina, Ostf.		N.	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	1
Tintinnus acuminatus, Clap. & Lachm.		O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Tintinnopsis beroidea, Stein		N.	×	×	×	×	×	×	×	×	...	×	...	...	×	×	×	×	3
— campanula, (Ehbg.)		N.	...	×	×	...	×	×	×	...	...	...	...	...	×	...	×	×	4
COELENTERATA.																			
Cupulita Sarsi, Haeckel		O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Muggiaea atlantica, Cunningham		O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	6
Beroe ovata, (Eschsch.)		O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
Pleurobrachia pileus, Flem.		O.	+	...	+	...	+	+	+	+	...	+	...	...	+	+	+	...	8
Arachnactis Bournei, Fowler		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
Amphinema dinema, (Per. & Les.)		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
Corymorpha nutans, M. Sars.		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
Ectopleura Dumortieri, Agass.		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Euchilota pilosella, Forbes		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
Eutima insignis, Haeckel		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Euphysa aurata, Forbes		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
Dipurena halterata, (Forbes)		N.	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	16
Gossea corynetes, (Gosse)		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
Hybocodon prolifer, Agass.		N.	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	18
Laodice calcarata, Agass.		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
Lizzia blondina, Forbes		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
Margelis bella (+ sp.)		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	21
Obelia nigra, E. T. Browne		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
— sp.		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	23
Octorchis Gegenbaueri, Haeckel		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
Phialidium cymbaloideum, van Beneden		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	25
— temporarium. E. T. Browne		N.	...	...	×	...	...	...	...	...	...	×	...	...	...	×	×	×	26
Sarsia gemmifera, Forbes		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	27
— prolifera, Forbes		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
— sp.		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	29
Tiara pileata, Forsk		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
Turris sp.		N.	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	31
Willia stellata, Forbes		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32
VERMES.																			
Autolytus prolifer, O. F. Müll.		N.	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	33
Sagitta bipunctata, Quoy & Gaim.		O.?	+	...	+	+	+	...	+	...	...	...	...	...	+	+	+	+	34
Tomopteris helgolandica, Greeff		O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
CRUSTACEA.																			
Acartia bifilosa, (Giesbr.)		N.	...	×	...	...	×	×	...	...	...	...	...	...	...	...	...	...	36
— Clausi Giesbr.		O.	+	+	+	+	...	+	+	+	...	+	...	...	+	+	+	+	37
— discaudata, (Giesbr.)		N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	38

TABLE II.—1905—*continued.*

	E. 17.				E. 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	×	...	...	...	×	...	...	...	...	...	...	×	×	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	×	×	×	×	×	...	×	×	...	...	×	×	...	×	×	...	×	...	...	×	×	×	×	×	×	×	...	×
4	...	...	...	×	×	×	×	×	...	...	...	...	...	...	×	...	×	×	...	...	...	...	...	×	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	+	+	+	+	...	...	+	+	+	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...
7	...	...	+	...	...	...	+	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...
8	...	+	+	+	...	...	+	...	+	+	+	+	...	...	+	...	...	...	+	...	...	...	+	...	+	+	+	...
9	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...
17	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...
18	...	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	×	×	...	...
19	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...
20	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	...	×	...	...	...	×	...	...	×	×	×	...	...	×	×	×	...	...	...	...	...	...	×	...	...	...	...	...
24	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...
25	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...
26	×	×	×	×	...	×	×	...	×	×	×	×	×	×	×	×	...	...	×	...	...	...	×	×	...	...	×	...
27	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...
32	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...
34	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	...	+	+	+	+	...	+	+
35	...	...	...	+	...	...	...	+	...	...	+	...	...	...	+	+	...	...	...	...	...	...	+	...	...	...	...	...
36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
38	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...

TABLE II.—1905—*continued.*

Station Number	Oceanic or Neritic.	E. 1.				E. 2.				E. 3.				E. 4.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
CRUSTACEA—*continued.*																		
Alteutha bopyroides, Claus	N.	...	...	...	...	...	...	×	×	...	...	...	...	...	...	...	...	1
Anomalocera Pattersoni, Templt.	O.	...	+	+	+	+	+	+	...	+	...	+	+	...	+	...	+	2
Bradyidius armatus, (Brady)	O.	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	3
Calanus finmarchicus, Gunn.	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	4
Candace pectinata, Brady	O.	...	...	+	+	+	+	+	+	...	...	+	+	...	...	+	+	5
Canuella perplexa, Scott	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
Centropages hamatus, (Lilljeb.)	N.	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	7
— typicus, Kröyer	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	8
Clausocalanus arcuicornis, (Dana)	O.	...	...	...	...	+	...	...	...	+	+	...	...	+	...	...	...	9
Clytemnestra rostrata, Brady	O.	...	...	...	...	...	+	...	...	+	+	...	...	...	...	...	...	10
Corycaeus anglicus, Lubb.	O.	+	...	+	+	...	+	+	+	+	+	+	+	...	...	...	...	11
Ctenocalanus vanus, Giesbr.	O.	...	...	...	...	+	...	...	...	+	+	...	...	+	...	...	+	12
Diaixis hibernica, Scott	O.	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	13
Euchaeta hebes, Giesbr.	O.	...	...	...	...	+	...	...	+	+	+	+	+	+	...	...	+	14
Euterpe acutifrons, (Dana)	N.	×	...	...	...	×	×	...	×	×	×	...	...	...	...	...	...	15
Isias clavipes, Boeck	N.	...	...	...	...	...	...	...	×	...	...	×	...	...	...	...	...	16
Labidocera Wollastoni, Lubb.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
Longipedia coronata, Claus	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
Metridia lucens, Boeck	O.	...	+	+	+	+	...	+	+	+	+	+	+	...	+	+	+	19
Microsetella atlantica, Brady & Rob.	O.	...	...	...	...	...	+	+	...	...	+	...	...	...	+	...	...	20
Monstrilla sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
Oithona nana, Giesbr.	N.	...	...	...	...	×	...	...	...	...	×	...	...	...	...	...	...	22
— plumifera, Baird	O.	...	...	...	...	...	...	...	...	...	+	...	+	+	...	...	+	23
— similis, Claus	O.	+	+	+	...	+	+	+	+	+	+	+	+	+	+	+	+	24
Oncaea ornata, Giesbr.	O.	...	...	...	...	+	+	...	...	+	...	...	...	+	...	...	+	25
— sp.	O.	...	...	...	...	+	...	...	...	+	+	...	...	...	...	...	...	26
Paracalanus parvus, Claus	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	27
Parapontella brevicornis, (Lubb.)	N.	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	28
Pseudocalanus elongatus, Boeck	O.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	29
Rhincalanus nasutus, Giesbr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	30
Stephos minor, Scott	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
Temora longicornis, O. F. Müll.	N.	...	...	×	×	...	×	×	×	...	×	×	×	...	...	...	...	32
Thalestris Crohni, Kröyer	O.	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	33
Undeuchaeta minor, Giesbr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	34
Evadne Nordmanni, Lovén	N.	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	35
Podon intermedius, Lilljeb.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36
Anchialus agilis, G. O. Sars	N.	...	...	...	×	...	...	×	×	...	...	...	...	...	...	×	...	37
Dasymysis longicornis, (M. Edw.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	38
Erythrops pygmaea, G. O. Sars	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	39
Gastrosaccus Normani, G. O. Sars	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	40
— sanctus, (van Beneden)	N.	...	...	...	×	...	...	...	×	...	...	...	...	×	...	...	...	41
— sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	42

TABLE II.—1905—*continued.*

	E. 5.				E. 6.				E. 7.				E. 8.				E. 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	×	...	×	...	...	...	...	...	...	...	×	...	×	...	...	...	...	×	...	×	...	...	...	×	×	×	...
2	...	+	...	+	...	+	...	+	...	+	+	+	+	+	...	...	+	+	+	...	...	+	...	...	...	...	...	...	...	+	...	...
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	...	+
5	...	...	...	...	...	...	+	+	...	...	+	+	...	...	+	+	+	+	...	+	...	+	+	...	...	...	...	...	...	+	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	...	×	×	...	...	...	×	...	×	×	×	×	×	×	×	×	×
8	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	...	+	+	+	+
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	...	...	...	+	...	...	+	+	...	...	+	+	...	...	...	+	+	...	+	+	+	...	+	+	+	+	...	+	+	+	...	+
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	×	...	...	×	...	...	...	×	×	...	×	×	×	...	×	×	×	×	×	×	×	×	×
16	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	×	...	×	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...
18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	+	+	+	+	+	+	+	+	+	+	+	+	...	...	...	+	...	+	...	+	...	+	...	...	...	+	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...
22	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	×	×	...	×	×	×	×	×	×	×	×	×
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	...	...	+	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	+	+
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	×	...	×	...	...	...	...	...	×	...	×	...	×
29	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	...	...	...	...	...	...	×	×	...	...	×	...	×	...	×	×	×	×	×	×	×	×	×	×	...	×	×	×	×	×	×	×
33	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...
34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...
37	...	...	...	×	...	...	...	...	×	...	...	×	×	...	...	...	×	×	...	×	×	...	...	×	...	...	...	×	...	...	...	...
38	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
41	...	...	...	...	...	...	...	...	...	...	...	×	×	...	...	...	×	×	×	...	...	...	...	...	...	...	...	...	...	...	...	...
42	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...

TABLE II.—1905—*continued.*

Station Number	Oceanic or Neritic.	E. 13.				E. 14.				E. 15.				E. 16.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
CRUSTACEA—*continued.*																		
Alteutha bopyroides, Claus	N.	×	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	1
Anomalocera Pattersoni, Templt.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	2
Bradyidius armatus, (Brady)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Calanus finmarchicus, Gunn.	O.	...	...	+	+	+	...	...	...	...	+	...	...	+	+	+	+	4
Candace pectinata, Brady	O.	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Canuella perplexa, Scott	N.	...	...	...	...	...	×	×	...	...	...	...	...	...	...	...	...	6
Centropages hamatus, (Lilljeb.)	N.	×	×	×	×	×	×	×	×	...	×	...	...	×	×	×	×	7
— typicus, Kröyer	O.	...	+	...	...	...	+	...	...	...	+	...	...	+	+	...	+	8
Clausocalanus arcuicornis, (Dana)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
Clytemnestra rostrata, Brady	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
Corycaeus anglicus, Lubb.	O.	+	...	...	...	...	...	...	...	...	...	...	...	+	+	...	+	11
Ctenocalanus vanus, Giesbr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Diaixis hibernica, Scott	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
Euchaeta hebes, Giesbr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Euterpe acutifrons, (Dana)	N.	×	×	×	×	×	×	×	×	...	×	...	...	×	×	×	×	15
Isias clavipes, Boeck	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	×	...	16
Labidocera Wollastoni, Lubb.	N.	...	...	×	...	...	...	×	...	...	...	...	...	...	×	×	×	17
Longipedia coronata, Claus	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	18
Metridia lucens, Boeck	O.	...	+	...	...	...	...	...	...	...	...	...	...	...	+	...	...	19
Microsetella atlantica, Brady & Rob.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
Monstrilla sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
Oithona nana, Giesbr.	N.	×	...	...	...	×	...	...	...	...	...	...	...	×	×	×	×	22
— plumifera, Baird	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
— similis, Claus	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	+	...	...	24
Oncaea ornata, Giesbr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
— sp.	O.	...	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	26
Paracalanus parvus, Claus	O.	+	+	...	+	+	...	...	+	...	+	...	...	+	+	...	+	27
Parapontella brevicornis, (Lubb.)	N.	...	×	×	...	...	...	...	×	...	...	...	...	...	...	×	×	28
Pseudocalanus elongatus, Boeck	O.	+	+	+	+	+	+	+	+	...	+	...	...	+	+	+	+	29
Rhincalanus nasutus, Giesbr.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
Stephos minor, Scott	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
Temora longicornis, O. F. Müll.	N.	×	×	×	×	×	×	×	×	...	×	...	...	×	×	×	×	32
Thalestris Crohni, Kröyer	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	33
Undeuchaeta minor, Giesbr.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	34
Evadne Nordmanni, Lovén	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
Podon intermedius, Lilljeb.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36
Anchialus agilis, G. O. Sars	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	37
Dasymysis longicornis, (M. Edw.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	38
Erythrops pygmaea, G. O. Sars	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	39
Gastrosaccus Normani, G. O. Sars	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	40
— sanctus, (van Beneden)	N.	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	41
— sp.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	42

TABLE II.—1905—*continued.*

	E. 17.				E. 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	×	...	×	×	...	×
2	+	+	...	...	...	...	...	...	...	+	...	...	+	...	+	...	...	...	...	...	...	+	...	...	...	...	+	...
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	+
5	...	...	+	+	...	...	...	+	+	...	+	+	...	...	+	+	...	...	...	...	...	...	+	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	...	...	×	...	...	...	×	...	...	...	...	...	...	×	...	...	×	×	×	×	×	×	×	×	×	×	×	×
8	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	...	...	...	+	+	...	...	...	+	...
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...
11	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	+	...	...	...	...	+	...	...	...	...	+
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	×	×	...	×	×	×	×	...	×	×	×	×	×	×	×	×	×	×	...	×	×	×	×	×	×	×	×	×
16	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...
17	...	×	...	×	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	×	...	...	×	...	...	...	...	...
18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	...	+	...	...	...	+	...	...	...	+	...	+	...	+	...	...	...	...	...	...	...	...	...	...	...	...	..	...
20	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	..	×	×	×	×	...	×	...	...	...	...	...	×	...	...	...	×	×	×	×	...	...	×	×	×	×	×	×
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	+	+	...	...	+	+	+	+	+	+	+	+	+	+	+	+	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
26	+	...	...	...	+	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
28	...	×	...	×	...	×	...	...	...	...	...	...	...	...	...	...	...	×	×	×	...	×	×	×	...	×	...	×
29	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...
32	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	...	...	...	×	...	...	...	...	×	...	...	...	×	...	...	×	×	...	...	×	...	×	×	...	×	...	...	×
38	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...
41	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	×	×	...	...	...	...	...	...	...	...	...	...	×
42	...	×	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...

TABLE II.—1905—*continued.*

Station Number	Oceanic or Neritic.	E. 1.				E. 2.				E. 3.				E. 4.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
CRUSTACEA—*continued.*																		
Leptomysis gracilis, G. O. Sars	N.	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	1
Nyctiphanes Couchi, Bell	N.	...	×	...	×	×	...	...	...	×	×	×	...	...	...	×	...	2
— sp. juv.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Schistomysis ornata, (G. O. Sars)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Siriella armata, (M. Edw.)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
— crassipes, G. O. Sars	N.	...	...	...	...	×	...	...	...	×	...	...	...	×	...	...	...	6
Eurydice inermis (+ sp.), Hensen	O.	...	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	7
Hyperiid (Euthemisto compressa + sp.)	O.	...	...	+	+	...	+	+	+	+	+	+	...	+	+	...	+	8
Urothoë elegans sp., Bate	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
MOLLUSCA.																		
Clione sp. (limacina, Phipps?)	O.	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	+	10
Limacina retroversa, Flem.	O.	...	...	+	+	...	...	+	+	...	...	+	+	...	+	+	+	11
TUNICATA.																		
Fritillaria borealis, Lohm.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Oikopleura dioica, Fol	O.	+	+	+	...	+	+	+	+	+	+	+	...	+	+	+	...	13
— sp.	O.	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	+	14
Salpa fusiformis, Cuv.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15

TABLE II.—1905—*continued.*

	E. 5.				E. 6.				E. 7.				E. 8.				E. 9.				E. 10.				E. 11.				E. 12.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	×	×	...	...	...	...	×	...	...	...	...	...	...	×	...	...	...	×	×	...	×	...	...	...	...	...	...	...	...	...
3	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	×	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	×	...	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...
7	...	+	...	+	...	+	...	...	...	+	...	+	...	+	...	...	...	+	...	+	...	+	...	...	...	...	...	...	...	...	...	...
8	...	...	+	+	...	...	...	...	+	...	+	...	...	...	...	+	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	...	...	+	+	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...	+	...	...	...	+	...	...	...	...	...	...	...	...
12	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	+	...	+	...	...	...	...	...	...	...	...	...	...
13	...	+	+	...	...	+	+	+	...	+	+	...	...	+	...	+	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	+
14	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE II.—1905—*continued.*

Station Number	Oceanic or Neritic.	E. 13.				E. 14.				E. 15.				E. 16.				
Month		II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	
CRUSTACEA—*continued.*																		
Leptomysis gracilis, G. O. Sars	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Nyctiphanes Couchi, Bell	N.	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	×	2
— sp. juv.	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	×	...	...	3
Schistomysis ornata, (G. O. Sars)	N.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Siriella armata, (M. Edw.)	N.	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	5
— crassipes, G. O. Sars	N.	...	×	×	...	...	...	...	...	...	...	...	...	...	...	×	×	6
Eurydice inermis (+ sp.) Hensen	O.	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	7
Hyperiid (Euthemisto compressa + sp.)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
Urothoë elegans sp., Bate	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
MOLLUSCA.																		
Clione sp. (limacina, Phipps?)	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
Limacina retroversa, Flem.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
TUNICATA.																		
Fritillaria borealis, Lohm.	O.	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	12
Oikopleura dioica, Fol.	O.	...	+	+	+	...	+	+	...	...	+	...	...	+	+	...	+	13
— sp.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Salpa fusiformis, Cuv.	O.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15

TABLE II.—1905—*continued.*

	E. 17.				E. 18.				E. 19.				E. 20.				E. 21.				E. 22.				E. 24.			
	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.	II.	V.	VIII.	XI.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	×	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	×
3	...	...	...	...	...	×	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	×	...	...	...	...	...	...	...	...	×	...	...	×	...	...	...	...	×	...	...	×
7	...	+	...	...	...	...	...	...	+	...	...	+	+	...	...	...	+	...	...	+	...	+	...	...	...	...	...	+
8	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	+
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
11	...	...	+	...	...	...	+	+	...	...	+	+	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...
12	+	...	...	...	...	+	+	...	...	+	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	+	+	+	+	+	+	+	+	+	+	+	...	+	+	+	+	...	+	+	+	+	+	+	+	+	+	+	+
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE III.—WEST CHANNEL, PLYMOUTH.—1904.

	Month ...	January.				February.					March.				April.				May.				
	Day ...	8	12	17	28	2	3	10	15	23	1	8	14	24	8	11	19	25	4	8	17	25	
DIATOMACEAE.																							
Actinoptychus undulatus		r	...	r	+	+	+	+	...	+	r	r	r	r	...	+	+	...	...	...	...	...	1
Asterionella glacialis		...	...	...	...	...	...	...	...	...	...	...	r	...	...	c	c	+	r	...	...	+	2
Bacillaria paradoxa		+	+	+	r	...	...	...	r	r	r	r	r	...	...	...	...	...	...	...	...	...	3
Bellerochia malleus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Biddulphia alternans		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
— granulata		r	r	r	+	...	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	6
— mobiliensis		c	c	c	c	+	c	+	c	cc	c	r	c	c	+	c	+	...	...	...	...	rr	7
Cerataulina Bergoni		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	8
Chaetoceras boreale		+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	9
— breve		...	...	...	...	...	...	...	...	...	...	...	...	...	?	+	...	...	...	...	...	...	10
— constrictum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
— contortum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
— convolutum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
— crinitum		...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	14
— criophilum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
— curvisetum		+	...	...	...	...	...	...	...	...	r	...	r	...	...	c	...	r	...	...	...	c	16
— danicum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
— debile		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
— decipiens		r	r	r	r	...	r	...	...	...	rr	...	rr	...	...	c	c	+	...	...	...	...	19
— densum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
— didymum		r	...	...	...	...	...	...	...	...	...	r	r	...	...	+	+	...	...	...	...	+	21
— laciniosum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	...	...	...	...	...	22
— lorenzianum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	+?	...	...	...	...	...	...	23
— Schütti...		...	...	...	...	...	...	...	...	...	...	rr	...	+	...	...	...	...	...	...	...	...	24
— Scolopendra		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
— seiracanthum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	...	...	...	...	26
— teres		...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	+	...	...	...	...	27
— Willei		+	...	r	r	...	...	...	...	...	...	...	...	...	...	...	r	+	r	...	...	...	28
Corethron hystrix		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
Coscinodiscus concinnus		...	...	...	...	...	r	...	r	+	r	r		r	r	...	r	r	...	...	...	...	30
— excentricus		r	...	r	r	+	c	r	...	c	c	c	+	c	c	c	...	+	...	...	...	...	31
— Grani		...	r	r	r	...	...	...	...	+	...	...	rr	r	...	+	...	...	...	...	...	...	32
— oculus iridis		+	+	+	r	r	r	(rr)	c	r	+	...	r	r	(r)	...	...	...	...	...	...	...	33
— radiatus		...	...	...	...	r	...	r?	r	+	...	...	...	r	...	r	...	+	r	...	...	...	34
Coscinosira polychorde		...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	35
Ditylum Brightwelli		+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36
Eucampia zodiacus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	37
Guinardia flaccida		...	...	...	...	...	...	...	...	+	...	rr	rr	...	...	+	r	+	+	+	...	r	38
Hyalodiscus stelliger		...	r	r	r	+	c	r	...	c	c	+	r	+	+	+	...	...	...	...	...	...	39
Isthmia sp.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	40
Lauderia borealis		...	...	r	...	rr	...	...	...	r	+	r	+	+	+	cc	cc	cc	r	...	...	r	41
Leptocylindrus danicus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	42

TABLE III.—WEST CHANNEL, PLYMOUTH.—1904.

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

TABLE III.—WEST CHANNEL, PLYMOUTH.—1904—*continued.*

	Month ...	January.				February.					March.				April.				May.				
	Day ...	8	12	17	28	2	3	10	15	23	1	8	14	24	8	11	19	25	4	8	17	25	
DIATOMACEAE—*continued.*																							
Lithodesmium undulatum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Melosira sp.		r	...	...	...	...	+	...	+	+	r	r	...	...	...	...	...	...	...	...	...	...	2
Navicula membranacea		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Nitzschia seriata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Paralia sulcata		r	r	r	...	r	r	r	...	r	r	r	r	r	r	...	...	...	...	...	...	rr	5
Pleurosigma sp.		...	...	...	...	...	...	...	...	...	...	rr	r	...	...	r	...	r	...	...	...	...	6
Rhizosolenia alata		r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	r	...	...	7
— robusta		r	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	. .	...	8
— semispina		...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	r	r	r	...	...	9
— setigera		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
— Shrubsolei		...	r	...	...	...	...	...	...	...	...	...	...	r	...	...	+	c	+	+	...	r	11
— Stolterfothi		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	r	...	...	12
Skeletonema ccstatum		...	...	...	...	...	...	...	...	...	...	+	+	...	cc	cc	+	...	...	...	...	...	13
Streptotheca tamesis		r	r	r	...	...	r	r	...	+	...	...	...	+	...	...	...	...	...	...	...	...	14
Thalassiosira condensata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
— gelatinosa		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
— gravida		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
— Nordenskiöldi		...	...	...	...	...	...	...	...	...	...	...	...	...	...	?	...	rr	...	...	...	...	18
Thalassiothrix Frauenfeldi		...	...	...	rr	r	...	...	...	+	+	r	+	+	r	+	...	rr	...	...	...	...	19
PERIDINIALES.																							
Ceratium furca		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
— fusus		r	...	...	...	...	...	...	...	...	r	...	...	...	...	...	r	...	r	+	+	...	21
— longipes		r	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	+	+	+	...	...	22
— horridum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
— macroceras		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
— tripos		+	+	+	r	...	rr	...	rr	...	r	...	rr	rr	...	r	r	rr	rr	+	+	...	25
Dinophysis acuminata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
— rotundata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	27
Diplopsalis lenticula		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
Glenodinium acuminatum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
Gonyaulax polygramma		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
Peridinium conicum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
— decipiens		...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	32
— depressum		r	...	r	...	...	...	...	...	...	...	...	...	...	...	...	r	c	c	c	c	r	33
— *divergens*		...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...	...	r	...	...	...	34
— globulus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
— oceanicum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36
— ovatum		...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	37
— pallidum		r	...	...	r	...	r	...	...	...	rr	...	+	...	r	...	+	...	...	...	...	...	38
— pentagonum		...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	39
— Steini		...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	40
Prorocentrum micans		...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	41

TABLE III.—WEST CHANNEL, PLYMOUTH.—1904—*continued.*

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

TABLE III.—WEST CHANNEL, PLYMOUTH.—1904—*continued.*

	Month ...	January.				February.					March.				April.				May.				
	Day ...	8	12	17	28	2	3	10	15	23	1	8	14	24	8	11	19	25	4	8	17	25	
PROTOPHYTA CETERA.																							
Dictyocha fibula		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Halosphaera viridis		+	+	+	r	r	r	r	r	...	...	r	r	+	+	+	+	r	?	...	...	...	2
Phaeocystis globosa		...	...	...	...	...	...	...	...	...	...	...	...	...	+	c	cc	cc	cc	cc	cc	cc	3
Trochiscia Möebiusi		+	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	4
INCERTAE SEDIS.																							
Barbierbeckenstatoblast		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Umrindete cyste		r	r	r	r	r	r	r	r	r	r	r	r	r	...	...	...	...	...	...	...	...	6
PROTOZOA.																							
Acanthometron sp.		r	...	r	r	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	7
Noctiluca miliaris		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
Cyttarocylis serrata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
Tintinnopsis beroidea		...	...	...	+	r	c	...	...	r	r	r	cc	...	...	r	...	...	r	...	...	...	10
— campanula		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
COELENTERATA.																							
Muggiaea atlantica		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Pleurobrachia pileus		...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
Arachnactis Bournei		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	14
Amphinema dinema		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
Corymorpha nutans		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
Euchilota pilosella		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
Gemmaria implexa		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
Hybocodon prolifer		...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	+	c	c	c	c	...	19
Lizzia blondina		...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	+	+	+	+	+	...	20
Liriope sp.		r	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
Mitrocomium sp.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
Obelia sp.		...	...	...	...	...	...	...	...	...	...	...	rr	...	r	...	c	c	...	+	cc	c	23
Phialidium cymbaloideum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	24
— temporarium		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	+	+	+	+	25
Saphenia mirabilis		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	26
Sarsia gemmifera		...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	+	+	...	...	...	...	27
— prolifera		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
ECHINODERMATA.																							
Auricularia		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
Echinopluteus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
Ophiopluteus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
Spatangopluteus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32
Echinus sp. juv.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33
VERMES.																							
Poecilochaetus larvae		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	+	r	34
Polychaete larvae		r	r	r	r	...	r	...	+	r	...	r	r	...	+	+	+	+	+	+	...	...	35

TABLE III.—WEST CHANNEL, PLYMOUTH.—1904—*continued.*

	June.					July.				August.				September.					October.				November.					December.			
	2	8	14	22	27	6	13	21	27	4	11	19	24	1	6	14	21	28	5	15	21	26	1	10	15	22	30	7	14	20	31
1	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	+	+	+	+	r	+	r	r	r	...	r	?	...	...	...	...	r	...	r
3	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	r	+	r	...	...	...	...	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	+	+	+	c	cc	c	+	...	...
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	c	c	c	+	cc	cc	c	...	rr	...	...
9	...	...	...	...	...	...	...	...	...	...	+	c	c	c	c	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...	+	...	+	r	...	+	...	r	r	r	...	...	...	...	...	...	...	r	...	r	r	r
11	...	...	...	...	...	...	rr	r	...	+	...	...	r	...	cc	r	r	...	r	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	+	c	cc	...	cc	cc	cc	c	c	+	c	+	c	c	+	c	c	c	r	...	+	+	...	...	...	...
13	r	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...	...	rr?	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	...	r	r	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	c	c	...	...	+	cc	c	c	...	c	c	cc	cc	c	cc	...	c	c	...	...	...	r	r	r	+	+	...	...	...	...	...
24	...	...	...	+	+	...	...	c	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...
25	+	...	...	+	+	+	+	...	...	c	+	+	r	+	+	r	r	r	+	...	...	...	...	...	r	rr	r	...	...	...	...
26	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	r	...	...	+	...	...	..	...	...	...	...	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	...	...	...	...	r	...	...	...	...	+	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...	...	r	...	r	r	...	+	c	+	+	...	c	...	...	...	...	+	+	+	+	...	...	...	...	...	...	...	...
32	...	r	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r?	...	...
35	+	+	...	...	...	...	...	...	...	...	...	+	+	+	...	...	...	r	r	r	r	+	+	r	r	r	r	r	r	r	r

TABLE III.—WEST CHANNEL, PLYMOUTH.—1904—*continued.*

	Month ...	January.				February.					March.				April.				May.				
	Day ...	8	12	17	28	2	3	10	15	23	1	8	14	24	8	11	19	25	4	8	17	25	
VERMES—*continued.*																							
Sagitta bipunctata		+	+	+	+	r	c	r	r	r	c	r	r	r	r	+	+	+	+	+	+	r	1
Tomopteris helgolandica		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Trochophora		...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
BRYOZOA.																							
Cyphonautes		+	+	+	+	...	...	...	+	r	+	r	+	...	+	+	...	...	...	...	...	...	4
COPEPODA.																							
Acartia Clausi		r	r	...	+	...	+	+	+	...	+	...	r	+	+	c	c	c	c	c	+	c	5
Alteutha bopyroides		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
Anomalocera Pattersoni		...	...	...	...	...	...	...	?	...	r	...	...	...	...	...	...	...	...	...	...	...	7
Calanus finmarchicus		...	r	...	r	...	r	...	r	...	r	...	...	...	...	+	c	c	c	c	c	+	8
Candace pectinata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
Centropages hamatus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
— typicus		r	r	r	r	...	r	...	...	...	r	r	...	+	r	c	+	r	r	...	+	+	11
Corycaeus anglicus		+	+	+	+	r	+	...	r	+	+	...	r	...	r	+	+	r	r	...	+	...	12
Euterpe acutifrons		...	+	c	r	...	...	...	c	r	...	...	...	...	...	r	...	rr	...	...	c	...	13
Isias clavipes		...	...	...	...	...	...	...	...	...	rr	...	...	...	...	c	+	c	...	...	+	+	14
Labidocera Wollastoni		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	...	...	+	...	15
Metridia lucens		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	16
Oithona nana		+	+	+	r	...	...	...	r	r	r	...	r	r	...	...	...	r?	...	+	+	...	17
— similis		...	...	r	r	...	r	...	+	...	...	...	r	r	r	c	c	r	...	+	+	...	18
Oncaea ornata		r	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	19
— sp.		r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	20
Paracalanus parvus		+	+	+	+	r	+	r	...	...	r	+	r	r	+	c	c	cc	c	c	+	+	21
Parapontella brevicornis		...	...	...	...	...	...	...	r	...	...	...	rr	...	...	c	c	c	c	c	+	...	22
Pseudocalanus elongatus		c	c	c	c	+	c	c	c	c	c	+	r	r	+	c	c	cc	cc	c	c	+	23
Temora longicornis		...	+	...	...	...	r	...	+	...	...	...	r	r	...	+	c	c	c	c	c	c	24
CRUSTACEA CETERA.																							
Evadne Nordmanni		...	...	...	...	...	...	...	...	...	...	...	r	r	...	...	+	c	c	c	c	c	25
Podon intermedius		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	c	c	c	+	26
— Leuckarti		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	27
Euthemisto compressa		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
Cirripedia-larvae		r	r	...	rr	...	...	...	+	+	+	+	+	r	cc	cc	c	c	c	...	...	rr	29
Cypris stage larvae		...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	+	...	r	...	...	...	30
Crangonid larvae		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
Megalopa		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	32
Microniscus		r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33
Nauplius		+	...	+	r	rr	r	...	r	r	r	r	r	r	r	c	c	cc	c	...	...	+	34
Zoea		r	r	...	r	+	+	...	+	+	+	+	+	+	+	+	+	+	+	...	+	+	35
ROTIFERA.																							
Anurea aculeata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	36

TABLE III.—WEST CHANNEL, PLYMOUTH.—1904—*continued.*

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

TABLE III.—WEST CHANNEL, PLYMOUTH.—1904—*continued.*

	Month ...	January.				February.					March.				April.				May				
	Day ...	8	12	17	28	2	3	10	15	23	1	8	14	24	8	11	19	25	4	8	17	25	
MOLLUSCA.																							
Gasteropod larvae		r	...	+	r	...	r	...	cc	c	+	...	r	r	r	+	r	...	...	...	...	...	1
Lamellibranchiate larvae		...	...	...	r	...	r	...	...	...	rr	...	...	...	r	+	r	...	...	...	+	...	2
TUNICATA.																							
Ascidian larvae		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	3
Fritillaria borealis		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Oikopleura dioica		...	...	r	...	...	...	...	...	...	...	...	r	...	...	r	+	+	+	c	+	+	5
VERTEBRATA.																							
Fish eggs and larvae		r	+	c	+	r	...	+	+	r	r	+	+	r	r	r	...	r	r	...	r	r	6

TABLE IV.—PLYMOUTH.—1905.

	Month ...	January.					February.			March.					April.				May.				
	Day ...	3	13	18	26	30	7	16	24	1	10	17	23	29	5	12	20	27	3	12	17	26	
DIATOMACEAE.																							
Actinoptychus undulatus		+	+	c	+	r	r	rr	...	r	+	+	...	+	r	...	...	...	r	...	...	rr	1
Asterionella glacialis		...	...	...	rr	...	...	rr	...	...	...	rr	rr	+	...	...	cc	...	cc	cc	cc	...	2
Bacillaria paradoxa...		+	c	c	c	c	r	+	r	r	c	+	+	+	...	r	...	...	...	...	rr	...	3
Biddulphia alternans		...	r	+	...	...	rr	r	rr	...	...	rr	rr	r	...	...	...	...	...	...	...	...	4
— mobiliensis		c	c	c	c	c	c	c	+	+	c	c	+	c	+	+	+	...	r	...	...	rr	5
Cerataulina Bergoni		...	...	...	...	...	...	r	...	...	...	...	...	...	r	...	r	c	r	...	...	...	6
Chaetoceras constrictum		...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
— convolutum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
— crinitum...		...	rr	...	...	...	?	...	...	?	...	...	...	...	r	r	r	r	...	...	...	...	9
— curvisetum		...	...	...	+	r	r	+	...	...	...	r	...	r	r	...	r	r	...	...	...	...	10
— danicum...		+	r	r	c	+	...	r	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	11
— debile		...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	12
— decipiens		c	c	c	c	c	c	c	+	+	+	+	...	r	r	r	r	r	r	...	...	...	13
— solitaria		...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	14
— densum		r	...	...	...	r	+	c	r	c	+	r	r	rr	...	rr	...	...	...	...	rr	+	15
— diadema		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
— didymum		r	+	+	c	+	+	+	+	...	+	+	+	r	r	rr	r	r	...	...	...	...	17
— laciniosum		...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	18
— Schütti		r	rr	+	+	r	...	rr	r	r	...	+	+	r	r	...	...	+	r	...	...	...	19
— scolopendra		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	20
— simile		...	...	...	...	...	...	...	...	...	r	r	r	+	...	...	...	...	...	...	...	...	21
— sociale		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
— teres		...	...	...	...	...	rr	rr	...	rr	r	r	...	r	r	+	r	...	r	r	...	...	23
— Willei		...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	24

TABLE III.—WEST CHANNEL, PLYMOUTH.—1904—*continued.*

	June.					July.				August.				September.					October.				November.					December.			
	2	8	14	22	27	6	13	21	27	4	11	19	24	1	6	14	21	28	5	15	21	26	1	10	15	22	30	7	14	20	31
1	...	r	r	...	...	r	...	...	...	...	r	+	r	r	r	...	+	r	...	...	...	+	+	...	+	r	r	r	r	r	r
2	...	r	r	...	...	...	...	+	...	...	+	+	r	r	r	...	+	r	...	...	...	+	+	r	+	r	r	r	+	+	+
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
5	...	...	...	...	...	...	...	...	...	r	+	c	c	c	c	c	r	r	...	...	...	r	+	?	+	+	r	r	r	rr	rr
6	r	r	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...

TABLE IV.—PLYMOUTH.—1905.

	June.					July.				August.				September.					October.				November.				December.				
	5	9	16	20	29	6	13	20	24	1	10	15	29	1	7	12	22	23	8	12	21	25	2	8	16	24	6	11	15	22	29
1	rr	...	...	r	...	...	r	...	...	...	...	...	...	...	rr	...	...	...	r	...	...	...	...	...	...	...	r	+	r	+	+
2	+	c	...	r	c	...	...	...	+	c	+	+	+	+	...	...	r	rr	+	r	rr	+	+	r	r	...	...	...	...	r	...
3	+	+	r	...	+	+	r	+	r	+	r	r	...	...	rr	...	...	...	r	r	r	r	r	r	+	c	c	r	+	+	c
4	rr	rr	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	r	rr	r	r	r	rr	...	...	rr	rr	rr
5	...	rr	rr	...	...	...	rr	...	...	...	r	...	...	...	...	...	...	...	r	r	+	+	c	c	c	c	c	c	c	c	c
6	...	...	...	...	...	+	r	...	...	...	...	...	...	rr	...	...	r	...	r	+	+	c	+	+	r	...	...	...	...	...	...
7	...	...	...	...	...	...	...	rr	c	+	r	...	r	r	...	...	c	c	...	...	...	...	...	...	...	...	...	...	...	...	...
8	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...
10	rr	...	rr	r	r	...	...	...	r	r	+	rr	c	+	...	...	...	...	r	+	r	rr	rr	r	r	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	+	...	rr	...	r	r	...	...	r	r	...	r	r	r	r	+	...	...	r	r	r	+	+
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	c	...	...	...	...	...	...	...	...	...	...	...	...	...
13	...	rr	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	+	+	r	r	+	c	+	c	+	...	...	...	+	r	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	c	c	r	r	...	r	...	rr	...	...	...	...	...	...	r	...	c	c	r	c	c	+	r	...	...	...	...	...	...	...	...
16	rr	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...
17	+	...	...	...	...	r	...	...	r	...	...	...	...	...	...	...	+	+	...	+	+	+	+	c	...	...	r	...	r	r	r
18	rr	...	...	...	...	r	...	...	+	...	r	...	r	...	...	...	...	...	r	r	r	r	...	+	...	...	...	...	...	...	...
19	...	...	...	...	...	...	...	...	...	r	...	rr	r	r	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	rr	...
20	...	rr	...	...	r	...	rr	rr	r	...	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	rr	r	...	...	...	r	r	...	...	r	...	...	+	...	rr	...	rr	...	...	...	...	...	...	...

TABLE IV.—PLYMOUTH.—1905—*continued.*

	Month ...	January.					February.			March.					April.				May.				
	Day ...	3	13	18	26	30	7	16	24	1	10	17	23	29	5	12	20	27	3	12	19	26	
DIATOMACEAE—*cont.*																							
Corethron hystrix		...	...	...	...	...	...	...	...	r	...	...	r	r	...	...	...	...	...	...	...	...	1
Coscinodiscus concinnus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
— excentricus		c	c	c	c	c	+	c	+	c	c	c	c	+	c	+	+	+	...	...	...	r	3
— Grani		c	c	r	c	c	cc	cc	+	+	r	r	...	...	+	rr	...	...	...	...	...	...	4
— oculus iridis		r	...	...	...	...	rr	...	...	...	...	rr	...	...	r	...	...	...	...	...	...	...	5
— radiatus		rr	rr	rr	+	+	+	r	r	r	+	...	+	r	+	+	+	+	...	...	...	r	6
Ditylum Brightwelli		...	rr	r	r	...	r	+	...	...	...	...	rr	...	...	...	rr	rr	...	...	...	...	7
Eucampia zodiacus		+	...	...	rr	...	...	r	...	r	...	...	...	...	...	...	...	...	r	...	...	...	8
Fragillaria sp.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	9
Guinardia flaccida		+	c	c	c	c	c	c	rr	r	rr	rr	rr	r	...	r	...	...	...	...	...	...	10
Hyalodiscus stelliger		c	c	c	c	c	...	r	...	+	+	+	+	+	...	...	...	...	r	...	r	r	11
Isthmia sp.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Lauderia borealis		rr	rr	rr	+	r	rr	+	...	...	r	r	...	...	+	+	cc	c	r	...	...	...	13
Lithodesmium undulatum...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Melosira sp.		...	r	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	15
Paralia sulcata		r	r	+	+	r	r	+	rr	r	+	+	r	r	...	...	...	...	r	rr	...	r	16
Navicula membranacea		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
Nitzschia closterium		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
Pleurosigma sp		+	+	+	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	19
Rhizosolenia alata		...	r	rr	+	r	+	r	+	r	...	...	r	...	...	...	...	...	...	...	...	...	20
— delicatula		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
— robusta		...	r	...	...	r	r	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	22
— semispina		...	rr	...	...	+	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
— setigera		...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	r	...	...	...	...	...	24
— Shrubsolei		+	+	r	r	...	...	...	...	r	...	...	...	r	...	...	r	...	...	rr	...	rr	25
— Stolterfothi		r	r	...	rr	...	rr	+	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	26
— styliformis		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	27
Sceletonema costatum		...	...	...	...	...	...	c	...	...	...	cc	r	+	r	r	+	...	...	...	...	...	28
Streptotheca tamesis		+	...	r	r	r	...	...	...	r	...	r	+	+	+	r	r	...	r	...	...	...	29
Thalassiosira condensata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	30
— decipiens		...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
— gravida		...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	32
— Nordenskiöldi		...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	r	...	...	...	...	...	33
Thalassiothrix nitzschoides		...	...	...	r	...	...	r	...	...	r	...	r	+	+	r	...	r	...	rr	...	...	34
PERIDINIALES.																							
Ceratium arcticum		...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
— furca		...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36
— fusus		r	r	rr	r	r	r	...	r	r	r	rr	...	...	...	r	...	...	...	...	rr	...	37
— longpipes		c	cc	c	cc	c	c	c	c	c	+	+	r	rr	...	...	...	r	...	...	...	...	38
— horridum		r	r	...	...	r	r	...	...	...	+	r	...	...	...	...	...	...	...	...	rr	...	39
— tripos		+	+	r	+	+	+	+	+	+	...	rr	...	...	...	...	...	...	...	...	...	...	40
Dinophysis acuta		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	41

TABLE IV.—PLYMOUTH.—1905—*continued.*

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

TABLE IV.—PLYMOUTH.—1905—*continued.*

	Month ...	January.					February.			March.					April.				May.				
	Day ...	3	13	18	26	30	7	16	24	1	10	17	23	29	5	12	20	27	3	12	17	26	
PERIDINIALES—*cont.*																							
Diuophysis norvegica		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
— rotundata		...	...	...	...	...	...	...	...	...	...	...	rr	r	...	...	...	...	...	...	...	...	2
Diplopsalis lenticula		...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	rr	3
Glenodinium acuminatum...		...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	4
Gonyaulax polygramma		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Peridinium conicum		rr	...	...	...	...	rr	...	...	rr	r	rr	r	r	...	...	r	+	+	...	...	+	6
— decipiens		...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	+	...	...	...	7
— depressum		...	+	...	...	...	...	...	...	...	...	...	...	r	...	...	r	...	...	r	+	r	8
— divergens		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
— globulus		r	rr	rr	+	rr	...	...	?	...	...	...	...	...	...	...	...	...	...	...	...	r	10
— oceanicum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
— ovatum		rr	...	rr	+	r	r	r	r	r	r	r	r	r	...	...	...	...	...	r	r	r	12
— pallidum		...	...	...	...	...	rr	r	...	...	+	...	...	+	r	...	...	...	+	+	r	r	13
— pentagonum		...	...	...	...	+	rr	r	...	...	...	...	...	...	...	...	...	...	...	...	?	...	14
— Steini		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	15
Prorocentrum micans		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
PROTOCOCCIDEAE.																							
Halosphaera viridis...		...	+	r	r	r	...	...	+	r	...	r	+	r	+	...	...	...	...	...	...	rr	17
Trochiscia Clevei		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
FLAGELLATAE.																							
Phaeocystis globosa...		...	...	...	...	...	...	...	...	...	r	...	...	...	...	r	c	cc	c	r	...	...	19
SILICOFLAGELLATAE.																							
Dictyocha fibula		...	...	rr	r	...	...	r	...	...	...	...	...	rr	...	...	...	...	...	...	...	rr	20
Distephanus speculum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
COCCOSPHAERALES.																							
Coccosphaera atlantica		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
PROTOZOA.																							
Acanthometron sp.		...	...	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
Amphorella subulata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
Cyttarocylis serrata...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
Noctiluca miliaris		...	rr	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
Ptychocylis urnula		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	27
Tintinnopsis beroidea		r	+	cc	+	+	...	r	...	+	r	+	+	+	...	c	+	+	+	r	r	+	28
— campanula		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
— ventricosa		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
Rhaphidiophrys marina		...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	31
COELENTERATA.																							
Muggiaea atlantica...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32
Beroe ovata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33
Pleurobrachia pileus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	34

TABLE IV.—PLYMOUTH.—1905—*continued.*

	June.					July.				August.				September.					October.				November.				December.				
	5	9	16	20	29	6	13	20	24	1	10	15	29	1	7	12	22	23	8	12	21	25	2	8	16	24	6	11	15	22	29
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	rr	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...
3	...	...	...	...	...	rr	r	+	r	+	r	r	r	r	r	...	...	...	r	r	rr	r	...	...	...	...	...	...	r	rr	...
4	...	...	rr	...	...	...	rr	rr	+	+	+	r	r	+	r	...	rr	...	r	rr	...	rr	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	r	...	...	r	...	r	+	r	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	rr	...	rr	...	...	rr	...	...	r	...	r	r	r	r	r	...	...	...	r	r	r	+	+	r	r	rr	rr	...	rr	r	...
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	r	r	...	r	r	r	r	...	...	...	...	rr	r	...	...	...	...	rr	...	...	...	rr	...	rr	...	rr
9	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	...	...	...	...	rr	r	...	...	r	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...
12	...	r	...	...	r	r	+	r	+	r	r	r	...	...	...	...	...	...	r	r	...	...	...	...	...	...	r	rr	+	rr	...
13	r	...	...	...	r	+	+	r	r	r	...	...	...	rr	...	...	...	...	...	...	...	rr	r	r	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	rr	...	...	rr	...	rr	...	r	r	r	+	...	rr	...	...	...	...	...	rr	...	...	rr	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	rr	r	+	r	+	+	+	+	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	rr	...	rr	rr	rr	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	rr	...	..	...	...	...	...	...	...
19	...	...	...	...	...	...	...	...	...	...	...	...	+	r	...	...	rr	rr	...	...	r	...	...	...	...	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...	...	r	r	r	...	...	...	...	r	...	r	...	...	r	...	...	...	...	rr	...	...	...	rr
21	...	...	...	...	...	...	...	...	r	...	r	...	rr	rr	rr	...	rr	r	r	rr	...	...	rr	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...
27	...	...	...	...	...	...	...	rr	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	+	+	r	+	+	r	+	+	c	+	+	+	+	c	c	...	c	+	c	+	+	+	+	+	+	...	r	+	r	r	...
29	...	rr	...	...	...	...	...	...	...	...	+	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	...	...	...	...	...	...	...	...	...	...	c	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...
31	rr	...	r	r	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	...	...	...	...	...	...	...	...	...	...	...	c	r	rr	rr	r	r	r	r	+	c	+	r	r	r	rr	r	+	c	+	rr
33	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	r	...	...	...	r	...	...	...	...	...	...	...	...	...
34	...	...	...	...	...	+	r	c	r	...	r	...	r	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE IV.—PLYMOUTH.—1905—*continued.*

	Month ...	January.					February.			March.					April.				May.				
	Day ...	3	13	18	26	30	7	16	24	1	10	17	23	29	5	12	20	27	3	12	17	26	
COELENTERATA—*cont.*																							
Amphinema dinema		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	1
Corymorpha nutans...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Euchilota pilosella		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	...	...	rr	...	3
Eutima insignis		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Hybocodon prolifer...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	+	r	...	5
Laodice calcarata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
Margelis sp.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
Obelia nigia		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	c	+	cc	8
— sp.		...	...	...	...	...	rr	...	...	...	...	rr	r		...	...	...	r	r	r	+	+	9
Phialidium cymbalodeum...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	+	...	r	+	10
— temporarium		...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	r	...	r	11
Sarsia gemmifera		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
— prolifera		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
— sp.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Tiara pileata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
Willia stellata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
Ephyra		...	...	...	...	...	...	...	...	...	+	+	+	r	...	...	...	...	...	...	...	...	17
ECHINODERMATA.																							
Ophiopluteus		...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	18
VERMES.																							
Poecilochaetus larvae		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	c	+	r		19
Polychaeta larvae		r	r	r	+	+	r	...	...	r	r	+	+	r	...	r	+	+	c	+	+	...	20
Sagitta bipunctata		+	+	c	cc	+	r	+	+	+	...	...	...	...	...	...	r	r	+	+	+	...	21
Tomopteris helgolandica		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
BRYOZOA.																							
Cyphonautes		+	...	...	r	r	r	...	r	r	r	+	+	r	r	r	c	+	c	+	+	r	23
COPEPODA.																							
Acartia Clausi		+	+	c	c	c	...	...	...	r	+	c	c	c	c	c	c	c	c	cc	c	cc	24
— discaudata		...	...	...	...	..	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	25
Anomalocera Pattersoni		...	...	...	...	...	...	...	...	...	...	...	rr	...	...	rr	...	...	...	...	...	...	26
Calanus finmarchicus		r	rr	r	+	r	...	+	+	r	rr	rr	r	...	r	r	+	c	c	c	c	c	27
Candacia pectinata		...	rr	.	...	...	...	...	...	...	...	...	r	...	r	...	...	...	...	...	...	...	28
Centropages hamatus		...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	r	r	+	29
— typicus...		...	...	...	...	r	r	...	r	...	r	...	r	...	...	...	...	r	...	c	+	cc	30
Corycaeus anglicus		+	+	c	+	c	c	c	c	+	c	rr	+	r	...	...	...	...	rr	...	...	...	31
Euterpe acutifrons		r	+	+	r	+	+	+	+	+	r	r	r	r	r	r	...	...	...	...	...	...	32
Isias clavipes		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33
Labidocera Wollastoni		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	34
Longipedia coronata		...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	35
Metridia lucens		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	r	cc	r	36
Monstrilla sp.		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	37

TABLE IV.—PLYMOUTH.—1905—*continued.*

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

TABLE IV.—PLYMOUTH.—1905—*continued*.

	Month ...	January.					February.			March.					April.				May.				
	Day ...	3	13	18	26	30	7	16	24	1	10	17	23	29	5	12	20	27	3	12	17	26	
COPEPODA—*cont.*																							
Oithona nana		...	+	...	+	r	r	+	+	r	+	r	r	...	...	r	...	...	...	rr	...	r	1
— similis		+	+	r	...	c	c	c	c	c	+	...	r	+	r	r	r	c	+	rr	...	...	2
Oncaea ornata		...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
-- sp.		...	rr	...	...	rr	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Paracalanus parvus...		+	c	c	r	...	...	...	...	...	rr	+	c	+	+	+	+	c	c	+	+	+	5
Parapontella brevicornis		rr	r	...	...	...	...	...	...	...	+	+	r	r	r	r	r	+	...	c	c	+	6
Pseudocalanus elongatus		+	+	c	c	c	c	c	cc	cc	cc	c	c	cc	cc	cc	cc	cc	cc	cc	cc	cc	7
Temora longicornis		...	...	...	+	+	+	+	c	c	c	...	c	r	+	r	+	c	c	c	c	c	8
CRUSTACEA CETERA.																							
Evadne Nordmanni...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	r	+	...	...	r	9
Podon intermedius		...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	r	...	...	rr	...	r	10
Macropsis slabberi		...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
Caridid larvae		...	...	...	...	...	...	...	...	...	...	r	r	...	...	r	r	r	...	...	...	r	12
Cirripedia larvae		r	...	...	...	r	+	c	c	+	+	+	c	c	r	cc	cc	cc	c	r	r	r	13
Cypris stage larvae		...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	c	cc	cc	+	r	r	14
Megalopa		...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	15
Micropiscus		...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	16
Nauplius and Metanauplius		+	+	+	+	+	+	+	+	+	+	+	+	+	+	c	c	c	c	+	+	+	17
Zoea		+	c	cc	c	+	+	+	+	+	+	r	+	+	r	r	r	+	+	c	+	+	18
Phyllosoma		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
MOLLUSCA.																							
Gastropod larvae		r	+	+	r	r	+	+	+	r	+	r	r	...	r	r	r	r	+	r	c	+	20
Lamellibranchiate larvae		+	+	+	c	c	r	r	r	r	+	r	r	...	r	r	r	r	+	r	c	+	21
Limacina retroversa		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
TUNICATA.																							
Fritillaria borealis		...	...	...	...	r	...	r	...	...	...	...	rr	...	r	...	...	...	...	...	...	...	23
Oikopleura dioica		+	+	+	+	+	r	+	r	+	r	rr	r	+	+	r	+	+	c	...	...	rr	24
VERTEBRATA.																							
Fish eggs and larvae		...	r	r	+	+	c	+	+	+	+	+	+	c	r	...	r	r	+	+	+	+	25
INCERTAE SEDIS.																							
Umrindete cyste		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
Barbierbeckenstatoblast		...	...	...	...	...	...	...	rr	...	...	...	r	...	...	r	...	...	...	...	...	...	27

TABLE IV.—PLYMOUTH.—1905—*continued.*

	June.					July.				August.				September.					October.				November.				December.				
	5	9	16	20	29	6	13	20	24	1	10	15	29	1	7	12	22	23	8	12	21	25	2	8	16	24	6	11	15	22	29
1	r	...	...	...	...	...	...	...	...	...	rr	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	+	+	+	...	r	r	r	r	r	r	r	r	r	+	+	+	+	+	+	...	...	r	r	r	+	...	r	...	r	r	...
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	+	+	+	...	...	+	+	r	r	...	r	r	c	c	c	c	c	c	c	c	c	c	+	+	r	+	+	+	+	+	r
6	+	r	+	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...
7	cc	cc	cc	...	...	+	+	r	r	...	+	c	c	cc	cc	cc	c	c	cc	cc	cc	cc	c	c	c	+	c	cc	c	c	c
8	c	c	c	+	+	+	+	r	r	...	+	+	+	c	c	c	...	...	c	+	+	+	r	r	r	...	...	r	r	r	r
9	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...
10	...	rr	...	...	...	...	r	...	...	...	r	r	+	+	+	c	...	rr	+	r	r	+	r	rr	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
12	r	r	r	r	r	r	r	r	...	rr	rr	+	r	r	r	...	+	+	+	r	r	+	r	r	...	rr	...	...	r	...	...
13	rr	+	r	...	r	r	r	...	...	...	rr	r	r	r	r	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	r	+	+	r	r	...	...	...	rr	rr	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	+	c	c	c	+	+	+	+	+	r	+	c	c	c	c	c	c	c	+	+	+	+	+	+	c	+	r	+	r	r	r
18	+	c	c	cc	+	+	+	r	rr	r	r	+	c	+	+	+	r	+	r	c	c	c	+	+	+	...	...	...	...	...	r
19	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	...	...	r	r	r	...	r	r	r	r	r	r	r	r	r	r	r	r	...	...	...	...	...	...	...	...	rr	rr	rr	r	rr
21	...	...	r	...	+	+	+	r	r	+	r	r	r	r	r	r	r	r	r	r	r	r	r	...	r	r	r	r	c	r	...
22	...	...	...	...	...	...	...	...	...	...	...	...	r?	...	r juv.	r	+	cc	+	+	cc	c	+	r	r	r	r	+	c	rr	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr	rr	rr	rr	...	...	...	...	...	...	...	...
24	...	...	...	...	rr	...	...	...	rr	rr	rr	+	+	+	+	+	+	+	...	rr	rr	r	r	r	r	+	+	+	+	...	+
25	...	...	+	+	...	...	...	rr	rr	rr	rr	rr	r	r	r	r	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	c
26	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...

TABLE V.—1904.

Species Number.	Month ..	March.			April.				May.						June.				July.
	Day ..	5	10	14	17	22	24	29	5	8	13	20	22	30	3	4	11	21	3
	Samples taken by a Plymouth Mackerel Boat.	23 miles S. of Mewstone.	11 miles S. by W. of Eddystone.	10 miles S.S.W. of Eddystone.	10 miles S.E. by E. of Lizard.	10 miles S. by E. of Lizard.	6 miles S. of Gribben.	20 miles S.S.W. of Eddystone.	20 miles S.W. of Eddystone.	10 miles S.W. of Eddystone.	26 miles S.E. of Plymouth Harbour.	22 miles S. of Plymouth Harbour.	18 miles S.W. of Eddystone.	20 miles S.S.W. of Plymouth Harbour.	14 miles S. of Eddystone.	12 miles S.S.W. of Eddystone.	26 (~30) miles S.S.W. of Plymouth Harbour.	42 miles S. of Plymouth Harbour.	20 miles S.S.W. of Plymouth Harbour.
	DIATOMACEAE.																		
1	Actinoptychus undulatus ...	r	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...
2	Asterionella glacialis	...	...	rr	...	...	...	...	...	...	...	...	...	...	r	...	r	...	...
3	Bacillaria paradoxa	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
4	Biddulphia alternans	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	— mobiliensis ...	+	r	r	...	...	...	...	r	...	...	...	...	...	r	...	+	...	...
6	Chaetoceras constrictum ...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	r	...	...
7	— criophilum ...	...	...	r	...	...	...	...	r	...	...	...	...	...	...	...	...	rr	...
8	— curvisetum ...	r	...	+	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...
9	— danicum	r	c	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	— debile	...	...	r	...	...	r	...	...	...	...	...	...	...	...	...	...	...	r
11	— decipiens	+	c	c	...	r	...	r	r	...	r	...	...	...	...	...	r	...	r
12	— densum	...	...	...	...	...	...	...	rr	rr	...	r	...	...	r	r	...	+	c
13	— didymum	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
14	— peruvianum ...	rr	+	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	— Schütti	r	c	c	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...
16	— teres	r	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	— Willei	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
18	Corethron hystrix	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	Coscinodiscus concinnus ...	...	r	rr	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...
20	— excentricus ...	c	c	+	...	...	rr	...	+	...	...	+	...	...	...	...	r	...	...
21	— Grani	...	r	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...
22	— oculus iridis ...	c	r	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...
23	— radiatus	+	+	rr	r	...	...	...	c	...	r	+	...	...	...	...	...	...	...
24	Coscinosira polychorda... ...	...	+	c	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	Ditylum Brightwelli	c	cc	c	...	...	...	...	r	...	...	...	...	...	...	...	+	...	...
26	Fragillaria sp.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c
27	Guinardia flaccida	...	r	r	r	r	r	+	r	+	...	+	r	+	...	rr	+	...	r
28	Hyalodiscus stelliger	r	r	r	...	...	...	r	r	...	...	r	...	...	...	rr	rr	r	...
29	Lauderia borealis	...	r	c	cc	cc	cc	+	r	...	...	...	...	...	...	...	r	...	...
30	Paralia sulcata	r	r	...	...	...	...	...	r	...	...	r	...	...	...	r	r	...	...
31	Pleurosigma sp.	r	...	r	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...
32	Rhizosolenia alata	r	...	r	...	rr	rr	...	...	+	...	...	r	...	...	...	r	r	...
33	— delicatula ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+
34	— robusta	...	+	...	...	...	...	r	r	...	r	r	...	...	...	...	r	...	...
35	— semispinia ...	rr	...	...	r	r	...	+	...	r	...	+	...	rr	...	rr	r	c	r
36	— setigera	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	— Shrubsolei ...	rr	+	r	r	r	+	c	...	c	r	+	+	r	r	+	+	c	c

TABLE V.—1904—*continued.*

Species Number.	Samples taken by a Plymouth Mackerel Boat.	Month ..	March.			April.				May.						June.				July.
		Day ..	5	10	14	17	22	24	29	5	8	13	20	22	30	3	4	11	21	3
			23 miles S. of Mewstone.	11 miles S. by W. of Eddystone.	10 miles S.S.W. of Eddystone.	10 miles S.E. by E. of Lizard.	10 miles S. by E. of Lizard.	6 miles S. of Gribben.	20 miles S.S.W. of Eddystone.	20 miles S.W. of Eddystone.	10 miles S.W. of Eddystone.	26 miles S.E. of Plymouth Harbour.	22 miles S. of Plymouth Harbour.	18 miles S.W. of Eddystone.	20 miles S.S.W. of Plymouth Harbour.	14 miles S. of Eddystone.	12 miles S.S.W. of Eddystone.	26 (-30) miles S.S.W. of Plymouth Harbour.	42 miles S. of Plymouth Harbour.	20 miles S.S.W. of Plymouth Harbour.
	DIATOMACEAE—*cont.*																			
38	Rhizosolenia Stolterfothi ...	...	...	...	...	r	r	+	c	...	+	...	...	+	...	...	...	r	...	c
39	Streptotheca tamesis ...	...	r	c	r	...	...	...	...	cc	...	...	c	...	...	r	...	+	...	...
40	Thalassiosira gravida ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
41	Thalassiothrix Frauenfeldi ...		c	c	c	+	r	r	...	r	...	...	...	...	...	...	...	+	+	...
	PERIDINIALES.																			
42	Ceratium bucephalum ...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...
43	— furca	...	...	...	...	...	...	...	...	rr	...	rr	r	...	...	...	...	...	...	...
44	— fusus	...	r	...	r	r	+	r	...	c	+	r	+	+	+	+	+	r	r	...
45	— horridum ...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...
46	— lineatum ...	...	...	...	...	...	...	r	...	rr	...	...	...	...	...	...	...	...	...	...
47	— longipes ...	...	rr	r	+	r	rr	...	+	+	+	r	+	+	+	r	rr	...	...	...
48	— macroceras ...	...	...	+	r	r	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...
49	— tripos	...	+	r	c	r	+	r	+	...	rr	rr	r	...	r	r	rr	...	...	...
50	Dinophysis norvegica ...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...
51	— ovum ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...
52	— rotundata ...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...
53	Diplopsalis lenticula ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
54	Gonyaulax spinifera ...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55	Peridinium conicum ...	...	...	...	...	c	c	c	+	...	r	r	+	...	...	...	...	rr	...	...
56	— depressum ...	...	...	...	...	+	+	...	+	...	c	r	cc	c	r	rr	...	r	...	...
57	— divergens ...	...	...	...	...	...	r	...	...	...	r	...	+	...	...	rr	...	...	...	...
58	— globulus ...	...	...	...	...	...	...	+	rr	...	...	...	...	rr	r	...	...	r	...	...
59	— oceanicum ...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	...	...	...	...	...
60	— ovatum ...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
61	— pallidum ...	...	...	r	...	+	c	...	...	rr	...	...	r	...	...	...	...	...	...	...
62	— pentagonum	...	...	...	...	r	...	r	...	...	...	...	...	...	...	...	...	...	...	...
63	— Steini ...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
64	Prorocentrum micans ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r
	PROTOPHYTA CETERA.																			
65	Dictyocha fibula ...	...	r	r	...	r	...	...	...	...	...	...	...	rr	...	...	...	...	...	...
66	Distephanus speculum ...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...
67	Dinobrion pellucidum ...	...	...	...	...	...	...	...	...	...	...	...	...	r	rr	...	...	...	...	...
68	Halosphaera viridis ...	...	cc	r	c	...	+	...	r	c	...	cc	+	+	r	r	...	...	...	...
69	Hexasterias problematica	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
70	Phaeocystis globosa ...	...	...	...	...	+	...	...	cc	...	...	cc	...	...	...	...	...	...	...	...
71	Trochiscia clevei ...	...	rr	...	...	r	r	...	...	...	...	...	...	...	...	...	...	r	r	...
72	— moebiusii ...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE V.—1904—*continued.*

Species Number.	Month ..	March.			April.				May.						June.				July.
	Day ..	5	10	14	17	22	24	29	5	8	13	20	22	30	3	4	11	21	3
	Samples taken by a Plymouth Mackerel Boat.	23 miles S. of Mewstone.	11 miles S. by W. of Eddystone.	10 miles S.S.W. of Eddystone.	10 miles S.E. by E. of Lizard.	10 miles S. by E. of Lizard.	6 miles S. of Gribben.	20 miles S.S.W. of Eddystone.	20 miles S.W. of Eddystone.	10 miles S.W. of Eddystone.	26 miles S.E. of Plymouth Harbour.	22 miles S. of Plymouth Harbour	18 miles S.W. of Eddystone.	20 miles S.S.W. of Plymouth Harbour.	14 miles S. of Eddystone.	12 miles S.S.W. of Eddystone.	26 (-30) miles S.S.W. of Plymouth Harbour.	42 miles S. of Plymouth Harbour.	20 miles S.S.W. of Plymouth Harbour.
	PROTOZOA.																		
73	Lithomelissa sp....	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
74	Tintinnopsis beroidea	...	r	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...
	COELENTERATA.																		
75	Muggiaea atlantica	...	...	...	...	...	...	...	...	...	...	...	r	...	r	...	...	+	r
76	Arachnactis Bournei	...	...	...	...	...	...	...	rr	?	...	...	...	...	...	...	...	...	...
77	Hybocodon prolifer	...	...	...	...	c	...	...	r	r	r	r	...	...	+	...	...	...	...
78	Lizzia blondina	...	...	...	...	...	...	rr	...	...	...	...	rr	...	r	...	r	r	r
79	Obelia sp.	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	r
80	Phialidium temporarium	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
81	Sarsia gemmifera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+
	ECHINODERMATA.																		
82	Auricularia	...	r	r	...	r	...	...	...	r	...	...	...	...	...	...	...	...	...
83	Bipinnaria	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...
84	Echinopluteus	...	...	...	...	r	...	...	...	r	...	...	...	...	...	...	...	...	...
85	Ophiopluteus	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
86	Ophiurid juv.	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...
87	Spatangopluteus	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...
	VERMES.																		
88	Poecilochaetus-larvae	...	...	...	...	+	...	...	r	...	...	...	...	...	...	...	...	...	...
89	Polychaete-larvae	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...
90	Sagitta bipunctata	rr	...	...	...	...	...	...	...	+	...	r	...	...	r	...	r	...	r
91	Tomopteris helgolandica ...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	ROTIFERA.																		
92	Anuraea aculeata	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	COPEPODA.																		
93	Acartia Clausi	...	r	...	c	cc	cc	+	+	cc	cc	c	c	c	c	c	c	c	cc
94	Alteutha bopyroides	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95	Anomalocera Patersoni ...	...	...	...	c	...	...	...	rr	...	rr	...	...	r	r	r	+	...	+
96	Calanus finmarchicus	r	...	r	c	+	...	...	...	+	rr	cc	+	+	r	+	...	+	c
97	Centropages hamatus	...	...	...	...	...	...	...	...	+	...	...	+	...	r	r	r	...	+
98	— typicus	r	r	rr	c	c	c	+	...	c	r	c	c	c	c	c	+	c	c
99	Corycaeus anglicus	...	...	...	+	...	c	r	r	...	c	...	...	...	...	...	...	...	...
100	Euterpe acutifrons	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
101	Isias clavipes	...	...	...	c	...	...	...	...	...	c	...	...	...	...	...	...	...	+
102	Labidocera Wollastoni	...	...	...	...	...	...	...	...	...	...	...	c	...	...	...	...	...	...

TABLE V.—1904—*continued.*

Species Number.	Month ..	March.			April.				May.						June.				July.
	Day ..	5	10	14	17	22	24	29	5	8	13	20	22	30	3	4	11	21	3
	Samples taken by a Plymouth Mackerel Boat.	23 miles S. of Mewstone.	11 miles S. by W. of Eddystone.	10 miles S.S.W. of Eddystone.	10 miles S.E. by E. of Lizard.	10 miles S. by E. of Lizard.	6 miles S. of Gribben.	20 miles S.S.W. of Eddystone.	20 miles S.W. of Eddystone.	10 miles S.W. of Eddystone.	26 miles S.E. of Plymouth Harbour.	23 miles S. of Plymouth Harbour.	18 miles S.W. of Eddystone.	20 miles S.S.W. of Plymouth Harbour.	14 miles S. of Eddystone.	12 miles S.S.W. of Eddystone.	23 (-30) miles S.S.W. of Plymouth Harbour.	42 miles S. of Plymouth Harbour.	20 miles S.S.W. of Plymouth Harbour.
	COPEPODA—*cont.*																		
103	Metridia lucens	r	...	...	...	...	...	...	...	...	...	...	+	...	...	r	...	...	...
104	Oithona similis	r	...	r	+	...	...	r	r	...	r	c	c	c	c	c	c	c	...
105	Oncaea ornata	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
106	— venusta?	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...
107	Paracalanus parvus	+	...	r	...	r	...	+	r	+	...	c	c	c	+	c	c	+	+
108	Parapontella brevicornis ...	...	...	...	...	...	...	...	...	...	...	...	r	r	r	...	r	...	r
109	Pseudocalanus elongatus ...	cc	...	r	...	cc	r	+	r	c	...	cc	c	c	c	c	+	cc	cc
110	Temora longicornis	...	r	...	...	c	r	...	...	...	...	r	cc	...	...	...	r	...	r
111	Thalestris Krohni	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	CRUSTACEA CETERA.																		
112	Evadne Nordmanni	...	...	...	+	c	cc	cc	...	c	c	c	cc	c	+	+	...	...	r
113	Podon intermedius	...	...	...	...	...	...	...	...	...	...	c	...	...	+	...	...	+	...
114	Cirripedia-larvae	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
115	Megalopa	...	...	...	...	...	...	...	...	rr	rr	+	...	...	c	+	...	...	...
116	Nauplius	+	...	...	c	cc	c	+	+	+	+	cc	cc	cc	cc	cc	cc	cc	c
117	Zoea	+	r	rr	...	...	r	r	r	...	r	c	...	...	c	c	...	...	+
	MOLLUSCA.																		
118	Lamellibranchiata-larvae ...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	TUNICATA.																		
119	Fritillaria borealis	...	...	...	...	r	r	rr	...	...	...	...	...	...	...	...	...	...	...
120	Oikopleura dioica	...	...	rr	+	+	+	+	r	cc	r	c	c	+	+	+	+	+	+
	VERTEBRATA.																		
121	Fish eggs and larvae	+	+	c	c	+	+	r	c	...	c	r	c	c	c	+	+	+	cc
122	Mackerel landed, in hundreds...	30	60	40	...	...	...	4	30	?	30	40	?	70	10	200	100	20	20

TABLE VI.—1904.

Seven Stones Light Ship.

Species Number.	Month ...	Jan.	Feb.		Mar.		April.		May.			June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	19	3	17	3	18	5	16	2	16	30	15	30	14	28	12	29	13	26	11	27	11	24	8	23
	DIATOMACEA.																								
1	Actinoptychus undulatus.	+	+	+	+	?	+	+	c	+	+	...	...	...	...	...	...	...	...	...	...	...	rr	r	rr
2	Asterionella glacialis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	rr	+	r	rr	...	...
3	Bacillaria paradoxa ...	+	r	rr	...	rr	rr	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...
4	Biddulphia alternans ...	rr	rr	...	...	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	r	rr
5	— favus ...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...
6	— granulata...	rr	(rr)	r	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr
7	— mobiliensis	c	c	c	c	c	c	+	c	r	r	...	...	...	...	...	...	...	...	...	...	...	rr	+	r
8	Cerataulina Bergoni ...	...	...	...	...	...	...	...	...	...	...	c	...	...	...	...	...	...	...	...	c	...	...	...	...
9	Chaetoceras boreale ...	...	...	...	...	...	...	+	rr	...	...	...	r	...	rr	...	+	...	...	r	...	r	...	...	...
10	— constrictum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	r	r	...	...	...
11	— convolutum	...	...	rr	...	+	r	r	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	— crinitum ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	r	...	...	...	...	...	...
13	— criophilum	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	— curvisetum	...	...	...	...	...	...	r	r	...	...	...	...	...	r	...	r	...	+	...	+	...	r	...	...
15	— danicum ...	...	rr	...	...	rr	...	+	rr	...	...	...	...	...	...	...	r	...	r	...	...	...	...	rr	rr
16	— debile ...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	— decipiens ...	r	...	r	r	...	rr	r	+	r	...	...	...	...	...	...	?	r	cc	c	c	+	+	+	r
18	— didymum ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	cc	c	c	...	...	+	r
19	— difficile ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r (1)	...	...	...	...
20	— laciniosum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	cc	c	c	...	...	+	r
21	— mitra ...	...	...	...	...	+ (2)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...
22	— peruvianum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	— Schütti ...	r	...	...	...	r	...	r	...	...	...	rr ?	...	...	...	...	...	...	+	+	+	+	+	...	rr
24	— scolopendra	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
25	Corethron hystrix ...	...	r	...	...	r	+	+	r	...	...	...	...	...	...	...	...	...	...	...	+	+	...	r	r
26	Coscinodiscus concinnus	...	rr	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	rr
27	— excentricus.	c	+	+	+	...	+	+	+	+	r	r	...	...	...	...	...	...	...	r	rr	...	+	+	+
28	— oculus iridis.	...	...	...	...	...	...	rr	r	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...
29	— radiatus...	...	r	+	+	r	r	r	+	+	r	...	...	...	...	...	...	...	r	+	rr	...	...	r	rr
30	Coscinosira polychorda	...	...	...	...	r	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	Ditylum Brightwelli ...	...	...	...	...	...	rr	r	rr	...	...	...	...	...	...	...	...	...	cc	+	c	c	+	+	r
32	Guinardia flaccida ...	...	...	...	...	...	...	...	...	...	...	...	c	r	r	...	...	...	...	r	+	r	r	...	...
33	Hyalodiscus stelliger ...	c	c	c	+	+	+	+	c	+	r	r	r	r	r	...	...	r	r	c	+	+	c	c	c
34	Lauderia borealis ...	...	...	r	r	r	...	rr	...	...	...	...	...	...	...	...	...	...	r	r	+	rr	...	...	...
35	Nitzschia closterium ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...
36	— seriata ...	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	rr	...	...	...	r	r	...	...	...
37	Paralia sulcata ...	+	+	+	+	r	r	+	+	+	r	r	...	...	...	...	...	...	r	r	r	r	r	+	r
38	Pleurosigma sp. ...	r	rr	r	...	r	r	r	+	+	r	r	...	...	...	...	...	...	r	...	r	r	r	...	...
39	Rhizosolenia alata	r	...	...	...	r	...	...	...	...	...	c	cc	cc	c	c	cc	cc	cc	cc	cc	cc	cc	c	+

TABLE VI.—1904—*continued.*

SEVEN STONES LIGHT SHIP.

Species Number.	Month ...	Jan.	Feb.		Mar.		April.		May.			June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	19	3	17	3	18	5	16	2	16	30	15	30	14	28	12	29	13	26	11	27	11	24	8	23
	DIATOMACEAE—*cont.*																								
40	Rhizosolenia delicatula	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	r	...	...	...	...	...	...
41	— semispina	...	...	...	...	+	r	+	r	r	r	c	cc	c	c	r	...	...	r	r	r	...	...	...	...
42	— setigera ...	...	...	...	...	...	...	r	...	...	...	...	...	...	r	r	...	rr	+	...	rr	...	...	...	...
43	— Shrubsolei	r	...	...	...	rr	...	r	...	rr	rr	cc	c	+	+	+	+	...	r	rr	+	r	...	...	...
44	— Stolterfothi	...	...	...	...	...	...	...	...	...	...	c	+	r	c	c	c	...	...	...	+	r	...	...	...
45	Sceletonema costatum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
46	Streptotheca tamesis ...	...	...	...	rr	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
47	Thalassiosira condensata	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	rr	+	...	...	...	...
48	— gravida ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	+	+	...	...	...
49	— gelatinosa	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
50	Thalassiothrix nitzschoides	c	c	c	c	c	cc	cc	c	r	rr	rr	...	...	...	rr	rr	...	rr	...	...	...	rr	...	...
	PERIDINIALES.																								
51	Ceratium furca... ...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	c	r	rr	...	...	...	...	rr	...	...
52	— fusus ...	+	...	rr	...	+	r	r	+	+	+	c	r	+	+	c	r	r	r	...	...	...	...	...	...
53	— hexacantha ...	...	...	...	...	...	...	...	...	...	...	...	...	(4) rr	...	...	...	...	...	...	...	...	...	...	...
54	— horridum ...	...	...	...	...	rr	...	...	r	r	r	...	r	...	+	+	...	...	r	+	r	...	...	...	...
55	— longipes ...	r	...	...	...	r	...	...	r	r	r	...	+	r	r	...	...	r	r	+	r	...	...	rr	...
56	— macroceras ...	...	...	...	...	...	...	r	...	...	...	...	...	+	+	c	+	...	...	...	...	...	...	...	...
57	— tripos ...	c	+	+	r	r	r	r	+	+	+	+	c	c	c	cc	c	cc	+	c	+	r	r	r	r
58	Dinophysis acuminata	...	...	...	...	...	...	...	...	...	...	+	...	...	...	r	...	...	...	...	...	...	...	...	...
59	— acuta ...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	+	...	...	...	...	...	...	...	...	...
60	— rotundata...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...
61	Diplopsalis lenticula ...	...	...	...	...	...	rr	...	...	rr	...	r	...	...	...	rr	+	+	...	+	...	...	...	...	...
62	Gonyaulax polygramma	...	...	...	...	...	...	...	rr	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...
63	— spinifera ...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
64	Peridinium conicum ...	...	...	r	...	...	...	...	...	...	...	...	r	r	r	r	...	...	...	...	...	...	rr	...	...
65	— decipiens ...	...	...	...	...	...	...	...	rr	rr	...	rr	...	...	rr	...	...	...	...	...	...	...	...	...	...
66	— depressum	r	r	r	...	...	r	...	+	+	r	c	c	r	r	r	...	r	...	r	r	...	r	...	...
67	— globulus ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	...
68	— oceanicum	...	...	...	...	...	...	rr	r	...	...	...	r	r	r	...	...	r	...	...	...	...	...	...	...
69	— ovatum ...	r	r	r	...	rr	rr	...	r	rr	...	...	r	...	r	...	...	...	...	...	...	...	...	...	...
70	— pallidum ...	...	...	...	...	...	...	rr	c	+	+	+	+	+	+	...	...	...	...	...	...	...	...	...	...
71	— pentagonum	...	...	...	...	...	...	...	rr	...	...	...	r	r	r	...	...	...	...	...	...	...	...	...	...
72	— Steini ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...
73	Prorocentrum micans...	...	...	...	...	...	...	...	r	...	...	r	...	r	+	c	r	r	...	...	...	...	rr	...	...
	PROTOPHYTA CETERA.																								
74	Dictyocha fibula ...	...	...	...	...	...	r	r	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
75	Distephanus speculum	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
76	Dinobrion pellucidum	...	...	r	r	r	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
77	Halosphaera viridis ...	cc	cc	?	c	c	c	cc	c	+	+	...	...	...	...	+	+	c	c	c	r	rr	c	+	r
78	Phaeocystis globosa ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...

TABLE VI.—1904—*continued.*

SEVEN STONES LIGHT SHIP.

Species Number.	Month ...	Jan.	Feb.		Mar.		April.		May.			June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	19	3	17	3	18	5	16	2	16	30	15	30	14	28	12	29	13	26	11	27	11	24	8	23
	PROTOPHYTA CETERA—*cont.*																								
79	Trochiscia brachiolata	...	...	...	...	...	...	...	rr	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...
80	— clevei ...	...	...	...	rr	...	...	...	...	...	...	r	...	rr	...	...	...	...	...	...	...	...	...	...	rr
81	— paucispinosa	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	PROTOZOA.																								
82	Lithomelissa sp. : ...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
83	Amphorella subulata ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...
84	Cyttarocylis serrata ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...
85	Tintinnopsis beroidea ...	r	...	r	...	...	r	...	c	r	...	...	...	...	...	...	...	...	r	r	r	r	r	r	rr
86	Noctiluca miliaris ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	+	rr	...	...
	COELENTERATA.																								
87	Beroe ovata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	rr	...	...	...
88	Cupulita Sarsi	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	+	...	r	rr	...
89	Muggiaea atlantica ...	...	...	...	...	...	...	...	...	...	...	c	cc	+	cc	c	+	c	+	c	c	c	c	c	...
90	Aglantha rosea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr
91	Hybocodon prolifer ...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...
92	Lizzia blondina... ...	...	...	...	...	...	...	...	...	...	...	c	c	...	r	...	...	...	...	...	...	...	...	...	...
93	Obelia nigra	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	c	rr	...	...	...
94	— sp.	...	...	...	...	...	...	...	...	...	...	+	+	r	r	...	r	...	...	...	...	...	...	...	rr
95	Phialidium cymbaloideum.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	r	...	...	...
96	— temporarium.	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	r	r	+	+	c	+	...	...	...
97	Sarsia sp.	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...
98	Solmaris sp. juv. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
	ECHINODERMATA.																								
99	Auricularia	...	...	...	...	...	...	...	...	c	r	r	r	+	r	...	...	...	...	...	...	...	...	...	...
100	Bipinnaria	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	r	...	...	...	...	...	...	...	...
101	Echinopluteus	...	...	...	...	...	...	...	...	...	...	...	...	...	+	r	r	c	...	...	...	...	...	...	...
102	Ophiopluteus	...	...	...	...	...	r	...	r	...	...	r	r	+	+	r	...	...	...	rr	rr	...	...	...	...
	VERMES.																								
103	Autolytus prolifer ...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
104	Polychaete larvae ...	...	...	...	...	r	c	...	...	...	rr	...	...	r	r	r	...	r	r	...	...	...	...	...	...
105	Sagitta bipunctata ...	c	c	c	+	...	...	...	+	r	r	c	+	+	+	+	...	c	c	r	+	+	cc	c	r
106	Tomopteris helgolandica	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
107	Tornaria...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...
	BRYOZOA.																								
108	Cyphonautes	...	...	...	...	...	...	...	r	...	...	...	c	+	+	...	...	+	r	+	...	...	...	...	...
	COPEPODA.																								
109	Acartia Clausi	...	...	...	...	...	...	...	+	c	c	c	c	c	c	+	+	c	+	c	r	r	r	r	r
110	Anomalocera Patersoni	...	...	...	...	...	...	...	...	r	...	+	r	r	...	...	...	+	...	r	...	...	r	...	...
111	Calanus finmarchicus ...	c	cc	cc	cc	...	+	r	cc	cc	cc	c	cc	cc	cc	cc	cc	cc	cc	cc	cc	+	cc	c	+

Table VI.—1904—*continued.*

Seven Stones Light Ship.

Species Number.	Month ...	Jan.	Feb.		Mar.		April.		May.			June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	19	3	17	3	18	5	16	2	16	30	15	30	14	28	12	29	13	26	11	27	11	24	8	23
	Copepoda—*cont.*																								
112	Candacia pectinata ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
113	Centropages typicus ...	...	...	...	...	rr	+	...	r	c	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc		+	c	+	r
114	Corycaeus anglicus ...	r	...	...	...	...	...	...	rr	rr	...	...	+	...	c	r	r	r	+	c	c	+	c	+	r
115	Euterpe acutifrons ...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	r	...	...	...	rr	...	...
116	Longepedia coronata ...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
117	Metridia lucens ...	r	r	+	c	...	+	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
118	Oithona nana	...	...	...	...	...	...	...	r	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...
119	— similis... ...	+	+	r	+	c	c	+	c	c	c	c	c	+	+	+	+	+	...	+	c	...	r	r	r
120	Oncaea ornata	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
121	Paracalanus parvus ...	r	r	...	r	+	c	+	c	c	c	c	c	...	+	c	+	c	+	c	c	+	c	+	r
122	Pseudocalanus elongatus	r	r	r	+	+	c	...	c	c	c	c	c	+	+	...	...	...	r	...	rr	rr	r	r	r
123	Temora longicornis ...	...	...	...	...	...	+	...	r	...	...	+	+	+	r	...	...	...	...	rr	r	+	r	r	r
124	Thalestris sp.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...
	Crustacea cetera.																								
125	Evadne Nordmanni ...	...	...	...	...	...	...	...	...	cc	...	...	+	c	cc	cc	cc	cc	c	r	rr	...	...	...	...
126	Podon intermedius ...	...	...	...	...	...	...	...	...	...	...	+	...	r	...	...	+	...	...	...	...	...	...	...	...
127	Cardidae...	...	...	...	...	...	+	...	...	...	...	...	+	+	...	...	...	...	...	r	r	r	r	...	...
128	Cirripedia larvae ...	...	...	...	...	r	+	...	+	+	...	...	...	...	rr	...	...	...	...	...	...	r	...	...	...
129	Cypris stage larvae ...	...	...	...	...	...	...	...	...	...	+	+	+	r	rr	...	...	r	...	...	...	...	...	...	...
130	Megalopa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
131	Nauplius	+	...	...	r	r	c	+	c	c	c	c	c	c	+	+	+	+	+	+	+	+	+	+	r
132	Zoea	...	r	...	rr	r	+	...	...	r	+	c	c	c	...	...	...	...	...	...	...	...	...	...	...
	Mollusca.																								
133	Gasteropod larvae ...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	+	...	...	...	...	...	...	...
134	Lamellibranchiate larvae	r	...	...	+	...	...	...	...	...	...	...	...	...	r	+	...	...	...	...	rr	r	r	r	...
	Tunicata.																								
135	Fritillaria borealis ...	...	...	...	...	...	...	...	...	...	...	...	rr	r	r	r	+	...	...	...	...	...	...	...	...
136	Oikopleura dioica ...	...	...	...	...	...	...	...	+	r	...	+	c	+	+	+	+	r	+	r	r	rr	rr	rr	...
137	Doliolum sp.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
	Vertebrata.																								
138	Fish eggs and larvae ...	...	...	...	...	+	+	c	c	c	...	...	r	r	r	r	r	...	...	...	...	...	r	...	...
	Incertae sedis.																								
139	Umrindete cyste ...	+	+	+	+	r	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	+

TABLE VII.—1904.

Shambles Light Ship.

Species Number.	Month ...	Jan.	Feb.		Mar.		April.		May.			June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	19	3	19	3	18	1	16	2	14	31	14	30	15	28	13	28	11	26	10	24	10	24	8	24
	DIATOMACEAE.																								
1	Acnanthes sp.	rr	r	r	...	c	c	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Actinoptychus undulatus ...	+	+	+	+	r	c	...	rr	...	rr	...	...	...	rr	...	...	...	...	rr	...	rr	r	r	+
3	Asterionella glacialis	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	rr	...	...	...	...	rr	...	...	...
4	Bacillaria paradoxa	+	r	rr	r	r	c	c	+	...	r	+	r	...	...	...	...	+	c	+	...	+	+	+	r
5	Bellerochia malleus	...	...	...	...	...	r	...	...	...	...	...	...	...	...	rr	r	...	c	c	c	c	r	+	...
6	Biddulphia alternans	...	...	rr	...	...	...	...	...	...	...	...	...	rr	...	...	rr	rr	r	r	...	rr	+	r	r
7	— granulata	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	— mobiliensis ...	c	c	+	+	+	c	c	c	...	r	+	r	+	+	+	+	+	c	c	cc	cc	c	c	c
9	— pulchella	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	Cerataulina Bergoni	...	...	...	...	...	...	...	rr	rr	...	...	...	rr	...	...	...	rr	...	rr	...	r	+	r	r
11	Chaetoceras boreale	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	r	...	...	...	+	...	r	...	...
12	— constrictum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
13	— curvisetum	...	...	...	rr ?	...	...	...	...	...	...	...	rr	...	...	...	rr	rr	...	...	...	...	...	...	...
14	— danicum	+	rr	...	...	...	...	...	...	...	...	...	...	...	r	...	+	r	...	...	...	...	...	...	r
15	— debile	...	...	...	...	...	r	r	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	— decipiens	r	rr	...	...	...	r	r	r	...	...	...	...	...	rr	+	+	+	r	+	+	r	+	+	+
17	— didymum	rr	...	...	...	...	...	...	...	...	...	...	...	rr	rr	+	+	...	...	...	...	...	...	...	r
18	— laciniosum ...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	+	rr	...	...	...	...	...	...	...	...
19	— Schütti	r	...	...	r	...	...	...	c	...	...	...	...	...	r	...	rr	...	...	rr	...	...	...	...	+
20	— Scolopendra ...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	— Willei	...	...	...	...	...	r	...	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	Corethron hystrix	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	+	c
23	Coscinodiscus concinnus ...	...	...	...	...	c	c	c	...	...	rr	r	...	...	...	...	...	...	...	...	...	...	...	...	...
24	— excentricus ...	+	+	r	+	c	c	c	r	...	...	+	+	r	r	rr	r	+	c	+	+	c	c	c	cc
25	— Grani	r	c	+	c	r	+	...	...	...	...	...	...	rr	...	...	rr	r	r	r	r	+	c	c	c
26	— oculus iridus ...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	+	+	+
27	— radiatus	+	+	r	+	c	c	c	+	...	...	rr	rr	rr	...	rr	r	r	c	r	r	+	c	c	c
28	Ditylum Brightwelli	r	rr	...	+	...	+	+	+	...	...	...	+	rr	rr	+	cc	+	r	r	r	+	c	r	r
29	Eucampia zodiacus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	r	...	...
30	Fragillaria sp.	...	...	rr	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	Guinardia flaccida	+	r	r	r	r	r	r	+	+	r	r	cc	c	+	+	+	r	r	r	r	r	+	+	+
32	Hyalodiscus stelliger	+	+	+	+	+	+	+	r	r	r	+	...	+	+	+	r	+	r	+	+	+	+	+	+
33	Lauderia borealis	...	...	...	r	r	r	c	cc	+	...	...	...	...	...	rr	c	+	r	r	r	r	...	...	...
34	Leptocylindrus danicus ...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35	Lithodesmium undulatum ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	rr	...	rr	+	+	+
36	Navicula membranacea ...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	rr	rr	...	...	...	...	...	...	...
37	Nitzschia closterium	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	rr	...	...	...	...	...	...	...	...

TABLE VII.—1904—*continued.*

SHAMBLES LIGHT SHIP—*continued.*

Species Number.	Month ...	Jan.	Feb.		Mar.		April.		May.			June.		July.		Aug.		Sept		Oct.		Nov.		Dec.	
	Day ...	19	3	19	3	18	1	16	2	14	31	14	30	15	28	13	28	11	26	10	24	10	24	8	24
	DIATOMACEAE—*cont.*																								
38	Paralia sulcata	+	r	+	+	+	r	...	rr	...	rr	r	r	+	r	r	r	r	r	r	r	r	r	+	r
39	Pleurosigma sp.	...	...	r	r	...	r	...	...	...	...	...	...	...	...	r	r	r	...	r	...	r	r	...	r
40	Rhizoselenia alata	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	r	r	r	r	r
41	— delicatula ...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
42	— semispina ...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
43	— setigera	rr	...	...	...	...	...	...	r	+	...	r	+	+	+	+	+	rr	r	r	r	r	...	...	rr
44	— Shrubsolei ...	...	...	...	...	...	r	r	+	c	r	...	+	+	+	...	rr	rr	r	...	r	r	+	+	c
45	— Stolterfothi ...	...	...	...	...	...	...	...	r	+	...	...	c	r	+	c	+	r	r	rr	...	...	rr	r	...
46	Skeletonema costatum	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
47	Streptotheca tamesis	r	r	r	r	+	...	...	...	...	...	...	rr	rr	rr	r	r	+	r	r	r	+	+	r	r
48	Thalassiosira gravida	...	...	...	...	...	rr	+	+	...	...	...	...	...	...	...	rr	r	...	...	...	...	...	...	...
49	— gelatinosa ...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
50	Thalassiothrix nitzschioides ...	rr	rr	rr	r	r	rr	r	r	r	...	...	rr	...	...	...	...	rr	...	rr	...	...	...	...	rr
	PERIDINIALES.																								
51	Ceratium fusus	...	...	rr	...	...	...	...	...	r	...	...	...	r	...	...	rr	...	+	r	...	...	r	r	...
52	— horridum	...	...	...	...	...	...	...	...	r	...	r	...	...	...	...	...	...	...	...	...	...	...	r	...
53	— longipes	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	+	+	+
54	— tripos	+	...	...	rr	...	rr	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	r	...	...
55	Diplopsalis lenticula	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	...	+	r	...	...	...	...	...	...	...
56	Peridinium conicum	...	r	...	r	r	+	+	c	+	...	r	...	...	...	...	...	r	r	r	...	...	r	r	r
57	— depressum	...	...	...	...	...	rr	...	r	r	r	...	rr	...	...	rr	...	...	...	...	...	...	...	...	...
58	— divergens	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	rr	...	r	...	...	...
59	— globulus	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	rr	...	...
60	— oceanicum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...
61	— ovatum	...	rr	...	rr	...	rr	...	r	...	...	r	r	...	...	...	...	...	...	...	rr	r	+	r	r
62	— pallidum	...	...	...	...	...	...	rr	+	r	r	r	r	r	...	r	r	r	...	...	...	...	...	...	...
63	— pentagonum	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...
64	— Steini	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
	PROTOPHYTA CETERA.																								
67	Dictyocha fibula	r	r	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
68	Distephanus speculum	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	r	rr	r	...	rr	...	...	...
69	Halosphaera viridis	r	r	r	r	r	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...
70	Hexasterias problematica ...	...	...	...	rr	...	rr	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
71	Phaeocystis globosa	...	...	...	...	rr	rr	+	c	cc	cc	...	...	...	...	...	...	...	...	...	...	...	...	...	...
72	Trochiscia clevei	...	...	...	...	rr ?	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...
	PROTOZOA.																								
73	Tintinnopsis beroidea	...	...	...	...	+	r	...	...	r	...	r	+	c	+	+	+	+	+	+	+	+	r	r	+
74	— campanula ...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	+	+	+	r	c	+	c	r	+
75	Noctiluca miliaris	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...
76	Rhaphidiophrys marina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r

TABLE VII.—1904—*continued.*

SHAMBLES LIGHT SHIP—*continued.*

Species Number.		Month ...	Jan.	Feb.		Mar.		April.		May.			June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
		Day ...	19	3	19	3	18	1	16	2	14	31	14	30	15	28	13	28	11	26	10	24	10	24	8	24
		COELENTERATA.																								
77	Beroe ovata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...
78	Pleurobrachia pileus		...	...	...	...	...	...	...	...	...	...	...	+	r	...	r	+	r	...	...	r	+	+	r	r
79	Muggiaea atlantica		rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	+	c	+	+	r	r
80	Euchilota pilosella		...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	r	...	r	...	...	...	...	...	...
81	Hybocodon prolifer		...	...	...	...	...	...	...	r	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
82	Lizzia blondina		...	...	...	...	...	...	...	...	?	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
83	Obelia sp.		...	...	...	...	...	...	...	rr	+	r	...	...	...	...	...	...	...	...	...	r	...	...	...	...
84	Phialidium cymbaloideum ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...
85	— temporarium ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	r	...	r	...	...	...	rr
86	Arachnactis Bournei		...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		ECHINODERMATA.																								
87	Ophiurida		...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		VERMES.																								
88	Poecilochaetus larvae		...	...	...	...	...	...	...	...	r	...	...	r	r	...	...	...	r	...	...	...	...	...	...	...
89	Polychaete larvae		...	...	r	r	+	r	r	r	r	...	+	r	r	r	...	r	+	+	+	...	...	...	r	r
90	Sagitta bipunctata		+	c	+	+	c	+	+	+	...	...	c	...	r	r	r	r	c	r	c	...	c	cc	cc	cc
91	Tomopteris helgolandica ...		...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		BRYOZOA.																								
92	Cyphonautes		...	...	...	...	r	r	r	r	r	...	...	rr	...	...	...	...	...	...	...	r	...	...	r	...
		COPEPODA.																								
93	Acartia Clausi		r	r	+	r	...	rr	+	+	c	c	cc	cc	cc	cc	c	c	c	c	c	+	+	c	+	+
94	— longiremis		...	...	...	...	rr	rr	rr	...	...	rr	r	...	...	...	...	...	...	...	...	...	...	...	...	...
95	Alteutha bopyroides		...	...	r	r	r	...	r	...	...	...	r	r	r	...	...	...	...	...	...	...	...	...	...	...
96	Calanus finmarchicus		r	+	r	+	+	+	+	+	+	+	+	c	+	r	r	r	+	+	r	r	r	+	c	r
97	Candacia pectinata		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
98	Centropages hamatus		...	...	r	...	...	...	...	+	+	+	+	c	+	cc	c	cc	c	c	c	c	c	+	r	r
99	— typicus		r	r	r	r	...	r	+	c	c	c	c	+	+	+	r	+	+	+	+	...	r	...	...	...
100	Corycaeus anglicus		r	...	r	...	...	...	...	...	...	...	...	r	...	...	...	r	+	c	+	c	c	c	+	+
101	Euterpe scutifrons		...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	r	...	rr	...	...	...	...	...
102	Isias clavipas		...	...	...	...	...	...	...	...	...	...	...	r	r	r	r	r	r	r	r	...	...	...	...	...
103	Labidocera Wollastoni		...	...	...	...	...	...	...	...	...	...	...	r	r	r	r	c	c	c	r	r	rr	...	...	rr
104	Longipedia coronata		...	...	...	rr	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	r	...	...	...	...
105	Metridia lucens		rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
106	Oithona nana		r	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	r	r	...	...	r	+	+	...
107	— similis		rr	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...
108	Oncaea sp. ceter		...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
109	Paracalanus parvus		...	rr	r	r	r	rr	...	r	+	r	r	rr	...	...	...	...	rr	c	r	c	c	r	r	+
110	Parapontella brevicornis ...		...	...	...	...	...	...	r	...	...	...	...	r	r	r	r	r	+	+	+	...	r	r	...	...
111	Pseudocalanus elongatus ...		+	c	c	c	c	c	c	c	c	c	c	c	c	+	...	...	r	c	+	+	+	r	r	+
112	Temora longicornis		...	...	...	rr	+	+	+	c	c	c	c	c	c	c	+	c	c	c	c	c	c	c	c	c

TABLE VII.—1904—*continued.*

SHAMBLES LIGHT SHIP—*continued.*

Species Number.	Month ...	Jan.	Feb.		Mar.		April.		May.			June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	19	3	19	3	18	1	16	2	14	31	14	30	15	28	13	28	11	26	10	24	10	24	8	24
	CRUSTACEA CETERA.																								
113	Evadne Nordmanni	...	...	...	...	...	...	...	r	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
114	Podon intermedius	...	...	...	...	...	...	...	...	...	...	...	...	+	r	...	rr	...	...	...	...	...	...	...	...
115	Anchialus agilis	...	rr	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
116	Nyctiphanes couchi	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
117	Eurydice sp.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
118	Carididae	...	r	r	r	...	...	...	...	...	...	...	+	+	c	+	+	+	r	+	r	+	r	r	r
119	Cirripedia larvae	...	...	...	rr	...	rr	c	c	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
120	Cypris stage larvae	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
121	Megalopa	...	...	...	...	...	...	...	...	...	...	...	r	r	r	+	+	r	...	+	...	...	...	...	...
122	Nauplius	...	r	r	r	...	...	...	r	...	...	c	+	+	+	+	+	+	+	+	+	+	+	+	+
123	Zoea	...	r	r	+	c	c	c	c	+	+	+	c	c	c	c	c	c	+	+	...	...	r	r	...
	MOLLUSCA.																								
124	Gasteropod larvae	...	...	+	+	+	+	...	...	...	...	...	...	...	r	r	r	r	r	r	r	r	...	...	...
125	Lamellibranchiate larvae ...	...	...	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	c	+	+	+
	TUNICATA.																								
126	Oikopleura dioica	...	...	rr	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
127	Doliolum sp.	...	rr	r	r	...	...	r	+	c	c	c	+	+	...	...	...	+	r	+	...	r	r	+	...
	VERTEBRATA.																								
128	Fish eggs and larvae	r	+	r	+	c	c	c	c	+	...	r	+	+	r	...	...	...	...	...	...	...	...	...	r
	INCERTAE.																								
129	Umrindete Cyste	r	r	r	r	...	r	r	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...

TABLE VIII.—1904.

OWERS LIGHT SHIP.

Species Number.	Month ...	Jan.		Feb.		Mar.		April.			May.		June.		July.		Aug.	Sept.		Oct.		Nov.		Dec.
	Day ...	6	19	1	15	2	18	2	16	29	14	29	13	27	13	28	15	2	16	9	24	7	23	7
	DIATOMACEA.																							
1	Acnanthes sp.	...	...	...	...	...	...	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Actinoptychus undulatus ...	+	+	+	+	+	+	+	+	+	r	r	...	...	rr	...	...	...	rr	rr	...	...	...	...
3	Asterionella glacialis	...	...	...	...	...	r	rr	r	r	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
4	Bacillaria paradoxa	c	r	r	r	+	c	c	c	c	rr	r	r	r	r	+	+	...	+	rr	+	+	+	+
5	Bellerochia malleus	...	rr	...	...	r	+	+	r	...	...	r	...	+	...	...	c	c	cc	cc	cc	cc	c	c
6	Biddulphia alternans	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr

TABLE VIII.—1904—*continued.*

OWERS LIGHT SHIP—*continued.*

Species Number.	Month	Jan.		Feb.		Mar.		April.			May.		June.		July.		Aug.	Sept.		Oct.		Nov.		Dec.
	Day	6	19	1	15	2	18	2	16	29	14	29	13	27	13	28	15	2	16	9	24	7	23	7
	DIATOMACEAE—*cont.*																							
7	Biddulphia aurita	...	rr	...	...	...	r	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	— granulata	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
9	— mobiliensis	c	+	+	+	c	c	cc	cc	cc	+	c	+	+	+	+	+	c	c	c	c	c	+	+
10	— pulchella	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	Cerataulina Bergoni	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	rr	...	...
12	Chaetoceras danicum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
13	— deeipiens	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	?rr	...	...	...	...	...
14	— densum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
15	— didymum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
16	— Schütti	...	...	...	...	...	r	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
17	Coscinodiscus excentricus	c	c	c	+	+	c	c	c	c	c	c	r	rr	+	+	+	+	c	c	+	+	+	+
18	— oculus iridis	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	r
19	— radiatus	+	+	+	+	+	+	c	c	c	c	c	+	r	...	...	...	...	...	rr	r	+	+	c
20	Coscinosira polychorda	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...
21	Ditylum Brightwelli	...	...	...	...	...	r	r	r	r	r	r	r	...	...	r	r	...	...	...	+	r	r	...
22	Eucampia zodiacus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...
23	Eupodiscus argus	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...
24	Fragillaria sp.	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	Guinardia flaccida	...	r*	...	...	...	+	+	r	rr	r	r	+	c	r	+	+	rr	rr	rr	+	r	r	...
26	Hyalodiscus stelliger	...	r	r	r	...	r	r	r	r	r	...	r	r	r	...	...	...	...	...	r	...	...	r
27	Lauderia borealis	...	?	...	...	...	...	...	r	...	...	...	r	...	...	...	...	...	rr	...	+	+	r	r
28	Lithodesmium undulatum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	r	...	r	...	...	...
29	Paralia sulcata	...	r	r	r	r	r	...	...	...	...	...	r	r	r	r	r	r	r	r	r	r	r	r
30	Pleurosigma sp.	...	r	r	r	...	...	...	...	...	...	...	r	...	rr	...	r	...	r	r	r	r	r	r
31	Rhizosolenia setigera	...	c	...	r	...	r	+	+	r	...	...	...	...	...	...	...	...	...	...	+	...	r	rr
32	— Shrubsolei	...	...	...	...	...	...	...	...	...	...	...	+	r	...	r	...	...	...	...	...	r	...	...
33	— Stolterfothi	...	...	...	...	...	...	...	...	...	r	...	r	r	...	r	...	...	...	...	+	r	...	...
34	Streptotheca tamesis	...	+	+	r	r	+	+	+	c	c	cc	c	c	+	+	+	+	c	c	c	c	r	+	+
35	Thalassiosira gelatinosa	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	— gravida	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...
37	Thalassiothrix Frauenfeldi	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	PERIDINIALES.																							
38	Ceratium fusus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	+	+	r
39	— longipes	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	r	r	...
40	— tripos	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
41	Diplopsalis lenticula	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	r	+	...	...	...	...
42	Peridinium conicum	...	...	...	...	...	...	r	+	+	c	...	...	...	...	...	...	rr	...	...	...	rr	...	...
43	— depressum	...	...	...	...	...	...	...	...	...	...	...	r	+	+	...	...	...	...	...	...	rr	...	...
44	— oceanicum	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...
45	— ovatum	...	...	...	...	...	...	...	rr	rr	+	...	...	...	rr	...	rr	...	...	...	rr	...	...	...
46	— pallidum	...	...	...	...	...	r	...	...	rr	r	...	...	c	...	...	...	...	...	...	...	...	...	...

* Auxospores were observed.

TABLE VIII.—1904—*continued.*

OWERS LIGHT SHIP—*continued.*

Species Number.	Month ...	Jan.		Feb.		Mar.		April.			May.		June.		July.		Aug.	Sept.		Oct.		Nov.		Dec.
	Day ...	6	19	1	15	2	18	2	16	29	14	29	13	27	13	28	15	2	16	9	24	7	23	7
	PROTOPHYTA CETERA.																							
47	Coccosphaera atlantica (cocoliths only).	(+)	...	...	...	(r)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
48	Dinobrion pellucidum ...	...	...	...	...	..	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...
49	Halosphaera viridis	...	...	...	...	...	...	r?	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
50	Phaeocystis globosa	...	...	...	...	...	...	...	...	...	...	...	cc	...	...	...	...	...	...	...	...	...	...	...
51	Trochiscia brachiolata ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
52	— clevei	...	...	...	...	...	...	r	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...
	PROTOZOA.																							
53	Tintinnopsis beroidea	r	r	r	r	r	r	rr	r	r	...	r	...	r	r	+	+	c	+	...	r	...	r	r
54	— campanula ...	r	..	r	...	...	r	rr	r	r	r	...	...	+	r	+	...	...	...	...	...	r	r	...
	COELENTERATA.																							
55	Beroe ovata	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
56	Pleurobrachia pileus	c	r	...	...	r	...	r	...	r	c	cc	cc	cc	...	cc	+	c	+	...	+	c	+	...
57	Arachnactis Bournei	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
58	Dipurena halterata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	..
59	Obelia sp.	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...
60	Phialidium temporarium ...	...	...	...	...	...	...	...	...	...	...	...	...	r	rr	...	...	...	...	...	...	...	...	...
	VERMES.																							
61	Autolytus prolifer	+	r	r	r	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
62	Polychaete larvae	r	r	r	r	r	r	r	+	r	r	r	r	r	r	+	r	r	r	r	r	...	...	...
63	Sagitta bipunctata	c	c	c	r	r	+	+	c	+	cc	...	...	r	r	c	+	+	c	c	c	cc	c	c
	BRYOZOA.																							
64	Cyphonautes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	COPEPODA.																							
65	Acartia Clausi	...	r	...	...	...	...	...	...	...	...	...	...	...	+	c	c	c	c	c	c	c	c	+	r
66	— longiremis	+	+	+	+	+	+	+	+	c	cc	c	c	c	...	...	...	r	r	...	...	...	...	+
67	Alteutha bopyroides	...	...	...	...	...	...	...	...	...	...	r	r	r	...	...	...	r	...	...	...	r	r	...
68	— depressum	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
69	Calanus finmarchicus	+	r	r	...	...	r	...	r	...	+	...	...	+	r	r	+	+	+	+	+	+	...	...
70	Centropages hamatus	r	...	r	r	...	r	r	+	+	c	c	c	c	c	c	c	c	cc	c	c	+	r	+
71	— typicus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	r	+	...	...	...	...
72	Euterpe acutifrons	...	...	...	...	...	...	...	...	...	...	...	...	r	...	r	r	c	r	...	...	...	...	...
73	Isias clavipes	...	...	...	...	...	...	...	...	...	...	...	r	...	...	c	...	c	r	r	r	...	...	...
74	Labidocera Wollastoni ...	r	...	...	...	...	...	...	...	...	...	...	...	r	...	r	r	c	...	+	+	...	...	...
75	Microsetella atlantica	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr?	...	...	...	...	...
76	Oithona nana	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	+	...
77	Paracalanus parvus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	+	+	+
78	Parapontella brevicornis ...	...	...	...	...	...	...	...	...	...	r	...	...	...	r	r	r	...	+	r	r	r	r	...	...
79	Pseudocalanus elongatus ...	+	+	r	r	+	r	r	+	c	cc	c	+	+	+	+	+	c	+	+	c	c	+	+
80	Temora longicornis	r	r	rr	...	...	r	+	c	+	cc	c	+	+	c	c	c	+	c	c	+	+	r	r
81	Thalestris sp.	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE VIII.—1904—*continued.*

OWERS LIGHT SHIP—*continued.*

Species Number.	Month	Jan.		Feb.		Mar.		April.			May.		June.		July.		Aug.	Sept.		Oct.		Nov.		Dec.
	Day	6	19	1	15	2	18	2	16	29	14	29	13	27	13	28	15	2	16	9	24	7	23	7
	CRUSTACEA CETERA.																							
82	Homarus vulgaris juv.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
83	Caridid larvae	...	...	...	...	...	+	+	+	+	+	r	r	...	c	c	+	+	+	+	+	+	r	...
84	Cirriped larvae	...	...	...	...	...	+	r	+	c	...	...	...	r	...	...	...	r	...	...	...	...	...	...
85	Cypris stage larvae	...	...	...	...	...	...	+	+	+	...	...	...	...	r	...	...	...	...	...	...	...	...	...
86	Microniscus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...
87	Nauplius	...	r	r	r	...	...	...	r	r	r	r	r	+	+	+	+	+	+	+	+	+	+	...
88	Zoea	...	...	...	rr	...	...	c	r	+	+	+	r	r	c	c	c	c	c	+	+	r	...	...
	MOLLUSCA.																							
89	Gasteropod larvae	...	...	...	...	...	...	r	r	r	...	...	...	r	...	...	...	...	+	+	+	+	+	...
90	Lamellibranchiate larvae	...	...	...	r	...	...	r	r	...	...	+	+	+	+	+	+	+	+	+	+	+	+	...
	TUNICATA.																							
91	Ascidian larvae	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...
92	Oikopleura dioica	...	...	...	...	...	...	...	...	...	...	...	r	r	r	r	...	+	+	r	+	+	+	...
	VERTEBRATA.																							
93	Fish eggs and larvae	...	...	r	...	...	r	+	r	+	+	+	+	r	r	r	r	...	...	...	...	...	...	...	...
	INCERTAE SEDIS.																							
94	Barbierbeckenstatoblast	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...
95	Umrindete Cyste	...	...	...	...	...	...	r	r	r	r	...	...	...	...	...	...	...	..	...	...	...	...	...

NOTE.—The samples from Owers Light Ship have not been worked out exhaustively, owing to the large amount of sand, mud, and detritus contained by them.

TABLE IX.—1904.

VARNE LIGHT SHIP.

Species Number.	Month	Jan.	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day	19	1	16	3	17	2	15	30	16	31	14	27	13	29	11	26	9	26	11	24	7	25	9	22
	DIATOMACEA.																								
1	Actinoptychus undulatus	...	...	r	r	...	...	...	r	...	rr	...	rr	...	...	rr	...	rr	...	...	+	+	+	r	r	+
2	Asterionella glacialis	...	...	...	...	...	...	+	c	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	...	rr
3	Bacillaria paradoxa	...	c	+	c	c	r	+	+	r	...	r	r	...	rr	r	r	r	r	r	r	+	+	+	+	+
4	Bellerochia malleus	...	...	rr	...	...	...	...	...	...	...	...	...	...	+	+	r	r	r	+	c	c	+	r	...	...
5	*Biddulphia alternans*	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	r	r	*rr*	*rr*	*rr*
6	— mobiliensis	...	...	+	cc	c	c	c	c	...	...	...	r	r	...	r	r	r	r	c	c	+	r	r	r	+
7	Cerataulina Bergoni	...	...	...	...	...	...	r	...	+	...	...	...	...	...	rr	...	...	...	rr	...	+	+	+	r	r
8	Chaetoceras boreale	...	...	rr	rr	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	r	r	c	r	r	...	...

TABLE IX.—1904—*continued.*

VARNE LIGHT SHIP—*continued.*

Species Number.	Month ...	Jan.	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	19	1	16	3	17	2	15	30	16	31	14	27	13	29	11	26	9	26	11	24	7	25	9	22
	DIATOMACEA—*cont.*																								
9	Chaetoceras crinitum ...	...	...	...	...	...	r	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	— curvisetum ...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	r	r	r	rr	...	...	...
11	— danicum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	+	r	...	...	...	...
12	— debile	...	...	...	...	r	r	...	...	...	...	...	...	...	r	...	...	...	...	...	...	r	...	...	...
13	— decipiens... ...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	c	r	+	r	r	...	r
14	— scolopendra ...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	— Willei	...	...	...	r	+	+	+	+	...	rr	...	...	...	r	...	...	...	...	...	...	...	...	...	...
16	Coscinodiscus excentricus ...	c	c	c	c	c	cc	cc	+	r	r	r	r	r	r	r	r	r	+	c	c	c	c	c	c
17	— Grani	c	+	+	+	r	r	...	...	...	...	...	...	...	...	...	...	...	r	r	rr	r	r	r	+
18	— radiatus ...	r	r	r	+	r	...	...	...	(rr)	...	...	(rr)	...	(rr)	r	...	...	...	r	r	+	+	r	+
19	Coscinosira polychorda ...	...	...	rr	...	+	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	Ditylum Brightwelli... ...	...	r	+	+	+	+	c	r	...	...	r	...	...	rr	rr	...	...	+	r	r	+	r	r	r
21	Eucampia zodiacus	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	r	...	...
22	Guinardia flaccida	...	r	r	+	+	c	c	+	r	+	c	+	+	r	...	...	...	c	c	r	r	r	r	+
23	Hyalodiscus stelliger... ...	...	...	r	...	rr	+	...	...	r	...	rr	...	...	r	r	r	r	+	r	+	r	r	r	+
24	Lauderia borealis	...	...	c	c	c	cc	cc	r	...	...	...	...	...	...	...	...	...	r	r	r	r	rr	...	r
25	Leptocylindricus danicus ...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...
26	Lithodesmium undulatum ...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...
27	Nitzschia closterium	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
28	Navicula membranacea ...	...	...	r	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	+	...	r	...	...	...	...
29	Paralia sulcata	r	r	r	r	r	r	r	r	..	...	r	r	rr	+	r	r	r	+	+	+	+	+	r	+
30	Pleurosigma sp.	...	...	r	r	r	r	r	...	...	...	...	...	r	r	r	r	r	+	+	r	r	r	rr	rr
31	Rhizosolenia delicatula ...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	rr	...	...	...	...	...
32	— setigera ...	...	...	...	...	r	r	r	+	...	...	...	...	...	...	r	...	...	+	+	...	...	...	...	...
33	— Shrubsolei ...	...	...	r	r	r	r	?	+	r	r	r	r	rr	r	+	...	...	rr	r	...	r	...	...	...
34	— Stolterfothi ...	r	...	r	r	r	r	r	+	r	cc	r	r	r	c	c	...	...	+	+	+	rr	...	r	r
35	Skeletonema costatum ...	...	...	...	...	r	...	+	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...
36	Streptotheca tamesis	c	+	+	c	r	r	+	r	...	r	+	r	r	r	...	r	r	c	c	rr	rr	...	rr	...
37	Thalassiosira gelatinosa ...	...	...	...	...	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38	— gravida ...	...	...	...	r	r	c	c	...	...	...	...	...	...	...	...	...	...	...	rr	...	r	rr	...	...
39	Thalassiothrix Frauenfeldi ...	...	...	...	+	r	+	+	r	...	...	r	...	...	...	...	...	...	...	...	...	...	rr	rr	...
	PERIDINIALES.																								
40	Ceratium fusus	...	...	rr	...	r	...	rr	...	...	r	...	...	...	r	+	+	+	c	r	+	r	r	r	r
31	— horridum	...	...	...	...	...	...	..	...	...	rr	...	...	...	...	...	...	...	...	rr	r	rr	...	...	...
42	— lineatum	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	r
43	— longipes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
44	— tripos	...	...	rr	...	...	...	...	...	...	...	...	rr	...	...	...	rr	...	...	...	...	...	...	...	...
45	Dinophysis rotundata ...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	r	r	...	...	...	...	...	...	...
46	Diplopsalis lenticula	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	+	...	rr	...	...	...	...
47	Glenodinium acuminatum ...	...	rr	...	...	...	rr	...	...	...	...	...	rr	...	rr	+	...	r	...	...	...	...	...	...	...
48	Peridinium conicum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	r	...	+

TABLE IX.—1904—*continued.*

VARNE LIGHT SHIP—*continued.*

Species Number.	Month	Jan.	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day	19	1	16	3	17	2	15	30	16	31	14	27	13	29	11	26	9	26	11	24	7	25	9	22
	PERIDINIALES—*cont.*																								
49	Peridinium decipiens	...	...	...	...	...	...	...	...	...	...	...	r	...	r	...	...	...	...	...	...	...	rr	...	r
50	— depressum	...	...	...	...	...	r	r	r	rr	...	r	r	r	r	+	r	...	...	...	...	...	rr	r	...
51	— divergens	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...
52	— globulus...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	...	...	rr	...	r	...	rr	rr	rr
53	— oceanicum	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	rr	...	rr	...	...	...	...	...	...
54	— ovatum ...	...	...	...	...	...	r	...	r	...	...	...	r	r	r	+	r	r	...	...	r	rr	rr	...	rr
55	— pallidum	...	...	...	r	r	r	r	rr	rr	r	rr	r	r	r	r	...	...	...	...	...	...	...	...	...
56	— pentagonum	...	...	r	r	...	...	rr	+	...	...	...	...	...	...	...	...	rr	rr	rr	rr	rr	...	...	...
57	Prorocentrum micans	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	r	r	...	r	...	...	...	...	..
	PROTOPHYTA CETERA.																								
58	Coccosphaera atlantica (coccolitho only).	(rr)	...	...	...	...	r	r	...	...	rr	...	...	...	...	...	...	...	...	...	r	...	...	...	...
59	Dictyocha fibula ...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
60	Distephanus speculum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	c	+	r	r	...
61	Phaeocystis globosa ...	...	...	...	...	...	...	...	+	+	?	+	...	...	...	...	...	...	...	...	...	...	...	...	...
	PROTOZOA.																								
62	Amphorella sulcata ...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	rr	...	...	...	...	...	...
63	Cyttarocylis serrata ...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
64	Tintinnopsis beroidea	...	rr	r	...	r	...	rr	...	...	...	...	rr	rr	rr	...	...	rr	c	rr	c	+	+	+	+
65	— campanula	...	...	...	r	...	...	..	...	...	...	...	...	...	(rr)	...	...	...	c	+	rr	rr	rr	rr	rr
66	Noctiluca miliaris ...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	rr	+	r	+
67	Rhaphidiophrys marina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+
	COELENTERATA.																								
68	Pleurobrachia pileus...	...	...	...	...	...	...	...	...	...	...	...	?	...	...	...	...	...	..	...	...	...	+	...	r
69	Hybocodon prolifer ...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...
70	Laodice calcarata ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...
71	Obelia nigra	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
72	— sp.	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...
73	Phialidium temporarium	...	...	...	...	. .	...	...	...	...	...	...	?	...	r	+	...	+	...	...	r	c	+	...	rr
74	Sarsia sp.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...
	ECHINODERMATA.																								
75	Echinopluteus	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
76	Ophiopluteus	...	...	...	...	...	...	...	...	..	...	...	rr	...	...	...	...	rr	rr	...	r	...	...	...	...
77	Ophiura juv.... ...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...
	VERMES.																								
78	Autolytus prolifer ...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
79	Polychaete larvae ...	...	...	...	...	...	...	...	...	r	r	...	...	r	r	...	r	rr	...	rr	...	rr	rr	...	...
80	Sagitta bipunctata ...	+	+	r	+	...	r	r	r	...	...	...	r	...	...	...	r	+	r	r	+	c	cc	c	c
	BRYOZOA.																								
81	Cyphonautes	r	r	+	r	...	r	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Table IX.—1904—*continued.*

Varne Light Ship—*continued.*

Species Number.	Month ...	Jan.	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	19	1	16	3	17	2	15	30	16	31	14	27	13	29	11	26	9	26	11	24	7	25	9	22
	Copepoda.																								
82	Acartia Clausi	r	r	r	c	rr	r	rr	r	...	c	...	c	c	r	+	+	c	c	+	c	+	c	c	c
83	Alteutha bopryoides	...	...	...	...	...	...	...	...	...	rr	...	r	...	...	...	...	...	...	...	...	...	...	...	...
84	Calanus finmarchicus ...	+	+	...	+	...	r	rr	+	r	+	...	+	r	...	c	r	r	...	...	+	rr	rr	rr	rr
85	Centropages hamatus ...	+	r	r	+	...	r	...	r	...	c	r	c	c	r	cc	c	c	+	c	c	r	rr	...	r
86	— typicus	r	r	+	+	...	...	...	r	r	...	...	+	...	...	...	r	r	...	...	+	...	...	...	...
87	Euterpe acutifrons	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	rr	...
88	Isias clavipes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	r	...	...	...	...	...	...	...	...
89	Labidocera Wollastoni ...	...	...	...	...	...	...	rr	...	...	...	...	...	...	r	...	...	r	rr	...	r	...	...	...	...
90	Oithona nana	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	r	...	...	...	rr	...	...	r	r
91	— similis	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...
92	Paracalanus parvus	+	r	rr	+	r	?	rr	r	...	...	rr	...	...	...	...	...	+	r	...	+	c	c	c	c
93	Parapontella brevicornis ...	...	...	...	c	...	rr	...	...	...	+	...	r	...	r	+	r	...	...	...	r	r	...	...	...
94	Pseudocalanus elongatus ...	+	+	r	c	r	cc	r	rr	...	c	...	+	+	r	r	r	r	...	r	+	c	c	c	c
95	Temora longicornis	+	r	...	c	r	r	r	c	r	c	rr	c	+	+	cc	cc	c	r	...	+	c	c	c	c
	Crustacea cetera.																								
96	Nyctiphanes Couchi	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
97	Podon Leuckarti	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...
98	Caridid larvae...	+	r	...	r	...	...	...	...	...	...	...	...	...	...	+	r	+	...	...	...	...	...	r	...
99	Cirriped larvae	...	...	rr	r	+	+	r	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
100	Cypris stage larvae	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
101	Nauplius	+	+	+	+	+	+	r	...	...	+	...	...	...	...	...	...	r	r	r	r	r	r	r	r
102	Zoea	...	r	...	+	...	...	...	r	...	r	...	r	...	...	c	+	r	...	...	...	r	...	...	...
	Mollusca.																								
103	Gasteropod larvae	r	r	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	r	...	...	...	...	...
104	Lamellibranchiate larvae ...	r	r	...	...	...	...	...	...	...	...	...	+	+	...	...	r	r	r	r	...	...	...	...	r
	Tunicata.																								
105	Ascidian larvae	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...
106	Oikopleura dioica	+	r	+	+	...	+	...	+	+	+	...	rr	+	r	...	r	...	rr	rr	r	r	+	rr	+
	Vertebrata.																								
107	Fish eggs and larvae... ...	r	r	r	c	+	+	+	+	r	+	...	r	r	r	r	...	...	...	...	...	...	...	r	r

TABLE X.—1904.

Bahama Bank Light Ship.

Species Number.		Month ...	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
		Day ...	3	18	4	18	2	16	30	16	31	15	29	14	27	13	27	10	27	10	25	10	24	8	24
	DIATOMACEAE.																								
1	Acnanthes sp.		...	...	...	...	r	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Actinoptychus undulatus		+	r	r	...	r	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	+	r	r
3	Asterionella glacialis		...	...	r	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	Bacillaria paradoxa		cc	c	c	c	c	c	r	...	...	...	...	...	...	r	...	...	...	...	r	+	+	r	+
5	Bacteriastrum delicatulum		...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	rr	+	r	...	...	...	...
6	Bellerochea malleus		...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	Biddulphia favus		rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	— mobiliensis		c	c	c	c	c	cc	cc	+	...	...	rr	...	...	...	...	r	...	...	rr	r	c	r	r
9	Cerataulina Bergoni		...	...	rr	...	...	+	+	c	c	c	r	...	...	r	...	+	c	c	r	r	+	r	...
10	Chaetoceras boreale		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...
11	— breve		...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	— constrictum		...	r	r	r	c	c	c	c	...	...	...	...	...	...	r	r	...	...	rr	...	...	...	...
13	— convolutum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...
14	— crinitum		...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...
15	— criophilum		...	...	...	...	r	r	r	r	...	...	...	...	...	r	r	...	...	+	r	...	...	+	...
16	— curvisetum		r	...	...	r	+	...	...	...	...	...	...	...	...	+	r	r	...	+	+	...	...	...	...
17	— danicum		c	c	c	c	c	c	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	r	r
18	— debile		...	...	...	...	c	c	c	cc	+	r	...	...	...	r	...	...	...	r	+	r	...	...	...
19	— decipiens		r	...	...	...	+	+	c	r	...	...	...	...	...	...	...	...	r	+	...	+	+	r	...
20	— densum		...	r	...	...	r	r	r	r	c	...	...	...	...	c	cc	+	r	c	+	c	+	+	r
21	— diadema		...	...	...	...	c	c	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	— didymum		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	rr	+	r	r	...
23	— laciniosum		...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	— Schütti		r	...	...	r	+	+	+	...	...	...	...	...	...	...	...	r	+	r	r	+	+	+	r
25	— scolopendra		...	...	...	...	r	r	r	...	...	...	...	...	...	r	...	...	r	...	...	r	...	...	...
26	— teres		...	...	...	...	+	c	c	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	r
27	— Willei		...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	?	...	...	+?	...	...
28	Coscinodiscus concinnus		+	+	+	c	c	cc	c	...	...	...	...	...	...	...	...	...	cc	cc	cc	c	+	+	r
29	— excentricus		+	+	c	+	+	r	...	...	...	...	...	...	...	...	...	...	rr	r	+	c	c	+	+
30	— Grani		r	r	r	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	r
31	— radiatus		+	+	c	+	+	+	+	...	...	r	...	...	...	...	...	...	...	...	...	r	+	r	+
32	Coscinosira polychorda		...	...	...	r	+	+	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...
33	Ditylum Brightwelli		+	+	+	+	+	+	...	...	...	r	...	...	...	...	...	...	+	c	c	c	+	+	...
34	Eucampia zodiacus		...	...	...	...	...	r	...	...	r	r	...	r	rr	+	r	+	c	cc	cc	c	...	c	...
35	Guinardia flaccida		+	r	r	r	r	r	...	r	+	c	c	r	+	c	r	+	+	rr	r	+	...	+	r
36	Hyalodiscus stelliger		r	r	r	+	+	r	...	...	...	...	...	...	...	r	r	r	r	r	r	+	r	+	+
37	Lauderia borealis		r	r	+	r	r	+	c	r	...	r	...	...	...	...	..	r	...	r	r	r	+	r	r
38	Navicula membranacea		...	...	rr	...	...	...	...	...	...	...	...	...	...	r	r	r	+	...	r	r	...	+	+
39	Paralia sulcata		+	+	...	...	r	...	...	...	...	...	...	...	...	r	r	r	r	...	+	+	+	+	+
40	Pleurosigma sp.		r	r	...	...	...	...	...	r	...	...	...	...	...	...	...	...	r	...	r	r	r	r	r

TABLE X.—1904—*continued.*

BAHAMA BANK LIGHT SHIP—*continued.*

Species Number.	Month ...	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	3	18	4	18	2	16	30	16	31	15	29	14	27	13	27	10	27	10	25	10	24	8	24
	DIATOMACEAE—*cont.*																							
41	Rhizosolenia delicatula	...	...	rr	...	r	rr	r	...	...	...	...	...	...	...	...	r	+	c	r	r	...	r	r
42	— semispina	...	...	...	...	...	...	r	+	+	+	cc	...	r	c	+	...	c	c	c	r	...	rr	...
43	— setigera...	r	r	rr	r	+	c	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...
44	— Shrubsolei	r	r	r	r	+	c	c	c	cc	cc	cc	r	r	+	...	...	rr	+	c	+	...	+	...
45	— Stolterfothi	...	...	...	...	...	r	...	...	...	rr	rr	+	+	c	rr	r	+	+	+	+	...	+	...
46	Skeletonema costatum	r	r	+	+	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
47	Stephanopyxis turris	...	...	...	...	r	r	...	...	...	r	...	r	r	r	...	...	r	...	r	r	...	r	...
48	Streptotheca tamesis	+	+	+	+	+	...	...	...	...	r	...	...	...	...	...	...	...	...	+	+	+	...	r
49	Thalassiosira gravida	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	...	...	r	...
50	— Nordenskiöldi	...	...	...	...	+	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
51	Thalassiothrix Frauenfeldi	c	+	+	+	+	c	r	...	...	...	...	...	...	...	...	...	...	...	...	rr	r	r	+
	PERIDINIALES.																							
52	Ceratium furca...	r	r	rr	r	r	r	...	...	rr	rr	...	...	...	rr	rr	r	+	r	+	r	r	r	r
53	— fusus...	r	+	r	r	c	+	r	r	rr	...	...	...	rr	+	+	+	r	r	...	r	r	r	...
54	— horridum	...	...	...	...	r	...	...	...	...	r	...	...	...	...	...	r	...	...	...	...	...	...	...
55	— longipes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	rr
56	Dinophysis acuminata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...
57	— rotundata...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...
58	Diplopsalis lenticula	...	...	...	...	...	...	r	...	...	rr	...	rr	r	...	r	r	...	...	...	...	rr	...	rr
59	Gonyaulax polygramma	...	...	...	+	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...
60	Peridinium conicum	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r
61	— decipiens	...	...	rr	...	...	...	r	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
62	— depressum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
63	— globulus	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	r	...	...	r	...	...	...
64	— oceanicum	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...
65	— ovatum	...	...	...	r	rr	...	...	...	...	...	...	...	...	r	r	r	...	...	...	r	...	...	...
66	— pallidum	...	...	...	...	...	rr	rr	rr	...	...	...	...	...	...	...	r	...	r	rr	...	rr	...	...
67	— pendunculatum	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
68	— pentagonum	...	...	rr	r	rr	rr	r	...	...	...	+	...	...	...	...	+	+	...	rr	...	rr	...	rr
69	Prorocentrum micans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	r	...	rr	...
	PROTOPHYTA CETERA.																							
70	Dictyocha fibula	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	rr
71	Distephanus speculum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	rr	...
72	Halosphaera viridis	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
73	Phaeocystis globosa	...	...	...	...	...	...	...	...	...	...	r	cc	c	...	...	...	...	...	...	...	...	...	...
74	Trochiscia pancispinosa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...
	PROTOZOA.																							
75	Tintinnopsis beroidea	...	...	...	r	...	...	...	...	...	r	...	...	...	...	...	...	r	...	r	c	+	+	+
76	— campanula	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
77	Noctiluca miliaris	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	rr	cc	+	cc	cc	...	cc	r

TABLE X.—1904—*continued.*

BAHAMA BANK LIGHT SHIP—*continued.*

Species Number.	Month ...	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	3	18	4	18	2	16	30	16	31	15	29	14	27	13	27	10	27	10	25	10	24	8	24
	COELENTERATA.																							
78	Beroe ovata	...	...	...	...	...	...	...	...	...	...	...	r	r	r	r	r	r	+	+	r	...	...	...
79	Pleurobrachia pileus	...	...	...	...	...	...	...	...	...	+	...	...	r	...	r	...	...	...	r	r	...	...	...
80	Arachnactis Bournei	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
81	Margelis sp.	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
82	Margellium octopunctatum	...	...	...	...	...	...	+	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
83	Obelia nigra	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...
84	— sp.	...	...	r	...	r	r	+	...	...	...	...	...	r	r	...	r	...	+	rr	rr	...	...	..
85	Phialidium temporarium	...	...	...	...	...	...	...	...	...	r	...	+	+	+	+	r	+	+	+	c	...	r	...
86	Sarsia gemnifera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	+	+	...	...	...
	ECHINODERMATA.																							
87	Auricularia	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
88	Echinopluteus	...	...	...	...	...	r	r	...	...	...	..	+	...	...	...	...	...	...	...	...	...	...	...
89	Ophiopluteus	...	...	...	...	...	...	r	...	...	...	...	r	+	+	r	...	+	r	+	...	...	...	...
90	Ophiuria juv.	rr	...	...	...	...	...	r	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...
	VERMES.																							
91	Poecilochaetus larvae	...	...	...	...	...	...	...	...	...	...	...	...	r	+	r	r	...	...	...	...	...	...	...
92	Polychaete larvae	...	...	...	...	...	...	+	...	...	r	...	r	r	r	r	r	...	r	...	r	r	r	...
93	Sagitta bipunctata	r	r	r	...	r	...	r	...	...	+	r	r	+	+	+	cc	cc	cc	c	cc	cc	r	r
94	Tomopteris helgolandica	rr	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	+	r	r	r	...	...
	BRYOZOA.																							
95	Cyphonautes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...
	COPEPODA.																							
96	Acartia Clausi	+	+	+	...	+	+	c	c	c	c	+	c	c	+	+	+	c	c	cc	cc	cc	+	r
97	Anomalocera Patersoni	...	...	...	...	...	...	r	c	+	c	...	...	r	...	...	+	...	...	...	...	...	...	rr
98	Calanus finmarchicus	rr	...	...	rr	r	...	r	c	+	+	...	r	r	+	...	c	c	c	c	+	r	rr	rr
99	Centropages hamatus	...	...	...	...	...	+	+	+	+	+	r	+	c	...	...	+	+	...	rr	...	...	...	...
100	— typicus	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...	...	...	...
101	Euterpe acutifrons	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
102	Isias clavipes	...	...	...	...	...	...	...	...	...	...	...	...	c	c	c	c	+	r	...	...	...	...	...
103	Labidocera Wollastoni	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	...	rr	...	...	...	...	...
104	Longipedia coronata	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...
105	Oithona nana	...	...	...	...	...	...	r	...	...	...	...	...	...	rr	rr	...	...	...	rr	...	rr	...	...
106	— similis...	r	...	...	...	r	...	...	...	...	...	...	...	...	...	rr	r	...	+	rr	rr	...	r	...
107	Paracalanus parvus	rr	...	rr	...	...	...	+	c	...	...	...	...	...	r	...	r	c	c	+	+	r	r	r
108	Parapontella brevicornis	...	...	...	...	...	...	...	...	+	...	...	...	+	+	c	+	...	...	rr	...	...	...	...
109	Pseudocalanus elongatus	+	+	+	r	c	...	c	cc	r	...	...	...	...	+	r	r	+	c	+	c	cc	+	+
110	Temora longicornis	...	...	...	rr	+	...	c	cc	r	cc	...	+	c	c	c	cc	cc	cc	+	+	...	...	...

TABLE X.—1904—*continued.*

BAHAMA BANK LIGHT SHIP—*continued.*

Species Number.	Month	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day	3	18	4	18	2	16	30	16	31	15	29	14	27	13	27	10	27	10	25	10	24	8	24
	CRUSTACEA CETERA.																							
111	Evadne Nordmanni	...	...	...	...	...	...	...	r	...	r	...	+	+	...	...	...	...	...	...	...	...	...	...
112	Podon Leuckarti	...	...	...	...	...	...	r	...	r	r	c	+	r	+	r	r	...	...	...	...	...	...	...	...	...
113	Nyctiphanes Couchi	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...
114	Caridid larvae	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	r	...	...	...	...	...	...	r
115	Cirriped larvae	...	...	...	...	...	...	+	...	c	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
116	Cypris stage larvae	...	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
117	Megalopa	...	...	...	...	...	...	...	...	...	r	...	r	r	...	+	...	...	+	...	...	...	...	...	...	...
118	Micronisus	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	r	...	...	...	...	...	...	...	...	...
119	Nauplius	...	...	...	...	r	r	r	r	+	+	+	+	+	+	+	+	+	+	+	+	r	r	r	r	r
120	Zoea	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	rr	...	...	r	+	...	...	...	...	...	...
	MOLLUSCA.																									
121	Lamellibranchiate larvae	...	...	...	...	...	...	...	r	...	...	...	...	...	...	r	...	...	r	...	r	...	...	...	...	rr
	TUNICATA.																									
122	Fritillaria borealis	...	...	...	...	...	...	...	+	c	c	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
123	Oikopleura dioica	...	...	...	...	...	...	...	...	...	+	+	r	c	r	r	c	+	c	+	c	c	c	+	r	+	r
	VERTEBRATA.																									
124	Fish eggs and larvae	...	...	...	...	r	c	c	cc	cc	c	+	c	+	r	r	...	...	...	...	...	...	...	...	...	...

TABLE XI.—1904.

CARDIGAN BAY LIGHT SHIP.

Species Number.	Month	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day	1	16	2	17	1	16	30	16	30	14	27	13	27	12	26	9	25	10	25	7	24	7	24
	DIATOMACEAE.																							
1	Acnanthes sp.	...	...	r	c	r	+	c	r	r	+	c	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Actinoptychus undulatus	...		r	...	+	+	+	r	r	+	rr	rr	...	...	...	rr	rr	r	c	+	+	+	+	+	+
3	Asterionella glacialis	...		...	...	...	...	...	...	...	...	...	...	...	...	...	rr	+	c	c	+	r	...	rr	r
4	Bacillaria paradoxa	...		c	c	+	c	+	+	r	+	rr	+	...	...	...	+	+	r	+	+	+	+	+	+	+
5	Biddulphia alternans	...		rr	...	...	rr	...	rr	...	...	...	...	...	...	...	...	rr	r	rr	...	...	...	...	...	...
6	— aurita	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
7	— favus	...	...	rr	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	— mobiliensis	...		c	c	c	c	+	c	+	c	+	+	...	...	...	+	+	c	c	c	+	c	+	c
9	Cerataulina Bergoni	...		...	...	...	...	...	...	...	...	c	+	c	rr	...	rr	...	rr	...	...	...	...	...	...	...
10	Chactoceras boreale	...		...	...	...	...	...	...	...	...	...	...	...	...	...	+	r	r	...	...	...	...	...	...	...
11	— constrictum	...		...	...	...	...	...	+	...	...	...	rr	...	...	...	...	...	r	...	...	...	...	...	...	...
12	— crinitum	...		...	rr	...	...	...	r	r	r	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
13	— curvisetum	...		...	...	...	...	...	r	r	+	...	...	...	...	...	...	rr?	...	...	...	...	...	...	...	...
14	— danicum	...		+	+	r	r	r	c	r	+	...	r	...	...	...	r	...	r	r	+	rr	+	+	r
15	— debile	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	...
16	— decipiens	...		...	r	...	...	...	r	r	...	...	...	...	...	...	+	+	c	c	c	c	c	r	+
17	— densum	...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	rr	...	...

TABLE XI.—1904—*continued.*

CARDIGAN BAY LIGHT SHIP—*continued.*

Species Number.	Month ...	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	1	16	2	17	1	16	30	16	30	14	27	13	27	12	26	9	25	10	25	7	24	7	24
	DIATOMACEAE—*cont.*																							
18	Chaetoceras Schütti ...	rr	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
19	— teres	...	...	...	...	...	r	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	— Willei	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...
21	Coscinodiscus concinnus ...	...	...	...	...	...	+	...	c	...	...	...	...	...	...	...	...	...	...	...	r	+	+	+
22	— excentricus...	c	+	+	+	+	+	+	r	r	+	...	...	...	...	+	r	r	rr	c	c	c	c	c
23	— Grani ...	...	...	...	...	rr	...	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	r
24	— radiatus ...	c	c	+	+	+	c	c	cc	cc	c	+	+	r	r	r	+	c	c	+	r	r	r	c
25	Coscinosira polychorda ...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
26	Ditylum Brightwelli ...	+	r	r	r	r	+	+	+	+	rr	...	...	...	...	...	...	r	r	...	...	...	...	+
27	Eucampia zodiacus ...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	Fragillaria sp.	...	...	...	...	...	...	r	+	c	r	...	...	...	...	...	...	...	...	...	...	...	...	...
29	Guinardia flaccida	r	...	rr	rr	rr	+	rr	r	c	+	c	c	+	+	c	+	?	r	r	...	...	rr	+
30	Hyalodiscus stelliger ...	+	+	r	+	r	r	r	r	r	r	...	...	...	c	c	c	c	c	c	c	c	c	c
31	Lauderia borealis	rr	rr	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	r	+
32	Leptocylindricus danicus...	...	...	...	...	...	...	...	...	...	...	rr	+	...	...	...	...	...	...	...	...	...	...	...
33	Lithodesmium	r	r	rr	...	rr	...	r	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	+
34	Navicula membranacea ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	rr	r	r	...	...	...	...	...
35	Nitzschia seriata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...
36	Paralia sulcata	+	c	r	r	r	r	r	r	r	r	...	...	...	r	+	+	c	c	rr	rr	rr	r	+
37	Pleurosigma sp.	r	r	...	...	...	...	...	rr	...	rr	rr	rr	...	...	rr	rr	...	rr	rr	rr	rr	rr	r
38	Rhizosolenia delicatula ...	...	...	...	...	...	...	...	...	r	r	cc	cc	c	...	...	...	...	...	r	r	...	...	...
39	— semispina ...	...	...	...	...	...	...	...	...	...	...	rr	+	r	+	+	r	r	...	r	...	...	...	...
40	— setigera ...	r	r	...	r	...	+	+	c	r	...	...	...	...	...	...	...	+	r	...	...	rr	...	rr
41	— Shrubsolei ...	r	...	r	r	r	r	r	...	+	+	c	c	+	+	c	r	...	...	r	...	...	rr	r
42	— Stolterfothi ...	...	...	...	...	...	...	...	...	...	...	cc	cc	c	+	c	r	...	...	...	...	...	...	r
43	Skeletonema costatum ...	...	r	r	+	r	r	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	rr	...	...
44	Streptotheca tamesis ...	+	+	+	+	+	c	+	c	+	+	...	...	...	...	c	c	c	c	c	c	c	c	c
45	Thalassiosira gelatinosa ...	r	r	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
46	Thalassiothrix Frauenfeldi	r	r	r	...	r	c	r	+	...	r	...	...	...	...	...	rr	+	r	rr	+	r	r	r
	PERIDINIALES.																							
47	Ceratium furca	r	r	...	...	...	r	rr	r	rr	...	...	...	rr	r	r	r	+	r	r	r	r	r	r
48	— fusus	...	...	...	...	...	...	...	...	...	...	...	...	+	r	+	+	c	r	r	r	...	...	r
49	— horridum ...	...	...	...	...	...	...	...	...	rr	...	...	...	...	r	...	...	...	...	...	...	rr	...	...
50	— lineatum ...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...
51	— longipes	+	+	r	...	...	...	...	...	...	...	rr	rr	...	+	+	+	c	+	r	r	r	r	...
52	— macroceras ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...
53	— tripos	c	c	+	rr	rr	...	...	...	...	...	...	...	...	r	r	r	c	c	+	r	r	r	...
54	Dinophysis acuminata ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
55	— ovum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...
56	— rotundata ...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	r	...	...	...	...	...	...
57	Diplopsalis lenticula ...	...	...	...	...	...	...	...	...	...	...	...	...	c	+	cc	c	c	+	r	r	...	...	...
58	Gonyaulax polygramma ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...

TABLE XI.—1904—*continued.*

CARDIGAN BAY LIGHT SHIP—*continued.*

Species Number.	Month ...	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	1	16	2	17	1	16	30	16	30	14	27	13	27	12	26	9	25	10	25	7	24	7	24
	PERIDINIALES—*cont.*																							
59	Peridinium conicum ...	...	rr	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	r	r	r	r	r	r	r
60	— decipiens ...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...
61	— — var ...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...	...
62	— depressum ...	rr	...	...	...	...	...	...	...	...	...	...	...	c	c	c	+	+	r	...	...	rr	...	...
63	— divergens ...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...
64	— globulus ...	...	...	...	...	...	...	...	...	...	...	...	rr	+	r	...	...	...	...	...	...	...	...	...
65	— oceanicum ...	...	..	...	...	...	...	...	...	...	...	...	...	r	r	+	...	+	...	...	...	...	...	..
66	— ovatum ...	...	...	...	...	...	...	...	...	r	...	r	+	cc	+	+	+	c	r	...	...	...	...	...
67	— pallidum ...	...	...	...	...	...	...	...	...	r	rr	...	+	r	...	...	r	+	r	...	...	...	...	...
68	— pentagonum ...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	rr
69	— Steini	...	...	...	...	...	...	...	...	...	...	rr	...	r	...	...	...	...	...	...	...	...	...	...
70	Prorocentrum micans ...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	+	r	...	...	...	...	...
	PROTOPHYTA CETERA.																							
71	Cocosphaera atlantica ...	+	...	+	...	(r)	...	...	(rr)	...	(r)	...	...	...	...	...	...	...	...	(r)	(r)	(r)	+	(r)
72	Dictyocha fibula	...	...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	rr	...	rr
73	Distephanus speculum ...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	rr	r	...	...	rr	...	...
74	Halosphaera viridis ...	r	r	r	...	...	+	r	+	+	...	r	...	...	...	...	r	+	...	r	...	...	...	r
75	Hexasterias problematica...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...
76	Trochiscia brachiolata ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	r	r	...	...	...
77	— clevei	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...	r	r	r	...	...	...	...	r
78	— paucispinosa ...	...	...	...	...	...	...	...	...	...	r	...	...	rr	r	...	rr	...	...	...	...	rr	...	rr
	INCERTAE SEDIS.																							
79	Umrindete cyste	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	PROTOZOA.																							
80	Cyttarocylis serrata ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...	...
81	Ptychocylis umula ...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...	...	...	...	...
82	Tintinnopsis beriodea ...	r	r	r	r	r	r	...	r	+	rr	rr	...	rr	+	c	c	cc	c	c	+	+	r	r
83	— campanula ...	r	...	...	...	...	...	...	r	...	...	...	...	...	...	r	r	c	c	+	...	...	...	rr
84	Noctiluca miliaris	...	...	...	...	...	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...
	COELENTERATA.																							
85	Pleurobrachia pileus ...	...	...	...	...	...	...	...	...	...	...	rr	rr	c	...	...	...	...	...	...	...	...	..	...
86	Cupulita Sarsi	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...	...
87	Muggiaea atlantica ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	+	r	...	...	...	...	...	...
88	Obelia sp.	...	...	...	...	..	...	...	...	...	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...
89	Phialidium temporarium ...	..	...	...	...	...	...	...	...	...	...	...	rr	+	...	...	+	r	...	...	..	...	...	...
90	Sarsia gemmifera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...	...
	ECHINODERMATA.																							
91	Ophiopluteus	...	...	...	...	...	...	...	...	...	...	...	rr	c	...	...	...	r	...	...	...	...	...	...
92	Ophiuria juv.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...
	VERMES.																							
93	Autolytus prolifer	c	+	r	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...
94	Polychaete larvae	r	r	r	r	r	r	r	...	...	...	...	...	...	...	...	...	r	r	...	..	...	r	...

TABLE XI.—1904—*continued.*

CARDIGAN BAY LIGHT SHIP—*continued.*

Species Number.	Month ...	Feb.		Mar.		April.			May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Day ...	1	16	2	17	1	16	30	16	30	14	27	13	27	12	26	9	25	10	25	7	24	7	24
	VERMES—*cont.*																							
95	Sagitta bipunctata ...	r	+	r	r	r	r	rr	r	rr	...	...	...	...	...	+	+	+	+	r	+	r	r	c
96	Tomopteris helgolandica ...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	...	...	...	...	...
	BRYOZOA.																							
97	Cyphonautes	+	+	+	+	r	+	...	r	...	...	...	r	...	...	...	r	...	...	...	rr	...	...	..
	COPEPODA.																							
98	Acartia Clausi	+	+	r	r	+	+	c	c	cc	c	+	+	+	c	c	c	cc	c	cc	cc	cc	cc	c
99	Alteutha bopryoides ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...
100	Anomalocera Patersoni ...	...	...	+	...	...	r	...	+	...	...	...	rr	...	+	r	+	...	...	...	rr	...	...	...
101	Calanus finmarchicus ...	+	+	+	r	+	r	r	r	r	+	...	r	r	+	+	+	r	r	r	+	r	r	+
102	Centropages hamatus ...	...	...	r	r	r	+	c	c	c	c	+	c	...	...	r	+	...	...	rr	...	rr	rr	...
103	— typicus ...	c	+	...	...	...	+	...	+	r	...	c	r	+	c	c	c	cc	cc	+	rr	...	...	...
104	Euterpe acutifrons ...	...	r	r	...	...	r	...	...	...	...	...	...	...	...	...	...	r	...	...	...	+	+	...
105	Isias clavipes	...	...	...	...	...	...	...	...	...	...	...	...	rr	c	c	c	c	c	rr	...	...	...	rr
106	Labidocera Wollastoni ...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	+	+	...	...	...	...	...	...
107	Metridia lucens	...	...	r	...	rr	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
108	Oithona nana	...	r	r	r	...	...	...	r	r	...	...	...	r	...	...	...	r	...	...	...	...	...	...
109	— similis	...	r	r	r	...	...	...	...	...	...	...	...	...	...	...	r	r	...	r	...	...	...	...
110	Oncaea ornata	r	rr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
111	Paracalanus parvus ...	...	...	rr	...	...	...	...	...	...	...	...	...	...	...	...	r	rr	rr	...	...	...	...	...
112	Parapontella brevicornis ...	...	...	...	...	...	...	r	...	...	r	rr	...	...	r	+	...	...	r	+	...	...	...	...
113	Pseudocalanus elongatus ...	+	c	+	+	+	+	+	+	...	c	...	...	...	r	+	+	r	r	c	c	c	c	+
114	Temora longicornis ...	...	...	...	+	+	+	c	+	c	+	rr	c	+	c	+	r	...	...	...	...	...	rr	...
115	Thalestris Krohni	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	rr	...	...	...	...	...
	CRUSTACEA CETERA.																							
116	Podon intermedius ...	...	...	...	...	...	...	...	...	...	...	...	...	...	+	r	...	...	...	...	...	...	...	...
117	Nyctiphanes couchi ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	rr	...	...	...	...	...	...
118	Caridid larvae	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	r	...	...	...	...	...	...	...
119	Cirriped larvae	...	...	...	+	r	r	+	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
120	Cypris stage larvae ...	...	...	...	...	...	...	...	r	r	...	...	...	...	...	...	...	...	...	...	...	...	...	...
121	Megalopa	...	...	...	...	...	...	...	...	...	...	...	...	...	+	...	...	...	...	...	...	...	...	...
122	Micronisсus...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	r	r	r	...	...	...	...	...
123	Nauplius	+	+	+	+	+	+	+	+	+	+	+	+	+	+	c	c	c	c	+	+	+	+	r
124	Zoea	...	...	r	r	r	r	r	r	...	...	...	...	...	+	r	...	...	...	...	...	...	...	...	...
	MOLLUSCA.																							
125	Gasteropod larvae	r	r	...	...	...	...	...	r	r	...	...	...	...	r	+	+	+	+	...	...	...	...	...
126	Lamellibranchiate larvae...	r	r	...	...	...	...	...	r	r	...	...	...	...	r	+	+	+	+	+	+	+	+	...
	TUNICATA.																							
127	Fritillaria borealis... ...	...	...	...	...	...	rr	r	r	...	...	...	r	...	...	...	...	...	...	...	...	...	...	...
128	Oikopleura dioica	...	...	r	r	+	+	+	+	+	r	r	+	r	r	+	+	+	...	...	...	...	...	...
	VERTEBRATA.																							
129	Fish eggs and larvae ...	r	r	c	c	+	+	r	+	+	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Mar. Biol. Assoc. Report II.—1904-05.

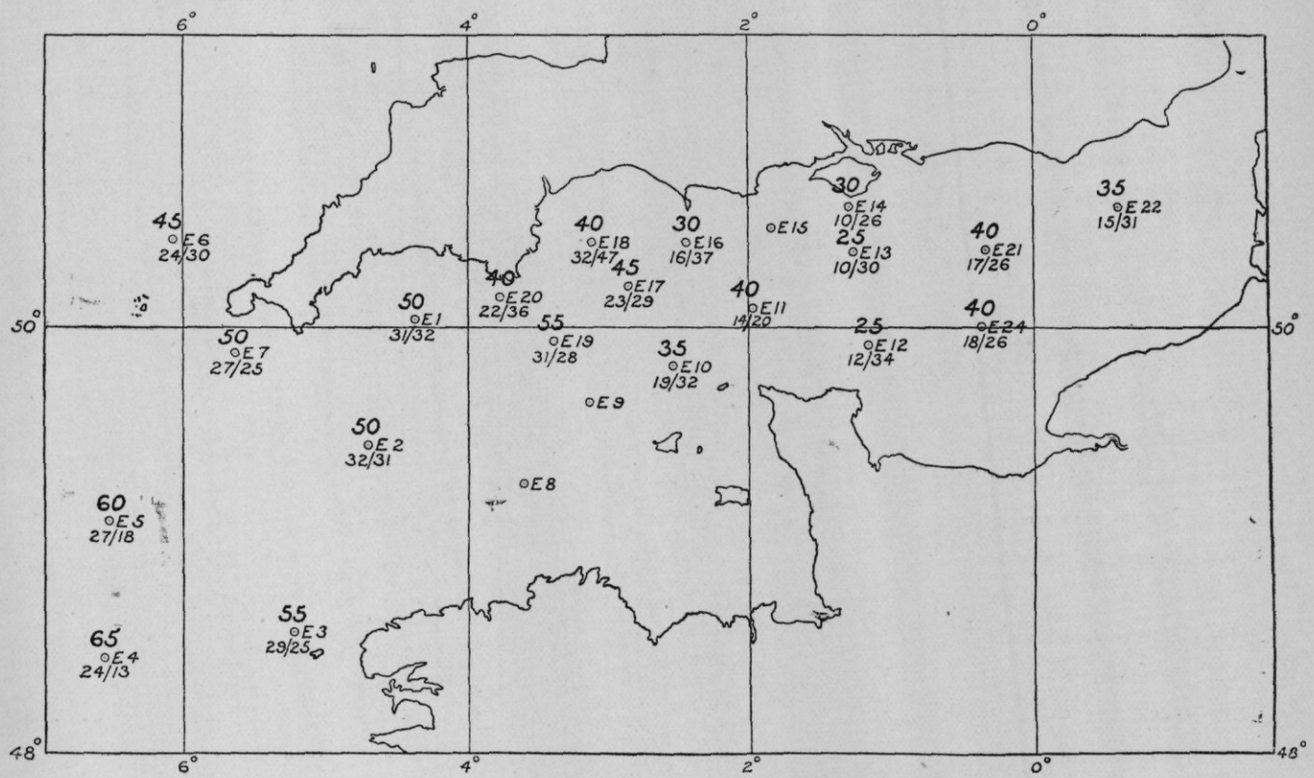

CHART 1. FEBRUARY, 1904.

Proportion of Oceanic Species stated as percentage of Oceanic and Neritic taken together.

The large figures are the percentages; the small figures are the totals of Oceanic and Neritic Species. Oceanic/Neritic.

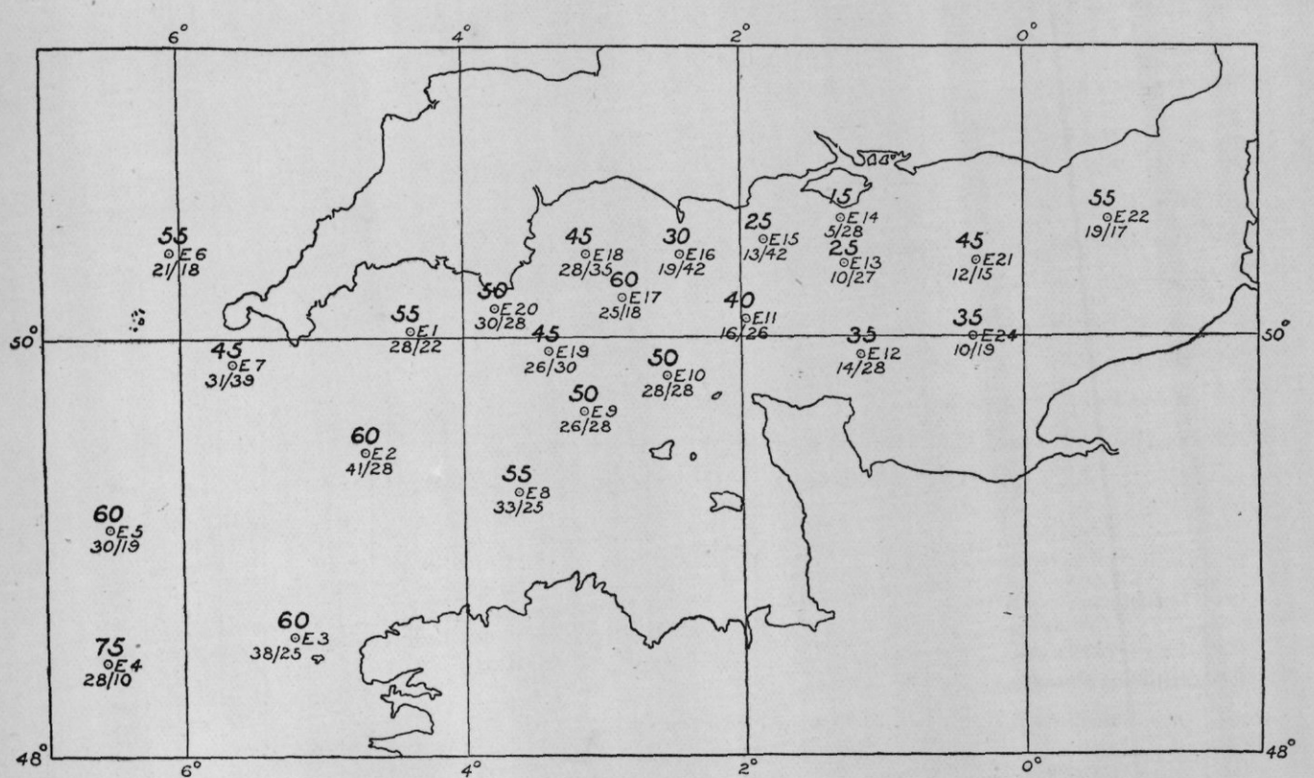

CHART 2. MAY, 1904.

Gough: Plankton of English Channel.

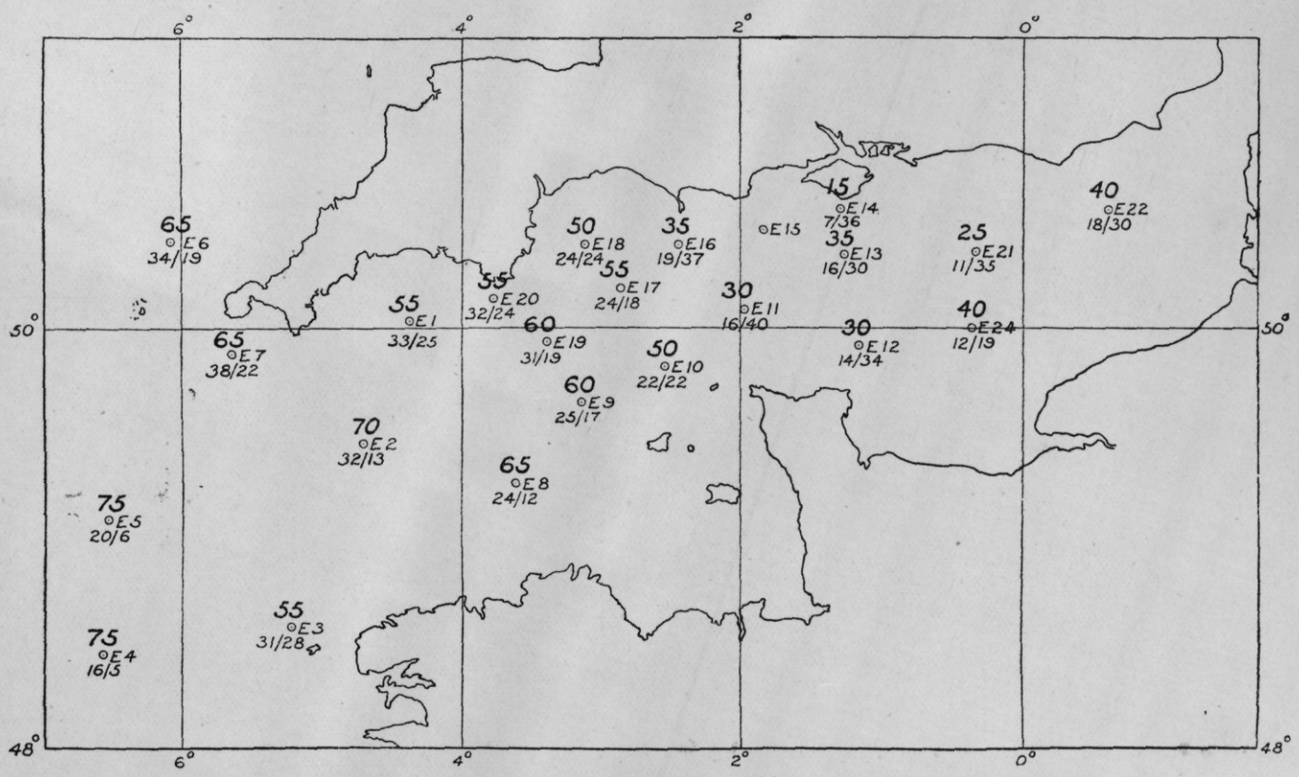

CHART 3. AUGUST, 1904.

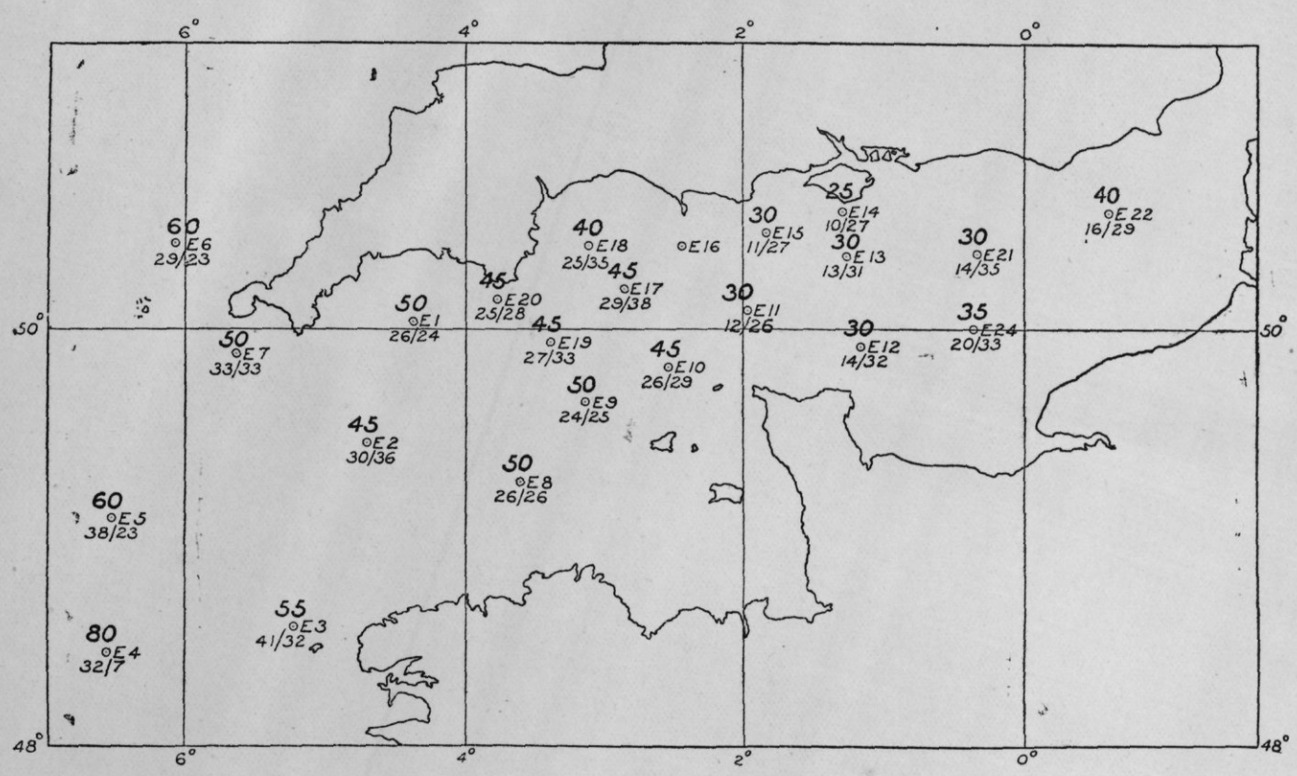

CHART 4. NOVEMBER, 1904.

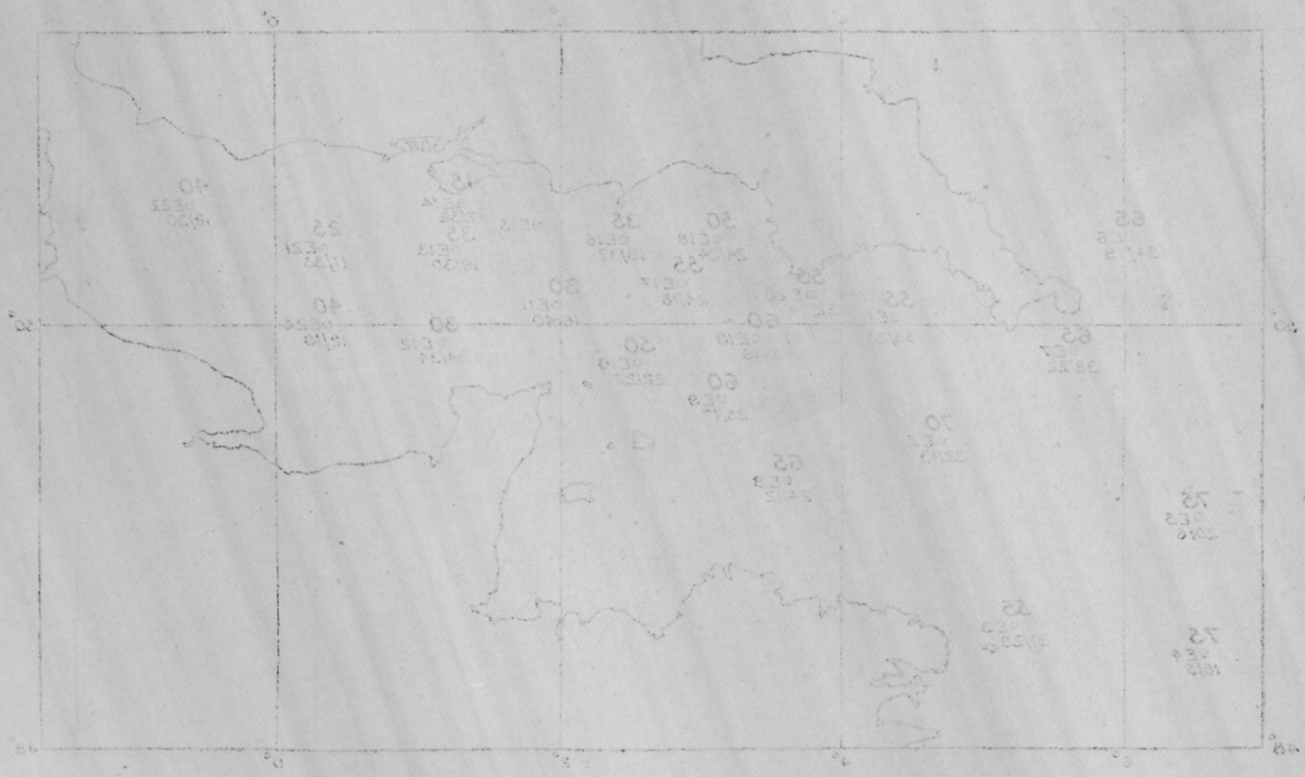

CHART 3. AUGUST, 1904.

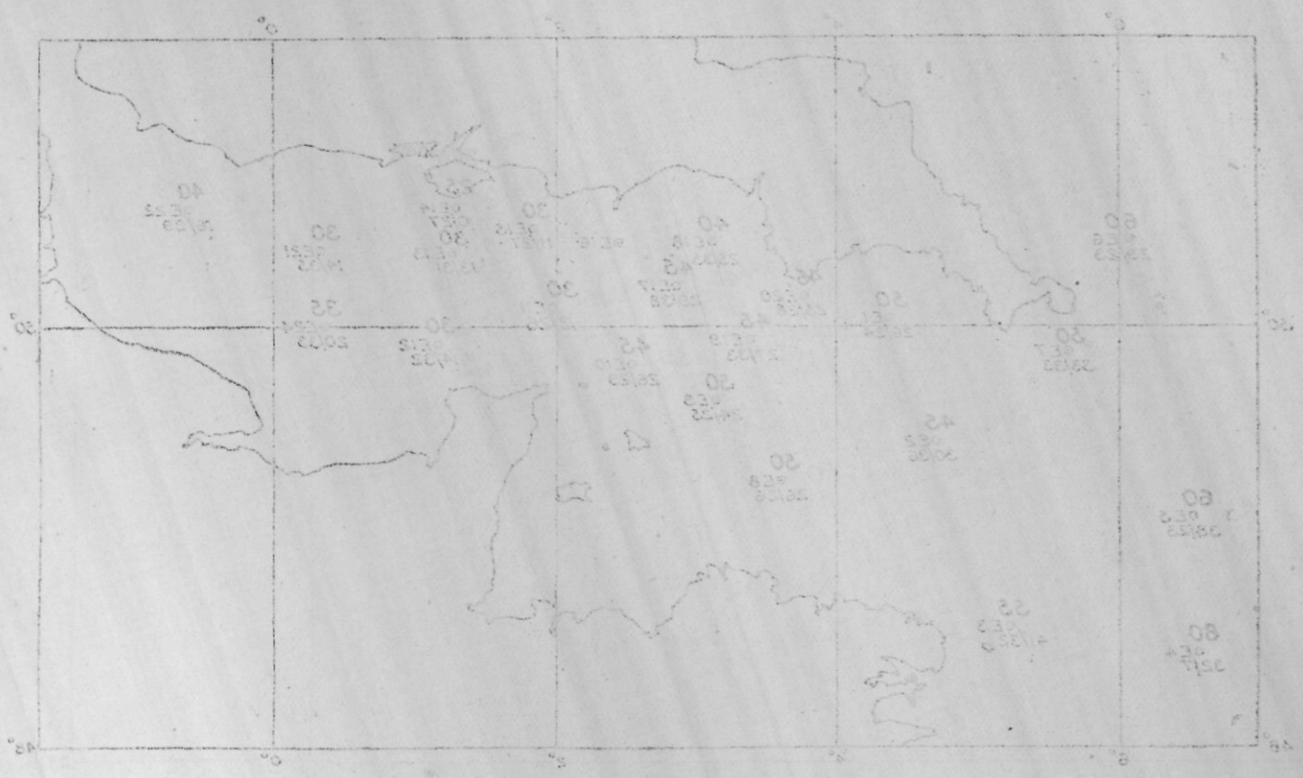

CHART 4. NOVEMBER, 1904.

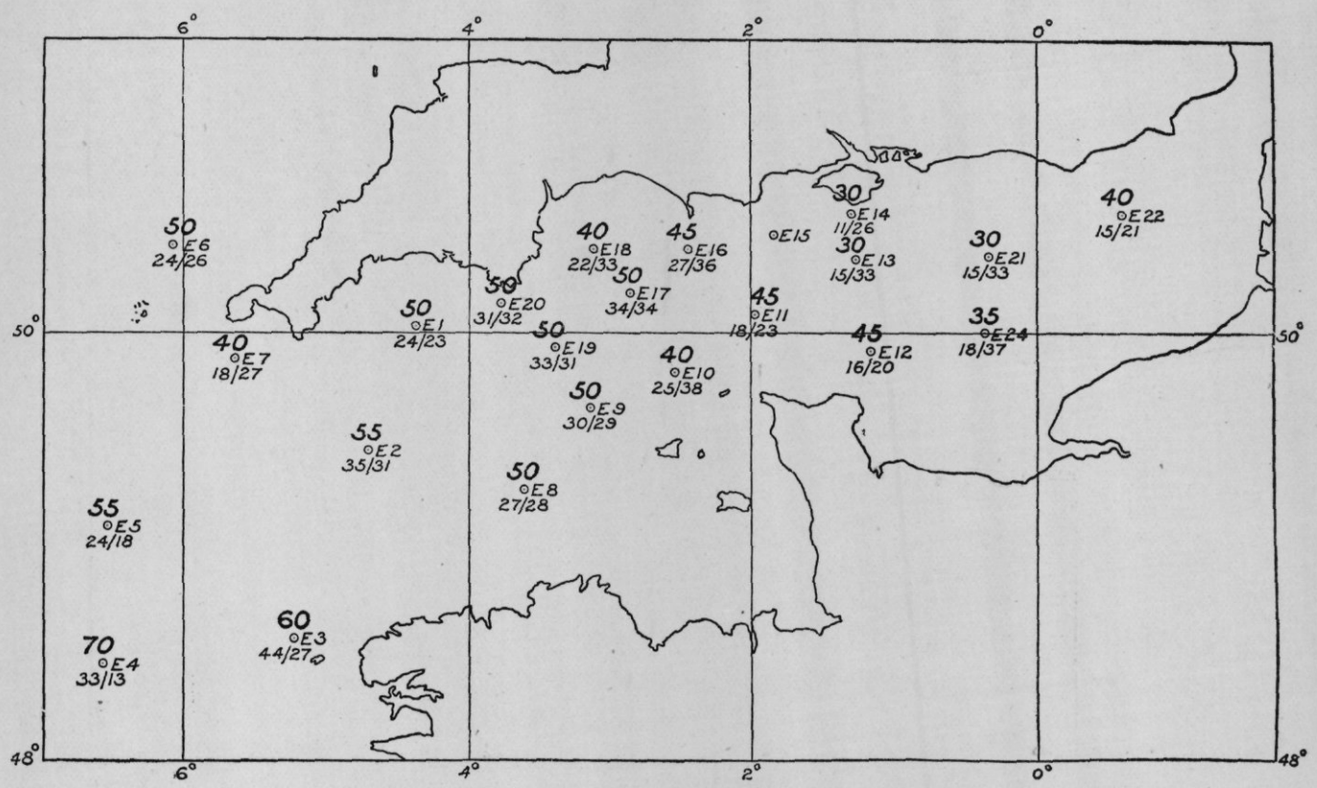

CHART 5. FEBRUARY, 1905.

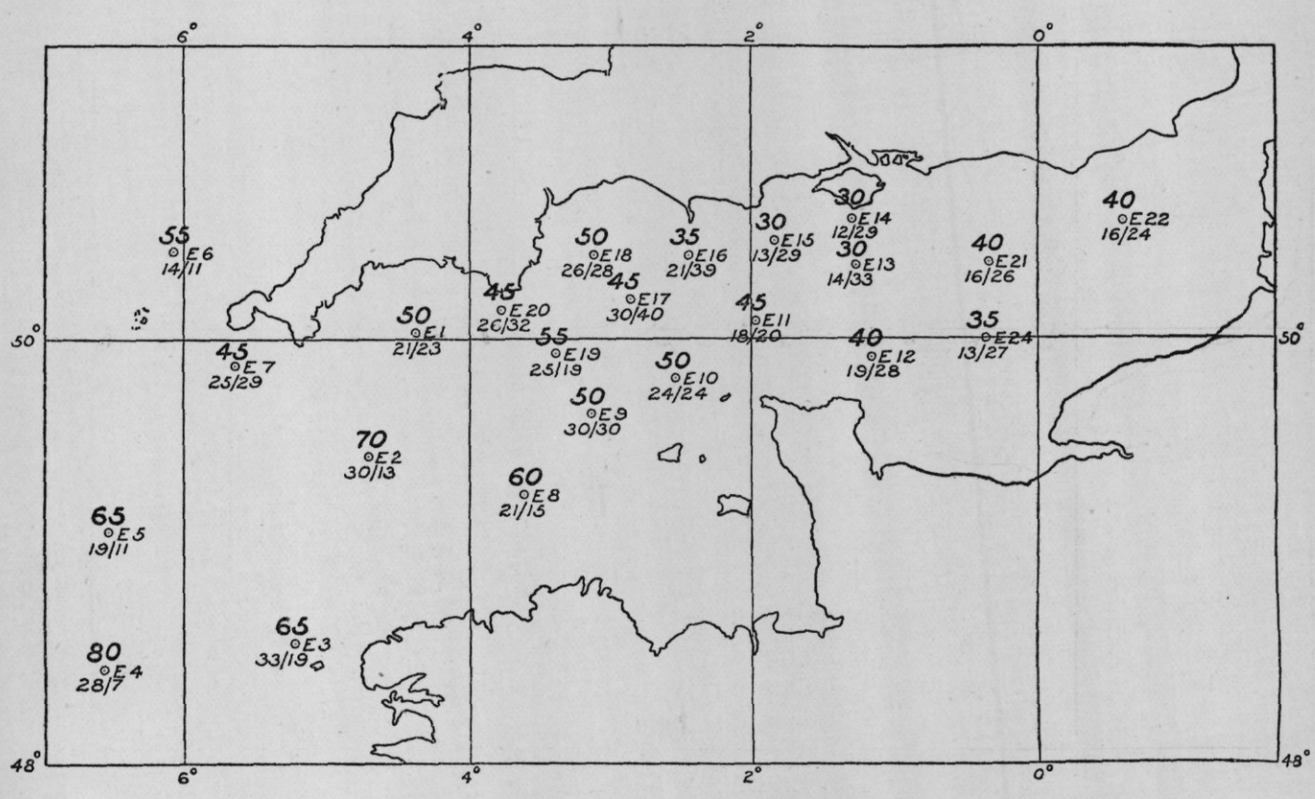

CHART 6. MAY, 1905.

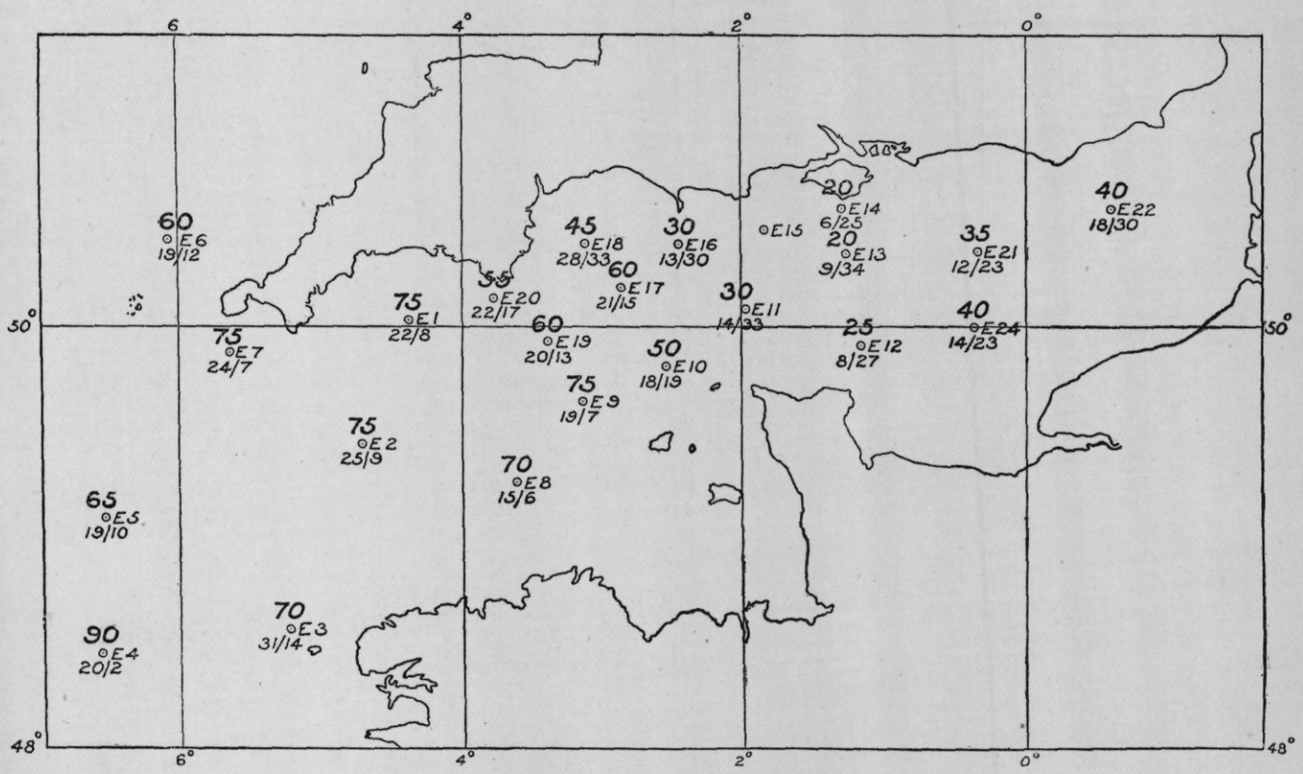

CHART 7. AUGUST, 1905.

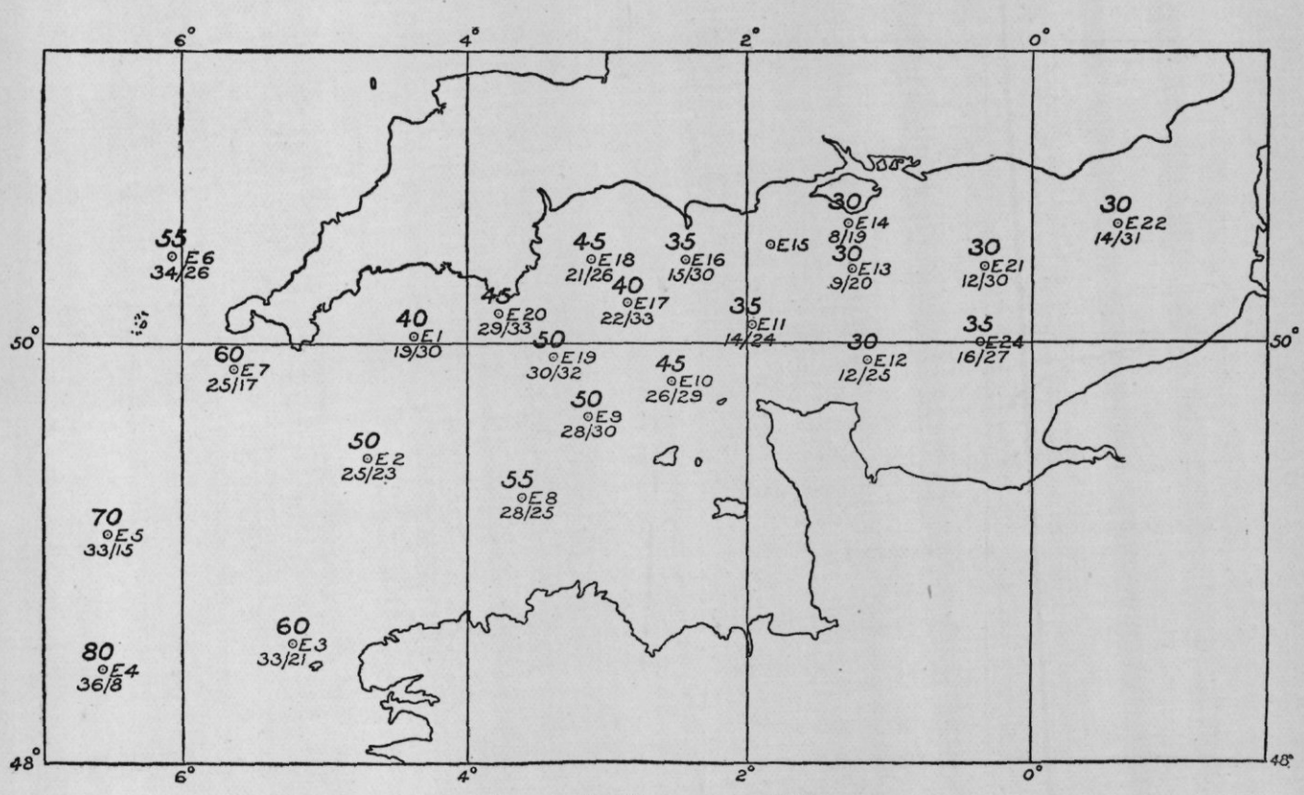

CHART 8. NOVEMBER, 1905.

THE SURFACE WATERS

OF THE

NORTH ATLANTIC OCEAN

SOUTH OF 60° N. LATITUDE,

SEPTEMBER 1904 TO DECEMBER 1905,

BY

DONALD J. MATTHEWS.

With Diagrams (Figs. 1-3) in the Text and Plates I. to III. at end.

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BY

DONALD J. MATTHEWS.

I.—INTRODUCTION.

The investigations described in the following pages are the outcome of a recommendation made by a meeting of hydrographic* assistants held in Copenhagen in 1904 at the invitation of the Central Bureau of the International Council for the Study of the Sea. They were not undertaken with the intention of giving a complete account of the movements of the surface waters of the North Atlantic during the period with which they deal, but rather in order to provide information which, it was hoped, would prove of some assistance to the hydrographers of the countries adhering to the International Scheme of co-operation in explaining variations observed in their own areas, and in bringing these variations as far as possible into one generalisation. It was decided, therefore, to limit the area of research to those parts of the North Atlantic not visited by the special steamers engaged in the work, and from which it would be possible to obtain a sufficient number of water samples from the larger steamers making regular voyages; that is, roughly, west of the British Isles, south of a line joining the north of Scotland to the northern entrance of the Straits of Belle Isle, and north of 20° N. Latitude. This southern limit was adopted after a discussion at the meeting to which reference has been made above.

It will be seen that comparatively little reference has been made to the work of former investigators in the same region. This seeming neglect is due to the fact that the present report covers only sixteen months and is necessarily almost entirely descriptive, any attempt at generalisation being out of place for the present. No claim is put forward to the discovery of any new principle of importance, and all that it is hoped to do is to give a sufficiently accurate account of the distribution of surface salinity and temperature during the period in question and to draw attention to their bearing on phenomena already recorded by others in those parts of the northern European waters which are being more thoroughly examined. Indeed, the general principles of the circulation of the North Atlantic, particularly as regards the surface, and in a less degree where the deeper waters are concerned, have already been laid down, and it now remains to fill in the details and investigate its variations, periodic and unperiodic, to explain them as far as is possible, and to show what influence they have, if any, on fishery problems, a task that demands careful and unremitting work carried on without a break for many years. This last condition is, in the opinion of the present writer, one of the greatest importance, and that so much remains to be done is due to the fact that few private investigators are in a position to give the time or bear the expense necessary for continuous work. Work of great value has been done in the past by Dr. H. N. Dickson and by Professor Otto Pettersson, to take two instances only, but much of its value for the explanation of variations has been lost because it was not possible to carry on the observations for a sufficiently long period.

The investigations dealt with here are still in progress, and it is hoped that a further report on them will be ready for the press before the end of the present year (1907).

* The word hydrography and its derivatives are used throughout in the sense of "physical oceanography."

II.—MATERIAL.

Salinities.—a. For the larger part of the material used I am indebted to the assistance of the Council of the Meteorological Office, who authorized their Marine Superintendent, Commander M. W. Campbell Hepworth, C.B., R.N.R., to write to the commanders of a number of vessels, from which meteorological log-books were already being received, asking them if they would undertake to collect water samples for me. Most of those to whom application was made very kindly consented to do so, and some in their turn were the means of interesting other officers in the work. In one case the commander of a liner has volunteered his assistance, while I owe the help of Captain W. Adams, of the whaler *Morning* to the good offices of a friend. I would take this opportunity of expressing my thanks to Commander Hepworth, not only for his assistance in obtaining the necessary data, but also for much valuable advice ; and to the other officials of the Meteorological Office for their courteous help on the occasions when I have referred to books or unpublished records in their care.

A complete list, as far as possible, of the officers responsible for the observations, will be found in Table I., and I wish here to express my appreciation of the trouble and care they have taken, in all cases entirely gratuitously, which alone have made these investigations possible. That the list is not complete in all respects is due to the fact that the observers have not in all cases signed the forms supplied with the boxes of bottles ; in two cases at least the commanders who originally undertook the work have left the vessels and their successors have carried it on without my being aware of the change till some time afterwards. I trust this explanation will account for any omissions.

A few observers, in particular Captain Lumsdane of the *Astoria*, have sent me notes on currents and suggestions as to the interpretation of the results.

The bottles used for preserving the water samples were " six ounce sterilized milk bottles " with a porcelain stopper fitted with a rubber washer and automatic spring fastening. Each consignment of new bottles was carefully examined and doubtful ones were rejected ; the remainder proved very satisfactory, and in the few instances where a fastening had become loose and had allowed evaporation to take place, the fact was at once obvious. If the washers are examined each time that the bottles are cleaned, and the observers are careful to tie the string of the label round both the wire and the neck of the bottle, evaporation is virtually impossible. A source of error which occasionally arose, and might equally arise with any type of bottle, was a very small crack apparently caused by a blow ; it was sometimes so minute as not to be noticed until an abnormal salinity led to a careful examination. A few bottles were also lost through the contents freezing.

With the bottles were supplied forms giving general instructions, with spaces for recording the name of the vessel, the date and time, position, sea temperature, and remarks on currents, weather conditions, &c., and the name of the observer ; and also stout Manila tie-on labels with spaces for the essential information. A few observers have given all information on the labels instead of using the forms, and this has not infrequently led to their omitting to add their names.

The boxes used were lined with felt top and bottom and held either 30 or 42 bottles, each in a separate compartment. The larger boxes were provided with hand-holes instead of rope handles, a mistake that permitted the entrance of rats which destroyed several labels.

According to the original programme samples were to be taken at noon every day except near the British coast, where modifications were introduced to suit the local conditions. Many observers, however, have taken them more frequently when the regular two-hourly temperature readings made for the Meteorological Office have shown that the conditions have been varying rapidly ; and in a few cases a sample has been taken every four hours, or even every two hours when the supply of bottles was sufficient.

The total number of samples received from vessels sailing from British ports or calling at them was 452, September to December, 1904, and 1,701, January to December, 1905.

b. I have also made use of a valuable series of salinities, in all 913, determined under the direction of the Danish *Kommissionen for Havundersoegelser* on samples taken on steamers trading between Copenhagen and New York, and commencing in December, 1904. The results up to the end of June, 1905, are unpublished, and I received them in manuscript through the courtesy of Docent Martin Knudsen, Director of the Danish Hydrographic Investigations. They will be found in Table II., under the names of the vessels *United States*, *Hellig Olav*, and *Oscar II.* From that date onwards they have been published in the Quarterly Bulletin, and I have not reprinted them here.

c. The observations made on the fishery cruiser *Helga* of the Fisheries Branch of the Board of Agriculture and Technical Instruction for Ireland, have enabled me to fill in some gaps off the west coast of Ireland where other information is wanting. The samples were analysed partly by Mr. Ramsden and partly by myself.

d. I have to thank Dr. Norris Wolfenden for sending me the proofs of an as yet unpublished paper by Dr. H. N. Dickson on the samples collected on Dr. Wolfenden's yacht *Silver Belle*. The results cannot be used directly as they do not quite coincide with the other observations in point of date; indirectly, however, they have been of great assistance in throwing light on a doubtful point, as will be shown later.

e. All the above salinities have been determined by titrating the samples against the "normal water" of the Central Laboratory at Christiania. I have now to refer to a set of observations as to the propriety of using which I have had considerable doubt; *i.e.*, the analyses made by MM. G. H. Allemandet* and L. G. Sabrou, of the samples collected on board the yacht *Princesse Alice*, owned by H.S.H. The Prince of Monaco. M. Allemandet has used two methods of analysis, that of Docent Knudsen adopted by the Central Council, and another to which he refers as "la méthode scientifique rigoureuse, exposée par M. Thoulet." The values obtained by these two methods differ by an amount greater than the experimental error, and one or both must be incorrect. It appeared, however, that the difference was not sufficiently large to preclude the use of either set of values for the purpose of the present paper, as the isohalines for the region in question have not been drawn for an interval less than 0·50 pro mille salinity. I have, therefore, plotted them along with my own determinations where possible, using the figures given by Knudsen's method. The two sets of observations invariably confirmed one another, and in some cases I have been able to extend the isohalines by the use of the material from the *Princesse Alice*.

Temperatures.—With nearly every sample of water or record of salinity I have received a note of the surface temperature. The British vessels generally used an accurate thermometer supplied by the Meteorological Office, divided to single degrees on the Fahrenheit scale. In a few cases where no verified thermometer was on board the instrument used was sent to me for examination. The results were somewhat disappointing, the error being often two degrees, and once as much as four degrees.

I have no information as to the thermometers used on the other ships. For reasons which are explained in Section V. I have not used these temperatures for drawing the isotherms, which are founded on information derived from the Monthly Pilot Chart issued by the British Meteorological Office.

III.—DETERMINATION OF SALINITY, &c.

The salinities recorded in Table II., with the exception of those from the Danish vessels, were determined by the present writer, the chemical analysis being confined to the estimation of the total halides by titration according to the method adopted by the Central Council. A quantity of about 16 cc., varying of course at different temperatures of the laboratory, was measured in a Knudsen pipette provided with a two-way stop cock instead of an upper mark, and run out into a porcelain basin, where it was titrated with a solution of silver nitrate (containing about 41·7 grms. per litre); the indicator was two drops of a saturated solution of potassium chromate. The burette, of a total capacity of 44 cc., was expanded above into a bulb of 35 cc. capacity, drawn out at the top to a fine opening; it was connected below by a tap and tube with the store bottle containing the silver nitrate solution, which was allowed to overflow through the

*. Bulletin du Musée Oceanographique de Monaco, Nos. 43 and 54. G. H. Allemandet.

upper opening every time that the burette was filled. The unit used in graduation was equal to 2 cc., and was divided by marks to tenths, which could be read to hundredths by estimation with considerable accuracy. For every ten or twelve samples analysed a titration was made of the "normal water" of the Central Laboratory or more often of a secondary standard seawater of nearly the same chlorine content which had been carefully compared with the "normal water." With the quantities and capacities given, the burette reading is approximately equal to the chlorine content of the sample pro mille, and the correct chlorine value can be taken by inspection from Knudsen's Hydrographic Tables. The capacity of the pipette does not enter into the calculation, and need only be known for convenience in making up the silver solution. The method is extremely sensitive, and differences between duplicate analyses as great as ·02 pro mille were very rare; when they did occur they could always be traced either to a leaky tap or to grease in the burette. The burette was carefully calibrated with distilled water and with the silver nitrate solution. The difference between the values due to the difference in viscosity of the water and of the solution was not such as to produce any appreciable error except on samples of either very high or very low salinity, and would be quite without influence on the general results of an investigation such as this. A large number of samples from other sources had been titrated before any of those recorded here, and so much confidence in the method had been gained that it was not considered necessary to titrate more than an occasional sample in duplicate, in order to be sure that the apparatus was in good order, or to verify an abnormal result.

From the burette reading the chlorine, the salinity, and σ_0 have been calculated by Knudsen's Tables and given in Table II. The quantity σ_0 is equal to (S_0-1) 1,000 where S_0 is the specific gravity at 0°C. compared with that of distilled water at 4°C. Thus $\sigma_0 = 28{\cdot}40$ corresponds to sp. gr. $\frac{0°}{4°}$ 1·02840. It will be seen that in some cases the same value for σ_0 has been given to samples differing by 0·01 pro mille in salinity; this is due to the rounding off of the tables to the second place of decimals, while the mean of a number of titrations may give the chlorine value approximately to the third place.

The specific gravity of a certain number of water samples from various parts of the world has been determined at 17·5° C. in a pycnometer calibrated with distilled water at the same temperature; one thus gets the value $\rho 17{\cdot}5$ of Knudsen's Table directly, and the corresponding value of σ_0. Where the samples have fallen within the scope of this paper the result has been given in the last column under the head of "Remarks." It will be seen that the agreement between the values of σ_0 calculated from the chemical and physical examination is remarkably good considering the combined experimental error of the two processes. Only one serious discrepancy has been found, and special attention has been drawn to it in the discussion of the conditions in April, 1905.

IV.—THE CHARTS.

It was originally intended to publish the salinity charts for every half month, and the observations were so plotted on the large scale outline charts on Mercator's projection published by the Challenger Society. Against each observation was plotted the day of the month, salinity, temperature, and the name of the vessel; inks of various colours were used for the different salinities, a device that proved very useful in calling attention to abnormal results. It soon became obvious that the material from the different ships was not equally reliable, either owing to want of experience or to some other cause. In the few cases in which it was possible to compare the salinities with those of samples taken by the writer at nearly the same place and time, the error, if any, was always one of excess, probably due to the necessity of using a very small bucket on a large steamer travelling at high speed, and the consequent risk of evaporation. The samples obtained from one vessel in particular were evidently so far wrong, on certain voyages at least, that it was necessary to discard the whole of them. The larger number of observations have however been very carefully made, and salinities which at first sight appeared hopelessly incorrect have often been confirmed later from other sources. Where abnormal results have been included in the charts, attention is drawn to them, and the grounds for their inclusion given.

When the whole of the data had been plotted the isohalines were drawn and transferred to outline charts similar to those in the plates, but measuring 11·75 inches by

17 inches. It was then seen that charts for every half month were unnecessary and indeed confusing. The salinities were then replotted month by month on the smaller charts, which were ruled in pencil for every degree of latitude and longitude. In spite of the small scale this was found to be quite feasible if the integers were omitted and coloured inks used in their place, though, of course, the method could not have been adopted with advantage had not the observations been previously plotted on the larger scale Mercator charts. The isohalines were then drawn and transferred as before.

The isotherms, in red, have been drawn from the data printed in the Monthly Pilot Charts, which contain insets giving to the nearest degree Fahrenheit the mean of all the temperature observations for each month for areas measuring 2° on the side, and also, where possible, the differences between this mean and the corresponding mean calculated from the observations of a large number of years. It may be objected with truth that the isotherms drawn from a large number of temperatures and calculated for such large units of area are not directly comparable, in regions where the surface temperature gradient is steep, with isohalines drawn from a much smaller number of salinities, the exact position of each of which is known. For instance, in November, 1904, the Pilot Chart gives for the 2° square, the centre of which is at 43° N. latitude and 63° W. longitude, a mean temperature of 51° Fahrenheit (10·6° C.). The observations sent to me personally give in this area a temperature of 9·4° C., with a salinity of 32·07°/$_{oo}$, another of 10°C., with a salinity of 32·79°/$_{oo}$, and a third of 12·8 C., with a corresponding salinity of 35·14°/$_{oo}$. These three sets of observations show that both the isohalines and the isotherms are crowded together, and that the salter water has the higher temperature. The Pilot chart means being given for 2° squares only it is impossible to interpolate from them isotherms which shall fall into their correct positions with regard to the isohalines, while it was found that an attempt to combine the two sets of data necessitated assumptions for which there was little evidence. The alternative of drawing the isotherms entirely from temperatures accompanying water samples might have led to slightly better results in a region such as the one discussed, but the results as a whole would have suffered, a single temperature reading being far more liable to error from accidental causes than a single determination of salinity. When it was considered that the Pilot Chart inset for a month is founded upon, roughly, as many readings as would be sent to me in the course of a year, it was decided to draw the isotherms entirely from these monthly means, drawing attention to any observations that might appear to deserve special mention.

It must be understood that the Meteorological Office is responsible for the mean temperatures only, and their deviation from the mean of a number of years; the interpretation put upon them is entirely the work of the present writer.

The projection of the charts in this report, if it can be legitimately called a projection, is a purely arbitrary one, the angles between the meridians being always equal, and the parallels of latitude equidistant circles. This method of drawing was adopted owing to the fact that neither areas nor shapes are unduly sacrificed, while for plotting purposes it is nearly as convenient as the Mercator projection.

The scale of colouring used is that recommended by the International Council.

V.—DISTRIBUTION OF TEMPERATURE AND SALINITY.

The two most constant currents in the region of the North Atlantic discussed in this paper are the warm and salt Gulf Stream and the relatively fresh ice-laden Labrador current. The first of these is caused by the north-east and south-east trade winds, which in low latitudes blow strongly on the surface waters of the North and South Atlantic, and drive them as the north and south Equatorial Currents from the African coast to the north-eastern shores of South America and to the West Indies. Off Cape San Roque the Southern Equatorial Current divides, one portion turning south along the coast of Brazil, while the other continues its course to the west and joins the Northern Equatorial Current. The currents again divide and pass partly into the Gulf of Mexico through the Caribbean Sea, partly outside the West Indian Islands towards the shores of the south-eastern States. In the Gulf of Mexico the waters are banked up, producing a measurable difference of level; their only outlet is through the Straits of Florida, through which they flow as the Gulf Stream proper, a current five miles in width and extending to the bottom in 350 fathoms, with a velocity that sometimes reaches one hundred miles a day.

Beyond the Straits the current joins that part of the westerly drift that has passed outside the West Indies, and the two streams, which have travelled through regions of high temperature and rapid evaporation, unite and flow northwards close to the American coast as far as Cape Hatteras, with a salinity of over $36^{\circ}/_{\circ\circ}$ and a mean annual temperature that at this point exceeds 20° C. Here they turn more and more to the east, finally following approximately the fortieth parallel, until, south-east of Newfoundland, they meet the cold Labrador current, which flows south from Baffin's Bay and Davis Straits along their western shores and is largely due to the northerly winds set up by the northern cyclonic system.

The Labrador Current pushes the waters of the Gulf Stream aside, passing sometimes through them or under them, but always in the end turning west and flowing along the coast as far as Cape Hatteras, fringing the shore with a border of water of relatively low temperature to which the name of the Cold Wall has been given. The meeting place of the two streams is well marked by the mean annual isotherms of 10° C. and 15° C., which in about $41\frac{1}{2}^{\circ}$ N. latitude and 50° W. longitude nearly touch one another; east of this the isotherms diverge and run north-east on nearly parallel courses for 300 miles, to finally separate in about 46° N. latitude and 44° W. longitude, whence the 15° C. isotherm runs nearly due east to the Bay of Biscay, while the 10° C. isotherm turns to the north till it reaches the parallel of 51° N., when it bends to the north-east and crosses the Atlantic in the direction of the Faeroe Islands, though before reaching them it turns south again to the north coast of Ireland.

After its collision with the Labrador Current the warm salt water spreads out in a fan-shape across the Atlantic, one branch extending towards Iceland and the Faeroe-Shetland Channel, another to the English Channel and the Bay of Biscay, while a third comes within the influence of the north-east trade wind and is diverted to the south and south-west as the Canary Current, finally returning to the West Indian Archipelago. There is thus in the centre of the North Atlantic a great eddy of warm water, the salinity of which in its southern part is always at least $37^{\circ}/_{\circ\circ}$ and sometimes, though rarely, reaches $38^{\circ}/_{\circ\circ}$. It is bounded on all sides by fresher water. South of the coast line from Cape Cod to Cape Race the fall in salinity is steepest, the Gulf Stream with a salinity of over $36^{\circ}/_{\circ\circ}$ flowing close to the water of the Labrador Current with a salinity of $33^{\circ}/_{\circ\circ}$ or less. East of Cape Race the sharp line of demarcation is lost; the $36^{\circ}/_{\circ\circ}$ isohaline runs nearly due east, while the isohaline of $34^{\circ}/_{\circ\circ}$ turns to the north, and is bordered on its eastern side by a band of surface water of from $34^{\circ}/_{\circ\circ}$ to $35^{\circ}/_{\circ\circ}$ of a width of a few hundred miles. East of this again and north of the $36^{\circ}/_{\circ\circ}$ isohaline a great fan of water of salinity between $35^{\circ}/_{\circ\circ}$ and $36^{\circ}/_{\circ\circ}$, and with a mean temperature for the year in the region with which we are concerned of between 10° C. and 15° C., fills the larger part of the North Atlantic, entering the Bay of Biscay and the English Channel, and passing to the west of the British Isles to Iceland, to the Norwegian Sea through the Faeroe-Shetland Channel, and to the North Sea.* The isohaline of $35^{\circ}/_{\circ\circ}$ crosses and recrosses the tracks followed by steamers from the North of Scotland to Cape Race, and finally turns away from it in mid ocean in a northerly direction.

East of the point where the mean isotherms for 10° C. and 15° C. begin to diverge the Gulf Stream loses its identity to a large extent, and many oceanographers would place here its eastern limit, giving the name of West Wind Drift† to its fanlike extensions. The point is not of great importance provided that one bears in mind the change in the character of the flow from a deep well-defined salt current of high velocity to a slow and somewhat indefinite movement of the surface waters. Unfortunately considerable confusion has arisen, some authorities preferring the older nomenclature and speaking of the Gulf Stream reaching the Faeroe Islands; and the statement that the Gulf Stream does not extend to the east of mid ocean has been understood by those who are not familiar with the literature of the subject, as a denial of the undoubted influence on the climate of Northern Europe of the warm water which surrounds its coast.

The above is a brief outline of what has been known for many years past of the general character of the surface water of the North Atlantic.

The routes followed by steamers from northern European ports to the St. Lawrence and New York vary with the season of the year, sometimes running fairly straight from

* A portion of the Atlantic water in the North Sea enters through the English Channel.

† Strictly, the term current is now reserved for well defined movements of water, at any depth, caused by difference of hydrostatic pressure; while a drift is a slower movement of the surface water due to the wind. The two merge into one another; for instance, the trade winds set up a drift into the Gulf of Mexico, whence it issues as a current, to be again converted into a drift.

Cape Race to Cape Cod, while at others they pursue a nearly east and west course between New York and about 47° W. longitude. When the steamers are following the more northerly track the salt water of the Gulf Stream is not as a rule observed, and the lower isohalines, from $35°/_{oo}$ downwards, are so crossed by the lines of samples that they are seldom well defined throughout their length. For this reason the material used in drawing up the charts for this paper is not sufficient to enable one to trace the variations in the position of the northern edge of the Gulf Stream throughout the year, and reference must be made to the excess or defect of the surface temperature from the monthly means, and to the reports from the commanders of vessels on the set and velocity of the currents actually observed.

September, 1904.—Owing to the northerly track followed by the Transatlantic steamers the isohalines were not well defined between Cape Cod and Cape Race. The coastline was bordered by narrow bands of water of $34°/_{oo}$ *S.* or less. Salinities of $34°/_{oo}$ to $35°/_{oo}$ were found as a narrow strip in 63° W. longitude ; to the east of this they were almost completely lost until they appeared again as a broad band to the east of Newfoundland, between the low salinity water of the Labrador Current and the water of from $35°/_{oo}$ *S.* to $36°/_{oo}$ *S.* stretching to the European coast. The distance to which this fresher water extended to the south-east of Newfoundland is not shown by the observations. The area of from $35°/_{oo}$ *S.* to $36°/_{oo}$ *S.* was indented by slightly fresher water between the thirtieth and fortieth meridians on the north ; to the south it was bordered by the $36°/_{oo}$ isohaline running from 45° N. latitude and 30° W. longitude in a southerly and easterly direction towards the Portuguese coast. Water of $37°/_{oo}$ *S.* and over was found between the thirty-sixth and sixty-fifth meridians south of the thirty-third parallel, its extension being chiefly in an east and west direction. Salinities of from $36°/_{oo}$ *S.* to $37°/_{oo}$ *S.* bordered the African coast as far south as the twentieth parallel.

The surface temperature between the forty-fourth and fiftieth parallels and east of the forty-sixth meridian was on the whole below the mean for the month, the defect ranging in places from 2° C. to 4° C. ; to the south and west it was slightly above normal. The 10° C. isotherm ran east from Newfoundland, turning to the north and west in water of from $34°/_{oo}$ *S.* to $35°/_{oo}$ *S.* in about 46° W. longitude ; that of 15° C. ran south of Nova Scotia in an approximately easterly direction to 46° W. longitude, and then bent slightly more to the north, making a deep loop towards the south-west in 25° W. longitude, after which it returned to its original direction to end in the Irish Channel.

Little ice was reported on the Transatlantic routes, and that chiefly from the neighbourhood of the Straits of Belle Isle.

October, 1904.—Water of less than $34°/_{oo}$ *S.* on the western side extended a greater distance from the coast than in the previous month, both in a southerly and easterly direction. To the east it had encroached on the water of $34°/_{oo}$ *S.* to $35°/_{oo}$ *S.*, but to the south-east its edge was not defined. The water of $35°/_{oo}$ *S.* to $36°/_{oo}$ *S.* was still indented by slightly fresher water between 30° W. longitude and 40° W. longitude. The $36°/_{oo}$ isohaline was found a short distance further south than in September, while that of $37°/_{oo}$ did not extend so far in an east and west direction, though it could be traced as far north as the forty-sixth parallel in 50° W. longitude.

The temperature on the eastern side was still below the normal, though the area of defect did not extend much west of the thirty-fourth meridian. West of this and south of 36° N. latitude, the water was warmer than the mean for October, the excess reaching 3° C. in places. The isotherms all followed more southerly courses, the chief change being in the positions of those of 10° C. and 25° C. The first of these ran easterly to the south of Newfoundland, turning to the north and west in about 45° W. longitude as in the previous month, and then bending to the east and north-east again, to be lost at about 55° N. latitude and 26° W. longitude. On the 15° C. isotherm the deep bend to the south-west between the twentieth and thirtieth meridians was no longer found.

Ice reports for the month were very few, and only from the north-east of the Straits of Belle Isle.

The Pilot Chart records the drift of a bottle paper put out to the west of Ireland on October 4th in 52° N. latitude and 13° 20′ W. longitude, and recovered in 53° 24′ N. latitude and 10° 14′ W. longitude, on November 16th, having drifted N. 60° E., 170 miles in 43 days, at an average rate of 4 miles per day.

November, 1904.—In this month evidence of a slightly increased flow of high salinity water was found. Between 60° W. longitude and 68° W. longitude water of over $35°/_{oo}$ *S.* was pressing to the north against the fresher water, which extended slightly more to the east. The tongue of water of less than $35°/_{oo}$ *S.* which in the two previous months indented the water of over $35°/_{oo}$ *S.* had been pressed back, and now formed only a narrow fringe to the north. The $35·5°/_{oo}$ isohaline also extended to the north beyond the area of observations off the west coast of Ireland. The $36°/_{oo}$ isohaline, east of 40° W. longitude ran nearly due east in about 43° N. latitude, and then turned north-east well into the Bay of Biscay. Owing to the lack of observations the position of the $37°/_{oo}$ isohaline is almost unknown. Two remarkable salinities recorded during this month have been shown on the charts, one of over $36°/_{oo}$ to the south-west of Ireland, and another of less than $35°/_{oo}$ in water of over $36°/_{oo}$ on the track of the West Indian steamers in 70° W. longitude. Both of these may be due to errors, but somewhat similar observations have been made on other occasions, and it was, therefore, considered advisable to include them, while drawing attention to their possible inaccuracy.

The surface temperature was generally slightly below normal ; but a large area of relatively warm water was found south of the fiftieth parallel between the thirty-fourth and sixty-fourth meridians, and another smaller one extending from the Bristol Channel to 18° W. longitude. The isotherm of 5° C. appeared in approximately the same position as that of 10° C. in September. Those of 10° C. and 15° C. had not changed their position to any great extent, but the 20° C. isotherm which in the two previous months had passed through the Azores now bent to the south of them, while that of 25° C. was not found north of the thirtieth parallel. On the Transatlantic route only two bergs were reported, in 50° N. latitude and $53\frac{1}{2}°$ W. longitude.

December, 1904.—During this and following months the area of investigation is increased by the inclusion of the Danish observations. On the western side the northerly flow of salt water still continued, and salinities of over $36°/_{oo}$ *S.* were found in 42° N. latitude, and 60° W. longitude, close to the fresher water of the Labrador Current ; between the fortieth and fiftieth meridians the isohaline of $36°/_{oo}$ still kept a fairly southerly position.

The isohaline of $34°/_{oo}$ could now be traced unbroken to the south and east of Newfoundland, its greatest distance from the coast being found in about 45° N. latitude, and 45° W. longitude. Further east the water of between $35°/_{oo}$ *S.* and $36°/_{oo}$ *S.* was encroached upon to a greater extent than in the previous month, on the north by fresher water and to the south by water of over $36°/_{oo}$ *S.* which was entering the Bay of Biscay in large quantities. The $37°/_{oo}$ isohaline extended to the north-east to 36° N. latitude, and 43° W. longitude.

In drawing the chart for the month two abnormally high salinities north of the fiftieth parallel have been neglected.

The temperature was generally below the mean for the month, the defect being greater on the western side ; an area of slight excess was found between the thirty-sixth and forty-fourth parallels, to the west of the forty-second meridian. The 5° C. isotherm had moved considerably to the south and east, and as far as it can be traced coincided approximately with that of 10° C. for the previous month ; the isotherm of 20° C. took a very irregular course, probably indicating patches of warm water surrounded on all sides by lower temperatures.

Captain R. Götsche, of the s.s. *Alabama*, reports that his ship was stopped for repairs from December 13th at 12.30 p.m. in 58° 17′ N. latitude, 20° 20′ W. longitude, until 8 p.m. on December 15th, when she was in 59° 7′ N. latitude and 19° 40′ W. longitude, having drifted N. 22° E., 54 miles, at the rate of one mile an hour. (Pilot Chart.)

No ice was sighted on the Transatlantic routes.

January, 1905.—During this month the salter water was not increasing quite so rapidly, and west of the fiftieth meridian no water with a salinity as high as $36°/_{oo}$ was observed. To the south-east the isohalines of $35°/_{oo}$ and below cannot be traced with any certainty ; the isohaline of $36°/_{oo}$ however extended at least as far north as the forty-third parallel under the forty-fifth meridian, and the salinity gradient between this point and Cape Race must therefore have been comparatively steep. On the eastern side water of $36°/_{oo}$ *S.* was no longer found in the Bay of Biscay, while to the south the isohaline of $37°/_{oo}$ did not extend to the north of the thirtieth parallel. The chief signs of a

continued increase of salinity were the somewhat northerly position of the 36°/$_{oo}$ isohaline between the fortieth and forty-fifth parallels, and rather high values in the western part of the English Channel and off the north-west coast of Scotland.

Surface temperatures on the whole were below the average for the month, but an irregular area of excess stretched across the Atlantic from the Bay of Biscay in a southerly and westerly direction, broken between 35° W. longitude and 39° W. longitude by colder water connecting the northern and southern regions of defect. The isotherm of 0° C. ran from Nova Scotia easterly in about 45° N. latitude, and turned to the north in 48° W. longitude. The isotherm of 5° C. ran nearly parallel to it, while that of 10° C. reached its most northerly point, 53° N. latitude, in 20° W. longitude, and then turned to the south and east again towards the south coast of Ireland. The 20° C. isotherm followed an easterly course, tending to the north between 45° W. longitude and 35° W. longitude, but dipping south again in 31° W. longitude to cut the Azores group.

Ice reports were fairly numerous ; by the middle of the month heavy ice was found in the Bay of Islands and Chesapeake Bay, with some pack ice in the Gulf of St. Lawrence, and towards the end bergs and field ice were sighted between the forty-eighth and forty-ninth parallels nearly as far east as the forty-seventh meridian.

February, 1905.—The liners were now following a much more southerly course west of the forty-fifth meridian, and it is consequently somewhat difficult to compare the conditions in this region with those of previous months. The observations show with certainty that the Labrador Current was extending far to the south and east and that the Gulf Stream was pressing upon it strongly to the south of the Gulf of St. Lawrence.

Under the sixtieth meridian there was a decided break in the lower isohalines caused by a tongue of water of over 35·5°/$_{oo}$ which reached at least as far north as the forty-third parallel ; to the south-east of Cape Race also the front of the fresher water was indented by water of over 35·5°/$_{oo}$. The isohaline of 36°/$_{oo}$ followed a more northerly course than in the previous month, with the exception of a deep indentation in the region of the Azores ; between the thirtieth and fortieth meridians the area of water of over 36°/$_{oo}$ *S.* to the north of the fortieth parallel reached a maximum, and there was also a strongly marked northerly movement to the west of the Bay of Biscay. To the south salinities were falling with the retreat of the 37°/$_{oo}$ isohaline.

A maximum occurred in the English Channel, and the isohaline of 35·5°/$_{oo}$ off the Scottish coast reached a more northerly position than in January, though the mean salinity in this region was decidedly low.

Surface temperatures were below the mean, but many irregular areas of excess existed west of the twentieth meridian. There was no great change in the position of the isotherms ; the area of water with a temperature of 5° C. or less had increased, but the 10° C. isotherm reached a higher latitude, though it had moved considerably to the east. The 15° C. isotherm corresponded closely with that for January, but little water with a temperature of 20° C. was found north of 30° N. latitude.

Much ice was reported. At the beginning of the month the sea to the east of the Grand Banks was covered with immense Arctic floes, and steamers were forced to make wide detours. A few days later the whole coast of Newfoundland was icebound, and on the twelfth of the month many bergs were sighted in 47° N. latitude. 47° W. longitude.

March, 1905.—The fresher water was retreating towards the Newfoundland coast, and the 36°/$_{oo}$ isohaline reached 41½° N. latitude, between 55° W. longitude and 60° W. longitude. Salinities were generally falling elsewhere, except off the north-west coast of Scotland, where the 35·5°/$_{oo}$ isohaline, though not reaching so northerly a latitude as in the previous month, embraced a larger area in an east and west direction. The isohaline of 37°/$_{oo}$ was also found slightly further to the north. The decrease of salinity in any case was only slight.

Some very remarkable water samples were collected during the month. One taken about midway between Ushant and Cape Finisterre had a salinity of less than 31°/$_{oo}$, and the specific gravity at 17·5° C. determined by direct weighing differed widely from that calculated from the chemical analysis by means of Knudsen's Tables. The salinity was entered at the time on the plotting chart, and a note was also made that all the values in this region appeared rather low. The abnormal result was ascribed to some mistake in taking the sample, and no further thought was given to it until, some time later, the analyses of samples taken on Danish liners were received from Docent Knudsen.

Among these were two taken during this month, both of which gave salinities below $35°/_{\infty}$; one was from the fairway to the English Channel, and the other from about $47\frac{1}{2}°$ N. latitude and 10° W. longitude. That three such results should be obtained is sufficiently remarkable to make it worth while drawing attention to them here, though they have not been included in the charts. If they are correct, it is not possible to explain them as anything but upwellings of bottom water.

The temperature was below the mean, but many isolated areas of excess occurred south of the fiftieth parallel. The positions of the isotherms did not differ greatly from those shown on the February chart; the cold water to the south and east of the Gulf of St. Lawrence had retreated somewhat towards the land, and a greater area with a temperature above 20° C. was now found to the north of the thirtieth parallel.

During March very large quantities of floe ice were seen on the Grand Banks, and also off the south coast of Newfoundland and in the neighbourhood of Sable Island. Much ice was also reported between $41\frac{1}{2}°$ N. latitude, $51\frac{1}{2}°$ W. longitude and 46° N. latitude, $41\frac{1}{2}°$ W. longitude.

April, 1905. The hydrographic conditions in the western half of the Atlantic were decidedly interesting. The low salinity water of the Labrador Current was being slowly mixed with water of greater density, and the fringe of water of from $34°/_{\infty}$ *S.* to $35°/_{\infty}$ *S.* was therefore increasing in width. West of the fiftieth meridian the isohaline of $36°/_{\infty}$ closely followed that of $35°/_{\infty}$, both running a somewhat irregular course, and under the fortieth meridian it reached as far north as the forty-eighth parallel, and then curved rapidly south to about 41° N. latitude, in the region of the Azores, meeting the Portuguese coast in about 38° N. latitude. Salinities on the eastern side were falling generally, except off the north-west coast of Scotland, where there was a well-marked maximum. The most important feature in the chart is the change in the area filled with water of over $37°/_{\infty}$, which had extended in a northerly and easterly direction in a wedge shape to 38° N. latitude and 38° W. longitude, and in the following month threw off isolated patches of high salinity which in the opinion of the present writer were the cause of some striking abnormalities in the English Channel and the North Sea during the autumn of 1905.

The temperature of the surface water was generally below normal, except south of the fortieth parallel and east of the twentieth and west of the fiftieth meridians. The isotherms of 10° C. on the eastern side and of 20° C. on the western side showed the greatest change.

Much pack ice was seen in the Gulf of St. Lawrence, and large numbers of bergs were reported on the Transatlantic routes between 42° W. longitude and 53° W. longitude, and as far south as the fortieth parallel.

May, 1905.—The fresh water of the Labrador Current reached its minimum in this month, and the narrow tongue of water of over $36°/_{\infty}$ *S.* stretching to the north in about 39° W. longitude still maintained its position. Between the twenty-fifth and fortieth meridians the $36°/_{\infty}$ isohaline took a more southerly course than in April, and did not include the Azores. On the eastern side it has been drawn running well into the Bay of Biscay, but the observations in this region are somewhat doubtful. The area of over $37°/_{\infty}$ *S.* had retreated towards the west, leaving an isolated patch in $42\frac{1}{2}°$ N. latitude and $32\frac{1}{2}°$ W. longitude. This is shown by a single sampie, and no importance would have been attached to it were it not confirmed by later observations. In the English Channel and off the north-west of Scotland salinities were falling.

The areas of excess and defect of temperature were about equal in this month; the chief region of excess extended from the British Isles in a south-westerly direction to the fortieth meridian. The isotherm of 0° C. was no longer found on the charts, and that of 10° C. had moved considerably to the north and west.

The quantity of ice reported was great, and steamers followed unusually southerly courses. Bergs were sighted south of 40° N. latitude, in 49° W. longitude, and as far east as 41° W. longitude in $43\frac{1}{4}°$ N. latitude. Many were also found over an area the centre of which was about 180 miles east of St. John's.

June, 1905. In spite of the large quantities of ice on the Transatlantic routes, a few samples were received from a steamer passing fairly close to Cape Race. The low salinity water in this region now began to increase again, but was so much mixed with

the salter water of the Gulf Stream that the 34°/$_{oo}$ isohaline had moved slightly to the north with a corresponding marked increase in the fringe of water of between 34°/$_{oo}$ *S.* and 35°/$_{oo}$ *S.* Between the fortieth and fiftieth meridians the 36°/$_{oo}$ isohaline was retreating ; eastward of this it had moved considerably to the north, but off the European coasts it no longer entered the Bay of Biscay. In the English Channel and off the north-west of Scotland salinities were falling.

On the line followed by the Bristol–Jamaica steamers three very high salinities were found east of the thirtieth meridian, two of over 37°/$_{oo}$ in 28° W. longitude and 21° W. longitude, and one of over 36°/$_{oo}$ in 13° W. longitude. These appear to be a continuation of the movement noticed in the preceding month ; they have been shown on the chart as isolated patches, but it is of course possible that a long narrow tongue of dense water occupied this region.

The surface temperature was below the normal, the only important exception being in the region west of the thirty-eighth meridian and south of the fiftieth parallel. The general temperature was rising rapidly ; the 10° C. isotherm was lost to the north in 26° W. longitude, while that of 20° C. now followed the fortieth parallel fairly closely west of 40° W. longitude ; on the eastern side it ran to the south and east, reaching the thirtieth parallel in 15° W. longitude, and then turning to the north-east again to touch the Straits of Gibraltar. The isotherm of 25° C. was again found north of the thirtieth parallel, after having been lost since October, 1904.

Ice was reported in large quantity, as far south as 40° N. latitude and as far east as 43½° W. longitude.

July, 1905.—The low salinity water on the western side was increasing, but not so rapidly, and the isohalines of 35°/$_{oo}$ and 36°/$_{oo}$ therefore pressed closely on one another, making a noticeable bend to the north-east under the fiftieth meridian. In mid Atlantic the 36°/$_{oo}$ isohaline had retreated towards the south, but in the eastern half reached a rather northerly latitude. In the English Channel and off the north-west of Scotland there was a tendency towards a minimum. On the outward and homeward routes of the Bristol-Jamaica steamers many samples of over 37°/$_{oo}$ *S.* were collected south of the thirty-eighth parallel, and two of especially high salinity, one of 37·97°/$_{oo}$ in about 24° N. latitude and 70° W. longitude, and another of 38·42°/$_{oo}$ in 32° N. latitude and 53° W. longitude.

The isohaline of 37°/$_{oo}$ cannot be traced with any great certainty, and the area enclosed by it probably extended far more both to the east and west than is shown upon the chart.

No signs of the movement of high salinity water towards the south-west coast of Ireland were found, unless a sample of over 36°/$_{oo}$ in 49° N. latitude and 11° W. longitude was due to water from this source and not to a flow from the region of the Bay of Biscay.

The temperature was below the normal west of a line joining 60° N. latitude, 10° W. longitude to 40° N. latitude, 35° W. longitude as far as the fiftieth meridian. An area of defect was also found east of the twentieth meridian between the thirtieth and fortieth parallels.

The most southerly bergs were reported from 40° 20′ N. latitude, 51° 20′ W. longitude, and the most easterly in 50° N. latitude, 43° W. longitude. Many were also seen in the straits of Belle Isle and to the east, and also to the east of St. John's.

August, 1905.—The vessels were now taking a more northerly course and the lower isohalines were not well defined to the south-east of Cape Race, but the increase in the area of fresh water appears to have been maintained. The isohaline of 36°/$_{oo}$ took a more southerly position throughout nearly its whole length, the lowest latitude being reached in the neighbourhood of the Azores, and the highest at Cape Finisterre. It agreed with that for June and differed from that for July in not entering the Bay of Biscay, and it is not improbable that the July isohaline should also have been kept to the south of the forty-fifth parallel. In the English Channel and off the north-west of Scotland salinities were rising. The water of 37°/$_{oo}$ *S.* had retreated from the west, and extended a greater distance to the north and east than the scanty observations of the preceding month indicated.

Off the south-west coast of Ireland was a small isolated patch of water of over 36°/$_{oo}$ *S.*; it was well defined by four samples, and was probably due to dilution of the water of

37°/$_{oo}$ *S.* which began to move in this direction in April and May. Confirmation of this hypothesis is found in the sudden appearance during this month of large shoals of *Pteropods* in the English Channel, where they had not been recorded since the beginning of the International Investigations. The species* is uncertain, most of the individuals being immature, but the question is not of the first importance, from the hydrographic standpoint, as all *Pteropods* are distinctly oceanic in habit.

The surface temperatures were generally below the average, with the exception of a large area in mid-ocean, between 18° W. longitude and 60° W. longitude, and south of 48° N. latitude. On the western side temperatures were rising, but on the eastern side there was a slight fall, neither the 13° C. or the 15° C. isotherm being found so far north as in July. The course of the 25° C. isotherm was less irregular, the deep southerly indentation having disappeared.

Much ice was reported from the Straits of Belle Isle, and also some from the Grand Banks. On the whole there was much less ice than in preceding months.

During August the Gulf Stream was running close to Cape Hatteras and with unusual strength, causing much delay to sailing craft bound south.

September, 1905.—On the western side the isohalines of 33°/$_{oo}$ and 34°/$_{oo}$ were again badly defined, the larger number of the samples being collected in water of less than 33°/$_{oo}$ *S.* The area of fresh water was rapidly increasing, and the isohalines of 33°/$_{oo}$, 34°/$_{oo}$, and 35°/$_{oo}$ lay fairly close together, while a deep indentation appeared in that for 36°/$_{oo}$ under the fiftieth meridian. The mean latitude of the 36°/$_{oo}$ isohaline reached a minimum, though it did not dip quite so far south near the Azores. In the English Channel and on the homeward track of the Copenhagen–New York steamers salinities reached a minimum value, and nearly did so on the outward track of the latter. The position of the 37°/$_{oo}$ isohaline is almost unknown, and the high salinity off the Irish coast had disappeared.

The temperature was below normal east of the thirtieth meridian; to the south and west it was slightly in excess. The isotherm of 5° C. reappeared on the chart, a month earlier than in 1904, while that for 10° C. had moved towards the south and east.

Much ice was reported near the approaches to the Straits of Belle Isle, and bergs and field ice off the Grand Banks.

October, 1905.—There was a slight decrease in the Labrador Current, and the deep cut in the 36°/$_{oo}$ isohaline south-east of Cape Race had partly filled up. The area occupied by water of salinity between 35°/$_{oo}$ and 36°/$_{oo}$ was decreasing as the isohalines for these two values were approaching one another. In the English Channel and on the southern track of the Copenhagen–New York steamers there was a sudden rise to a maximum, but on the more northerly track there was a well marked minimum.

In the Bristol Channel a patch of water of over 36°/$_{oo}$ *S.*, depending on a single sample, has been shown on the chart; it may be due to an error, but has been included on account of the undoubted presence of high salinity water off the Irish coast in August.

The distribution of excess and defect of temperature was very irregular. South of the thirtieth parallel, roughly, the temperature was in excess except to the east of the sixteenth meridian. A large irregular area of excess extended towards the north between the twenty-fifth and fortieth meridians, and widened in a westerly direction to touch the north-east coast of Newfoundland, north of the forty-sixth parallel. There was no great change in the isotherms, but the eastern end of that for 15° C. now entered the southern part of the Bay of Biscay instead of the English Channel.

Much ice was still seen near the Straits of Belle Isle, and a few bergs on the Grand Banks.

November, 1905.—To the south-west of Newfoundland there was a slight increase in the amount of water of less than 34°/$_{oo}$ *S.*, and a decrease in the water of between

* Mr. W. Bygrave, who was until recently in charge of the plankton investigations at Plymouth, considers that the species is *Limacina retroversa* (Fleming), and has given me the following note on the subject:—"It is by far the most abundant species of Limacina, and is essentially an inhabitant of the colder waters, occurring in large numbers in the Irminger Sea and the Labrador Stream. It has been taken in the Sargasso Sea at 31° 5′ N., 40° 7′ W., but only in small numbers. *Habitat*, N. Atlantic (American Coast) from 63° N. to 40° N. Iceland—Coasts of Europe from Lofoden Islands to 50° N." The other alternative is to attribute them to *L. Lesueuri*; but recently Sir Charles Eliot, in his paper on the *Pteropods* of the National Antarctic Expedition, has upheld the view that *L. retroversa* and *L. Lesueri* are varieties of one species.

34°/$_{oo}$ *S.* and 36°/$_{oo}$ *S.*, the salinity gradient between the Labrador Current and the Gulf Stream being much steeper than in October. To the north-east of the fresher water was an offshot of water of 35°/$_{oo}$ *S.*, running in a north-westerly direction. The mean latitude of the 36°/$_{oo}$ isohaline between 10° W. longitude and 50° W. longitude was decidedly higher than in the preceding month, but it no longer cut the fiftieth parallel.

In the western entrance of the English Channel and on the southerly course of the Copenhagen–New York liners there was a decided fall, but on the northerly course there was a maximum. The patch of low salinity water in about 28° N. latitude and 50° W. longitude is doubtful, depending upon one sample only.

The surface temperature as a whole was below the mean for the month, except west of 22° W. longitude and south of 40° N. latitude. The isotherm of 5° C. was now found to the south of Nova Scotia and Newfoundland, but that of 10° C. bent to the west at its northern extremity, as if warm water were spreading westward to the north of the fifty-seventh parallel. The isotherm of 15° C. took a decidedly more southerly course than before, and as in the previous year that of 25° C. was no longer found north of the thirtieth parallel.

Much less ice was reported, but a few bergs were seen in the Straits of Belle Isle and near St. John's.

December, 1905.—There was a well marked decrease in the water of 34°/$_{oo}$ *S.* and below on the American side. The observations were from vessels taking a northerly course, and the isohalines consequently cannot be followed throughout their length, though they suffice to show a deep indentation between 45° W. longitude and 50° W. longitude, the conditions being much the same as in December, 1904. The mean latitude of the 36°/$_{oo}$ isohaline was falling, except between 20° W. longitude and 30° W. longitude. Water of less than 36°/$_{oo}$ *S.* was found unusually far south on the Spanish coast. In the English Channel there was a slight rise in salinity, and a very decided fall occurred off the north-west of Scotland.

Temperatures were about normal, except west of 18° W. longitude and south of 44° N. latitude, where they were slightly in excess. The isohaline of 0° C. appeared off Newfoundland coast, and that of 10° C. had changed its position completely, now ending in the neighbourhood of the Hebrides.

Many icebergs were seen off the Grand Banks ; from the Straits of Belle Isle little information was available.

SUMMARY.

In studying the flux and reflux of the North Atlantic it is convenient to take into consideration the monthly variation in certain areas and the changes in position of certain isohalines.

The most suitable data for such treatment are :—

(1.) The area of water of less than 34°/$_{oo}$ *S.* off the coast of Newfoundland and the Gulf of St. Lawrence. This can only be estimated roughly when the vessels are following a northerly course.

(2.) The mean latitude of the 36°/$_{oo}$ isohaline for every ten degrees of longitude between the tenth and fiftieth meridians, neglecting isolated patches of water.

(3.) The mean salinity of the samples taken on vessels sailing between Copenhagen and New York round the north of Scotland, between the ninth and fifteenth meridians. Salinities from outward and homeward bound ships have been considered separately, as the eastward track lies somewhat to the south of that to the west in this region.

(4.) The mean salinity between Start Point and Guernsey, calculated from three samples taken every fortnight by Captain Enwoldsen of the s.s. *Devonia*, at nearly the same places on each occasion. These results will be published in the report on the English Channel.

(5.) The most northerly latitude in which water of $37°/_{oo}$ *S.* or over is found. Owing to the small number of samples available in this region only a rough approximation to the truth can be hoped for.

(6.) Variations from the mean temperature for the month and in the amount of ice reported.

Curves are given showing the variation in the latitude of the $36°/_{oo}$ isohaline on the eastern side, the salinity on the line from Start Point to Guernsey, and the salinity off the north-west coast of Scotland.

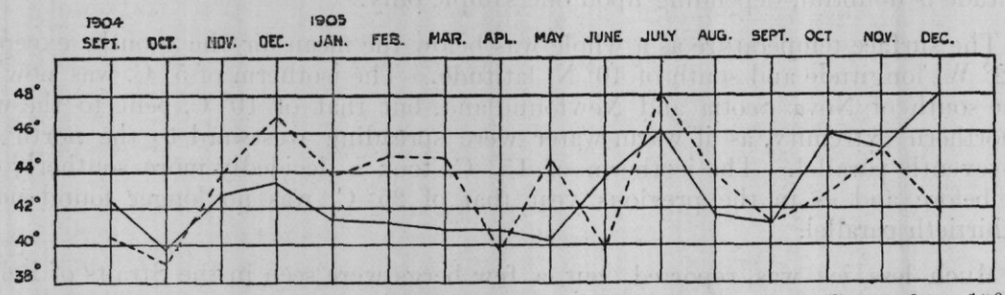


FIG. 1.—Curve showing variation in mean latitude of $36°/_{oo}$ isohaline from September, 1904, to December, 1905, between 10° W. and 30° W.
Broken line, 10° W. to 20° W. Unbroken line, 20° W. to 30° W.

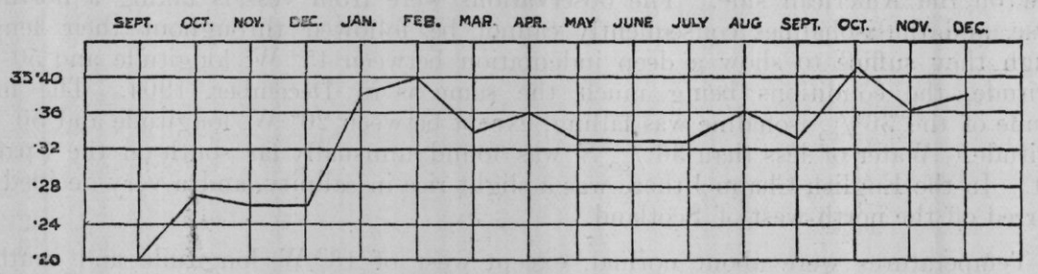


FIG. 2.—Curve showing variation in mean surface salinity between Start Point and Guernsey from September, 1904, to December, 1905.

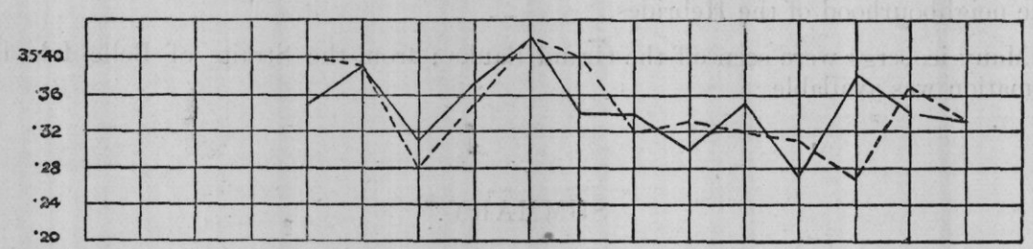


FIG. 3.—Curve showing variation of salinity off north-west of Scotland, between 9° W. and 15° W., on outward and homeward voyages of Copenhagen to New York line. The outward track lies about one degree of latitude to the north of the homeward track.
Unbroken line, outward. Broken line, homeward.

During the months of September, October, and November, 1904, salinities were generally low. On the western side, the area of water of $34°/_{oo}$ *S.* and less off the Newfoundland coasts and the Gulf of St. Lawrence was increasing up to November. Between the tenth and thirtieth meridians the mean latitude of the $36°/_{oo}$ isohaline reached a minimum value in October, but rose again in November with the appearance of high salinity water in the Bay of Biscay.

In the English Channel salinities were very low. On the other hand, the $37°/_{oo}$ isohaline was found rather far to the north in September and October, and probably also in November, from comparison with the chart for December. The surface temperature was as a rule below the monthly mean except, roughly, to the west of the fortieth meridian and south of the forty-fifth parallel. The amount of ice reported was low and decreasing.

In December, 1904, a decided decrease occurred in the fresher water on the western side, but without any corresponding northerly movement of the $36°/_{oo}$ isohaline, the average latitude of which between the thirtieth and fiftieth meridians was much below the mean for the sixteen months under consideration. The area of water of moderate salinity between the Labrador Current and the Gulf Stream was therefore rather large.

East of 30° W. longitude the $36°/_{oo}$ isohaline reached its most northerly position, and water of $37°/_{oo}$ *S.* was still found in rather high latitudes.

Salinities were also low in the English Channel and off the north-west of Scotland on the southerly track ; on the more northerly route they were somewhat higher. Temperatures were below the mean except in a small area on the western side. No ice was reported.

The gradual decrease in the water of the Labrador Current continued from January to May. In February the $36°/_{oo}$ isohaline reached a maximum northerly position between the thirtieth and fortieth meridians, accompanied by a maximum salinity in the English Channel, and at the same time the $37°/_{oo}$ isohaline reaches its most southerly position. Salinities were low and falling during the first two months of the year off the north-west coast of Scotland.

During March, April, and May salinities were falling, except off the north-west coast of Scotland and in the region of the $37°/_{oo}$ isohaline, in both of which areas there was a well-marked maximum in April. A minimum occurred in the same month in the northerly extension of water of over $36°/_{oo}$ between the tenth and thirtieth meridians. The salinity in the English Channel was also falling, but did not reach its minimum till the following month. From January to May the distribution of excess and defect in the surface temperature was very irregular. As a rule temperature was above the normal on the eastern side from the coasts of the British Isles to the entrance to the Mediterranean, and this area of excess stretched across the Atlantic in a southerly and westerly direction as a much broken band, separating areas of defect which lay to the north-west and south-east of it.

In January ice was reported in quantity, and by the end of the month unusually large floes were seen on the Grand Banks, while in March there occurred one of the worst ice blockades ever recorded on the northern and western coasts of Newfoundland.

From February to July the southerly drift of bergs on the Transatlantic route was unusually great, though it is remarkable that few of them reached a height of 150 feet.

The waters of the Labrador Current, which reached their minimum in May, were increasing during June, July and August, 1905, and the $36°/_{oo}$ isohaline was at the same time retreating between the fortieth and fiftieth meridians. The latter reached a northerly maximum in June between the thirtieth and fortieth meridians, and in July between the the tenth and thirtieth meridians. In the English Channel and off the north-west of Scotland salinities were very low.

In May there began a remarkable movement in the salter water, isolated patches of over $37°/_{oo}$ *S.* detaching themselves from the larger areas and travelling towards the south coast of Ireland without becoming much diluted by the fresher water, the salinity off the south-west coast of Ireland being still over $36°/_{oo}$ in August. They appear to have caused a considerable change in the character of the plankton of the English Channel, the *Pteropods* which were recorded there in August, 1905, being still found at the time of writing (September, 1907).

In September, 1905, occurred a remarkably well marked period of low salinity over the whole of the North Atlantic, the values reaching a minimum in all places except on the northerly course of the Copenhagen–New York liners, where the fall continued until the following month. The temperature was below the mean on the eastern side and in the more northerly latitudes on the western side. Much ice was reported from the Straits of Belle Isle, and a less quantity from the Grand Banks.

During the months of October and November the fresh water of the Labrador Current remained almost unchanged. In other parts of the Atlantic salinities were generally rising, maxima occurring in the English Channel and on the southerly track of the Copenhagen–New York vessels in October. On the northerly track there was a minimum in October and a maximum in November. The high salinities of these two months, and also the unusually salt water found in October and November in the North Sea,* are in the opinion of the present writer to be ascribed to the abnormal

* *cf.* A. J. Robertson : "On Hydrographical Investigations in the Faeroe-Shetland Channel and the Northern Part of the North Sea, 1904–1905." Also, "Temperature and Salinity of the Surface Waters of the North Sea, 1904–1905." North Sea Investigation Committee : Second Report (Northern Area).

movements of water of over 37°/$_{oo}$ *S.* in mid Atlantic in May, to which reference has been already made.

In December the salinity on the western side was rising owing to the shrinkage of the Labrador Current; elsewhere there was a general fall except between the twentieth and thirtieth meridians and the fortieth and fiftieth parallels. The conditions generally resembled those of December, 1904. The distribution of the areas of excess and defect of temperature remained nearly the same as in September. Ice was decreasing, but was still found in quantity on the Grand Banks in December, unlike the same month of 1904, when no reports where received.

A point of considerable importance in the study of the hydrography of the English Channel is the salinity in the Bay of Biscay, and in particular the presence there of water of over 36°/$_{oo}$. Unfortunately the observations throw little light on the subject, both the mean and the maximum salinities showing very irregular fluctuations. Samples of over 36°/$_{oo}$ occur surrounded by fresher water; these may of course be due to insufficient precautions having been taken to avoid errors due to evaporations, but some at least were received from observers whose work has otherwise always proved extemely satisfactory. In this connection it is interesting to refer to a paper by Dr. H. N. Dickson, as yet unpublished, on the material collected on board Dr. Norris Wolfenden's yacht *Silver Belle*.* At a station in 40° 03′ N. latitude, 12° 13′ W. longitude, the following results were obtained on September 4th, 1904. The salinity was 36·15°/$_{oo}$ at the surface, falling to 36·08°/$_{oo}$ at 50 fathoms (91 metres), and to 35·88°/$_{oo}$ at 100 fathoms (183 metres), and 200 fathoms (366 metres). At 400 fathoms (752 metres) there was a rise to 36·00°/$_{oo}$ *S.* increasing to 36·31°/$_{oo}$ *S.* at 600 fathoms (1,097 metres). A layer of 35·88°/$_{oo}$ *S.* occurred at 800 fathoms (1,463 metres), below which the salinity again rose to 36·15°/$_{oo}$ at 1,000 fathoms (1,829 metres), and to 36·33°/$_{oo}$ at 1,200 fathoms (2,195 metres). The lowest salinities were found in the bottom layer, below 1,400 fathoms (2,560 metres), where they fell to 35·26°/$_{oo}$.

It will be seen that there are layers of high and low salinity alternating with one another, and Dr. Dickson suggests that the higher values below the surface may be due to currents from the Mediterranean. If this is the case, as is by no means improbable, it is also possible that these layers extend well into the Bay of Biscay, and that the areas of high surface salinity found there may be upwellings from them, caused by the stream striking the steep edge of the bank. On this hypothesis the broad tongues of surface water of over 36°/$_{oo}$ *S.* which have been shown on the chart would in some cases be more correctly represented as small isolated patches, as, for instance, in May, 1905. Such a supposition would also explain the fact that the salinities in the English Channel often appear to be quite unconnected with those in the Bay of Biscay, the size of such patches in the latter region probably varying considerably, and often being too small to allow of their affecting the conditions at any great distance from their centre.

The most striking points in the sixteen months may be summarised as follows:—

The Labrador Current was increasing from September to November, 1904. In December it began to retreat, and the shrinkage continued to May, 1905, after which it increased again, to decrease suddenly in December as in the previous year.

The 37°/$_{oo}$ isohaline was found to the north of 30° N. latitude from September to December, 1904. In January, February, and March, 1905, it was to the south of that line, and during the rest of the year to the north of it; its movements thus correspond roughly with those of the Labrador Current, advancing and retreating with it.

In the English Channel there were well-marked maxima of salinity in February and October, 1905, and at the same time maxima on the outward track of the Copenhagen–New York steamers off the north-west of Scotland.

The most noticeable case of the same conditions obtaining over the whole of the North Atlantic was the decided minimum of salinity in nearly all parts during September, 1905.

In April, 1905, water of over 37°/$_{oo}$ *S.* advanced to the north-east, throwing off an area of high salinity which in August reached the south-west of Ireland, and at the same time brought swarms of *Pteropods* into the English Channel. To this movement are probably to be attributed the abnormally high salinities found in the English Channel, off the north-west of Scotland, and in the North Sea during the following October and November.

* I have to thank Dr. Wolfenden for sending me the proofs of this paper.

TABLE I.

COMMANDERS and OBSERVERS on VESSELS on board which WATER SAMPLES have been collected during the period, SEPTEMBER, 1904, to DECEMBER, 1905.

Vessel.	Commander.	Other officers assisting in the observations.
Morning (Whaler) ...	W. Adams.	
Astoria	J. Lumsdane	A. McCallum.
„	F. H. Wadsworth.	
Ethiopia	J. Lumsdane.	
Samartian...	E. Pitts	G. Binnie.
Numidian	W. S. Main	W. Fraser.
Corean	„	„
Minneapolis	T. F. Gates	F. Claret, H. Stembridge, C. B. Wiatt.
St. Paul	F. M. Passow	B. Ackerman, F. Marryat Church.
Port Royal	W. R. Rowe	J. D. Ashworth, G. A. Griffin, G. S. Doorley.
Port Kingston	J. G. Parsons	W. G. Palmer, Alec. Morrison.
Port Antonio	W. R. Rowe	F. R. Griffith, G. S. Doorley.
Atrato	R. H. Stranger	W. H. Kennett, G. T. Walker, E. E. Balding, A. C. Falconer, W. N. H. Robinson, H. M. Williams, D. R. Mason.
La Plata	— Dagnall	S. N. Braithwaite.
Kildonan Castle	J. Tyson	Chas. C. Garret, S. Symons.
Braemar Castle	D. Wallace.*	
Moravian	A. Simpson	A. Corbett, H. C. Allingham, H. G. A. Nelder, E. M'Claren, B. Banks.
Sophocles...	H. A. Schleman.	
„	H. Walker.	
Macedonia	C. D. Bennett.	
Egypt	J. R. Lendon	J. Shearme, F. H. Higgins, H. G. Wilding.

* I regret to have to record the death of Captain Wallace in May, 1905.

The above list is not complete, and may be inaccurate in other respects, owing to insufficient information having been given on the record forms.

TABLE II.

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
					Fahr.	C.				
	1904.		° N. ′	° W. ′						
Ethiopia	Sept. 9	—	55 25	7 50	55	12·8	19·47	35·17	28·27	
,, ...	,, 9	—	55 24	10 50	57	13·9	19·54	35·30	28·37	
,, ...	,, 12	Noon	54 00	27 30	53	11·7	19·51	35·25	28·32	
,, ...	,, 13	,,	52 38	34 45	51	10·6	19·22	34·72	27·90	
,, ...	,, 14	,,	51 10	39 45	51	10·6	19·30	34·87	28·02	
,, ...	,, 16	,,	47 35	50 20	—	—	17·52	31·65	25·43	
,, ...	,, 18	,,	43 00	61 00	—	—	17·74	32·05	25·75	
,, ...	,, 19	,,	41 05	67 15	61	16·1	18·09	32·68	26·26	
,, ...	,, 26	,,	42 00	63 30	64	17·8	18·50	33·42	26·86	
,, ...	,, 27	,,	44 00	58 00	59	15·0	17·50	31·62	25·40	
,, ...	,, 28	,,	46 20	52 40	51	10·6	17·19	31·06	24·95	
,, ...	,, 29	,,	48 55	47 15	48	8·9	19·03	34·38	27·63	
,, ...	,, 30	,,	51 05	41 10	53	11·7	19·38	35·01	28·14	
Astoria	,, 17	,,	55 21	14 32	60	15·6	19·61	35·43	28·47	
,, ...	,, 18	,,	54 42	22 14	53	11·7	20·17	36·44	29·29	
,, ...	,, 20	,,	52 01	37 29	48	8·9	19·38	35·01	28·14	
,, ...	,, 21	,,	49 52	43 32	50	10·0	19·52	35·26	28·34	
,, ...	,, 22	,,	47 21	50 32	52	11·1	17·53	31·67	25·45	
,, ...	,, 23	,,	44 15	57 14	60	15·6	18·00	32·52	26·13	
,, ...	,, 24	,,	41 44	64 02	64	17·8	18·78	33·93	27·26	
,, ...	,, 25	,,	40 34	70 47	63	17·2	18·44	33·31	26·77	
St. Paul	,, 18	3.35 a.m.	49 40	5 48	60½	15·8	19·60	35·41	28·46	
,, ...	,, 18	9.0 a.m.	50 04	8 30	60¼	15·7	19·50	35·23	28·31	
,, ...	,, 18	5.15 p.m.	50 17	12 39	58¼	14·6	19·60	35·41	28·46	
,, ...	,, 19	Noon	50 20	21 30	57¾	14·3	19·55	35·32	28·38	
,, ...	,, 20	,,	49 19	32 35	51	10·6	19·28	34·83	27·99	
,, ...	,, 21	,,	47 19	43 30	50	10·0	19·00	34·33	27·58	
,, ...	,, 22	,,	44 33	53 55	62	16·7	19·15	34·60	27·80	
,, ...	,, 23	,,	42 12	63 14	68	20·0	19·44	35·12	28·22	
Minneapolis ...	,, 25	11.31 a.m.	49 50	6 27	59	15·0	19·61	35·43	28·47	
,, ...	,, 25	5.43 p.m.	50 04	9 01	59	15·0	19·64	35·48	28·51	
,, ...	,, 25	Midnight	50 14	11 36	58	14·4	19·74	35·66	28·66	
,, ...	,, 26	Noon	50 26	16 35	58	14·4	19·68	35·55	28·57	
,, ...	,, 27	,,	50 08	25 42	54	12·2	19·58	35·37	28·43	
,, ...	,, 28	,,	49 10	35 05	54	12·2	19·41	35·07	28·18	
,, ...	,, 29	,,	47 25	43 53	49	9·4	18·99	34·31	27·57	
,, ...	,, 30	,,	44 57	52 33	56	13·3	17·98	32·48	26·10	
Atrato	,, 15	9.0 a.m.	48 58	5 30	55·8	13·2	19·61	35·43	28·47	
,, ...	,, 15	5.0 p.m.	48 00	7 13	61·5	16·4	19·65	35·50	28·53	
,, ...	,, 16	1.0 a.m.	46 58	9 18	62·5	16·9	19·71	35·61	28·62	
,, ...	,, 16	Noon	45 22	12 07	64	17·8	19·70	35·59	28·60	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		$Cl.$ ‰	$S.$ ‰	σ_0	Remarks.
					Fahr.	C.				
	1904.		° N. ′	° W. ′						
Atrato	Sept. 17	Noon	42 07	18 04	65·6	18·7	19·83	35·82	28·79	
, ...	,, 18	,,	38 40	23 40	70	21·1	20·03	36·18	29·08	
,, ...	,, 19	,,	35 09	29 16	72	22·2	20·02	36·17	29·07	
,, ...	,, 20	,,	31 48	34 15	76·9	24·9	20·37	36·80	29·58	
,, ...	,, 21	,,	28 22	39 18	78·9	26·1	20·62	37·25	29·94	
,, ...	,, 22	,,	25 03	43 39	80·2	26·8	20·75	37·48	30·13	
,, ...	,, 23	,,	21 36	48 14	80·3	26·8	20·34	36·74	29·53	
Port Royal ...	,, 10	8.0 p.m.	50 46	6 18	60	15·6	19·44	35·12	28·22	
,, ...	,, 11	3.0 a.m.	50 08	8 47	60	15·6	19·77	35·71	28·70	
,, ...	,, 11	10.15 a.m.	49 40	11 08	60	15·6	19·76	35·70	28·69	
,, ...	,, 12	Noon	47 27	18 42	61	16·1	19·84	35·84	28·80	
,, ...	,, 13	,,	45 12	24 50	61	16·1	19·72	35·62	28·63	
,, ...	,, 14	,,	42 46	31 02	68	20·0	20·06	36·24	29·12	
,, ...	,, 15	,,	39 55	37 05	70	21·1	20·27	36·62	29·43	
,, ...	,, 16	,,	36 56	43 08	75	23·9	20·32	36·71	29·50	
,, ...	,, 17	,,	34 02	48 40	79½	26·4	20·41	36·87	29·63	
,, ...	,, 18	,,	31 12	54 14	81	27·2	20·49	37·01	29·75	
,, ...	,, 19	,,	28 22	59 38	84	28·9	20·45	36·94	29·69	
,, ...	,, 20	,,	25 32	64 48	82	27·8	20·52	37·07	29·79	
,, ...	,, 21	,,	22 34	69 47	83	28·3	20·24	36·56	29·39	
,, ...	,, 22	,,	19 21	74 01	85	29·4	20·07	36·26	29·14	
...	,, 30	,,	20 27	73 59	85	29·4	20·15	36·40	29·26	
Braemar Castle ...	,, 11	7.30 a.m.	48 40	5 12	57	13·9	19·73	35·64	28·64	
,, ...	,, 11	4.0 p.m.	47 15	6 23	59	15·0	19·57	35·35	28·41	
,, ...	,, 11	Midnight	45 49	7 37	62	16·7	20·86	37·68	30·29	
,, ...	,, 12	4.0 p.m.	43 05	9 30	62	16·7	20·22	36·53	29·36	
,, ...	,, 13	Noon	39 36	11 20	66	18·9	20·35	36·76	29·55	
,, ...	,, 14	,,	35 19	13 17	72	22·2	20·34	36·74	29·53	
,, ...	,, 15	,,	31 12	14 46	72	22·2	20·61	37·23	29·93	
,, ...	,, 16	4.0 p.m.	28 04	16 20	72	22·2	20·77	37·52	30·16	
,, ...	,, 17	Noon	24 16	17 02	70	21·1	20·27	36·62	29·43	
Kildonan Castle ...	,, 11	8.30 a.m.	48 33	5 16	57·5	14·2	19·57	35·35	28·41	
,, ...	,, 11	2.55 p.m.	47 07	6 33	66	18·9	19·71	35·61	28·62	
,, ...	,, 11	9.15 p.m.	45 40	7 42	78	25·6	19·78	35·73	28·72	
,, ...	,, 12	Noon	42 15	10 27	65·5	18·6	19·80	35·77	28·75	
,, ...	,, 13	,,	36 48	14 08	70·5	21·4	20·05	36·22	29·11	
,, ...	,, 14	,,	32 38	16 55	72·5	22·5	20·39	36·83	29·61	
,, ...	,, 15	,,	26 25	17 30	73·5	23·1	20·29	36·65	29·46	
,, ...	,, 16	,,	19 51	17 49	76	24·4	19·87	35·90	28·85	
Moravian	,, 15	5.0 p.m.	47 21	6 41	61·7	16·5	19·74	35·66	28·66	
,, ...	,, 16	Noon	43 58	8 59	63·5	17·5	19·78	35·73	28·72	
,, ...	,, 17	,,	39 43	11 03	68	20·0	20·13	36·36	29·23	
,, ...	,, 18	,,	34 59	13 27	71·2	21·8	20·38	36·82	29·59	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
					Fahr.	C.				
	1904.		° N. ′	° W. ′						
Moravian	Sept. 19	Noon	30 01	15 06	72·5	22·5	20·19	36·47	29·31	
„	„ 20	„	26 27	16 37	75	23·9	20·22	36·53	29·36	
„	„ 21	„	21 29	17 36	71·7	22·1	20·20	36·49	29·33	
„	„ 22	„	16 23	17 37	83	28·3	20·22	36·53	29·36	
„	„ 23	„	11 32	17 24	82	27·8	19·61	35·43	28·47	
„	„ 24	„	7 39	14 46	78	25·6	19·19	34·67	27·86	
„	„ 25	„	3 44	11 45	78	25·6	19·67	35·53	28·56	
„	„ 26	„	0 00	8 50	73	22·8	19·87	35·90	28·85	
Macedonia ...	„ 17	8.45 p.m.	48 14	5 48	61¾	16·5	19·56	35·34	28·40	
„	„ 18	3.30 a.m.	46 58	6 25	64	17·8	20·05	36·22	29·11	
„	„ 18	Noon	44 57	8 39	66	18·9	19·77	35·71	28·70	
„	„ 18	3.25 p.m.	44 12	9 07	63	17·2	19·78	35·73	28·72	
„	„ 18	8.0 p.m.	43 05	9 35	60¾	15·9	19·58	35·37	28·43	
„	„ 19	3.30 a.m.	41 10	9 43	65	18·3	19·87	35·90	28·85	
„	„ 19	Noon	39 10	9 35	63	17·2	19·81	35·79	28·76	
„	„ 19	3.30 p.m.	38 25	9 25	64	17·8	20·15	36·40	29·26	
„	„ 19	Midnight	36 45	8 15	71	21·7	20·11	36·33	29·20	
Numidian ...	Oct. 2	3.15 p.m.	55 28	7 38	53	11·7	19·68	35·55	28·57	
„ ...	„ 3	2.0 a.m.	55 26	10 43	53	11·7	19·64	35·48	28·51	
„ ...	„ 3	11.30 a.m.	55 22	13 35	53	11·7	19·60	35·41	28·46	
„ ...	„ 4	Noon.	54 52	19 28	53	11·7	19·51	35·25	28·32	
„ ...	„ 5	„	54 07	25 45	50	10·0	19·53	35·28	28·35	
„ ...	„ 6	„	53 05	32 35	47¼	8·4	19·23	34·74	27·92	
„ ...	„ 7	„	51 24	39 47	49	9·4	19·27	34·81	27·98	
„ ...	„ 8	„	49 41	44 45	51	10·6	18·99	34·31	27·57	
„ ...	„ 9	„	47 29	50 20	52	11·1	17·65	31·89	25·62	
„ ...	„ 10	„	44 57	55 35	53½	11·9	17·85	32·25	25·91	
„ ...	„ 11	„	42 41	61 15	62	16·7	18·16	32·81	26·36	
„ ...	„ 12	„	41 20	66 30	53½	11·9	18·17	32·83	26·38	
„ ...	„ 13	„	40 30	72 48	59	15·0	18·37	33·19	26·67	
„ ...	„ 21	„	40 40	69 17	56	13·3	19·16	34·61	27·82	
„ ...	„ 22	„	41 54	64 16	56	13·3	18·22	32·92	26·45	
„ ...	„ 23	„	43 36	58 50	59¾	15·4	18·27	33·01	26·52	
„ ...	„ 24	„	45 56	53 42	52	11·1	17·77	32·10	25·79	
„ ...	„ 25	„	48 17	48 14	42	5·6	18·21	32·90	26·43	
„ ...	„ 26	„	50 40	42 40	49½	9·7	19·28	34·83	27·99	
„ ...	„ 27	„	52 38	36 00	46	7·8	19·27	34·81	27·98	
„ ...	„ 28	„	54 04	28 43	47	8·3	19·51	35·25	28·32	
„ ...	„ 29	„	54 56	21 01	51½	10·8	19·59	35·39	28·44	
„ ...	„ 30	10.40 a.m.	55 22	13 35	52½	11·4	19·58	35·37	28·43	
„ ...	„ 30	6.35 p.m.	55 26	10 43	52	11·1	19·59	35·39	28·44	
„ ...	„ 31	4.0 a.m.	55 28	7 38	54¼	12·3	19·49	35·21	28·30	
Ethiopia	„ 1	Noon.	52 35	34 20	—	—	19·31	34·88	28·03	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1904.		° N. ′	° W. ′						
Ethiopia	Oct. 2	Noon	53 55	26 50	51	10·6	19·33	34·92	28·06	
,, ...	,, 3	,,	55 00	18 40	54	12·2	19·50	35·23	24·31	
,, ...	,, 4	2.0 a.m.	55 00	13 45	54	12·2	19·54	35·30	28·37	
,, ...	,, 4	11.0 a.m.	55 10	10 45	55	12·8	19·52	35·26	28·34	
,, ...	,, 4	8.30 p.m.	55 20	7 50	57	13·9	19·48	35·19	28·28	
Astoria	,, 2	Noon	40 52	68 00	60	15·6	18·12	32·74	26·30	
,, ...	,, 3	,,	42 52	61 10	60	15·6	17·82	32·20	25·87	
,, ...	,, 4	,,	45 29	55 12	55	12·8	17·82	32·20	25·87	
,, ...	,, 5	,,	48 24	48 41	44	6·7	18·50	33·42	26·86	
,, ...	,, 6	,,	50 58	41 24	53	11·7	19·39	35·03	28·15	
,, ...	,, 7	,,	53 03	33 30	48	8·9	19 2	34·79	27·96	
,, ...	,, 8	,,	54 22	24 34	53	11·7	19·54	35·30	28·37	
,, ...	,, 9	,,	55 17	16 06	53	11·7	17·66	31·91	25·64	
,, ...	,, 10	,,	55 22	7 03	48	8·9	19·73	35·64	28·64	
Samartian ...	,, 30	8.30 a.m.	55 33	9 00	54	12·2	19·43	35·10	28·21	
,, ...	,, 31	Noon	55 09	18 28	54	12·2	19·57	35·35	28·41	
Minneapolis ...	,, 1	,,	43 04	60 29	64	17·8	18·52	33·46	26·88	
,, ...	,, 2	,,	41 02	67 20	56	13·3	18·23	32·94	26·46	
,, ...	,, 8	,,	40 21	72 02	62	16·7	18·69	33·77	27·13	
,, ...	,, 9	,,	41 19	64 06	59	15·0	18·41	33·26	26·72	
,, ...	,, 10	,,	43 16	56 12	58	14·4	18·88	34·11	27·41	
,, ...	,, 11	,,	45 41	48 14	44	6·7	17·85	32·25	25·91	
,, ...	,, 12	,,	47 48	39 46	61	16·1	19·66	35·52	28·54	
,, ...	,, 13	,,	49 20	30 33	55	12·8	19·65	35·50	28·53	
,, ...	,, 14	,,	49 41	20 47	57	13·9	19·68	35·55	28·57	
,, ...	,, 15	,,	49 44	11 19	58	14·4	19·71	35·61	28·62	
,, ...	,, 15	6.30 p.m.	49 49	9 02	57	13·9	19·74	35·66	28·66	
,, ...	,, 30	7.30 a.m.	50 04	9 01	57	13·9	19·62	35·44	28·48	
,, ...	,, 30	Noon	50 12	11 07	57	13·9	19·70	35·59	28·60	
,, ...	,, 30	1.45 p.m.	50 14	11 36	56	13·3	19·69	35·57	28·59	
,, ...	,, 31	Noon	50 19	21 24	55	12·8	19·75	35·68	28·67	
St. Paul	,, 2	,,	41 08	64 52	71	21·7	19·70	35·59	28·60	
,, ...	,, 3	,,	43 20	55 40	63¾	17·6	18·42	33·28	26·74	
,, ...	,, 4	,,	46 00	46 20	54	12·2	18·47	33·37	26·81	
,, ...	,, 5	,,	48 28	36 22	57¾	14·3	19·07	34·45	27·68	
,, ...	,, 7	,,	49 53	14 18	57½	14·2	19·61	35·43	28·47	
,, ...	,, 7	11.0 p.m.	49 50	9 02	58¼	14·6	19·63	35·46	28·50	
,, ...	,, 8	6.30 a.m.	49 49	6 15	57	13·9	19·58	35·37	28·43	
,, ...	,, 16	4.05 a.m.	49 42	6 31	53½	11·9	19·49	35·21	28·30	
,, ...	,, 16	10.45 a.m.	50 10	9 39	57	13·9	19·62	35·44	28·48	
,, ...	,, 17	Noon	50 23	20 11	57	13·9	19·61	35·43	28·47	
,, ...	,, 18	,,	49 37	29 29	56	13·3	19·63	35·46	28·50	
,, ...	,, 19	,,	48 20	40 04	58	14·4	19·44	35·12	28·22	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1904.		° N. ′	° W. ′						
St. Paul	Oct. 20	Noon	45 43	50 13	54	12·2	18·05	32·61	26·20	
,, ...	,, 21	,,	43 04	60 24	60	15·6	18·29	33·04	26·55	
,, ...	,, 30	,,	41 14	64 47	56	13·3	18·46	33·35	26·80	
,, ...	,, 31	,,	43 21	55 46	68	20·0	18·10	32·70	26·27	
Port Royal ...	,, 1	,,	24 17	70 14	82	27·8	20·16	36·42	29·27	
,, ...	,, 2	,,	28 00	66 08	83	28·3	20·43	36·91	29·66	
,, ...	,, 3	,,	31 40	61 30	80	26·7	20·03	36·18	29·08	
,, ...	,, 4	,,	35 11	56 46	72	22·2	19·97	36·08	28·99	
,, ...	,, 5	,,	38 25	51 47	76	24·4	20·13	36·36	29·23	
,, ...	,, 6	,,	41 35	45 56	74	23·3	20·01	36·15	29·05	
,, ...	,, 7	,,	44 32	39 26	69	20·6	19·67	35·53	28·56	
,, ...	,, 8	,,	47 00	32 22	60	15·6	19·67	35·53	28·56	
,, ...	,, 9	,,	49 05	24 40	55	12·8	19·46	35·16	28·25	
,, ...	,, 10	,,	50 40	16 12	57	13·9	19·40	35·05	28·16	
,, ...	,, 11	,,	51 23	8 58	58	14·4	19·21	34·70	27·89	
,, ...	,, 11	6.0 p m.	51 13	6 18	58	14·4	19·46	35·16	28·25	
,, ...	,, 22	,,	50 34	6 23	57	13·9	19·64	35·48	28·51	
,, ...	,, 23	4.0 a.m.	49 48	8 36	59	15·0	19·83	35·82	28·79	
,, ...	,, 23	Noon	48 57	11 45	58	14·4	19·80	35·77	28·75	
,, ...	,, 24	,,	46 23	19 00	60	15·6	19·82	35·81	28·78	
,, ...	,, 25	,,	43 43	25 48	62	16·7	19·89	35·93	28·88	
,, ...	,, 26	,,	40 56	32 17	65	18·3	20·01	36·15	29·05	
,, ...	,, 27	,,	38 02	38 11	71	21·7	20·09	36·29	29·17	
,, ...	,, 28	,,	35 26	43 56	73	22·8	20·32	36·71	29·50	
,, ...	,, 29	,,	32 37	49 46	76	24·4	20·63	37·27	29·95	
,, ...	,, 30	,,	29 59	55 10	79	26·1	20·69	37·38	30·04	
,, ...	,, 31	,,	27 25	60 22	80	26·7	20·33	36·73	29·52	
Atrato	,, 24	,,	20 38	53 34	80·8	27·1	19·98	36·09	29·01	
,, ...	,, 25	,,	24 44	49 41	78·5	25·8	20·70	37·39	30·06	
,, ...	,, 26	,,	28 36	45 46	77	25·0	20·47	36·98	29·72	
,, ...	,, 27	,,	32 16	41 37	74·8	23·8	20·27	36·62	29·43	
,, ...	,, 28	,,	35 50	36 54	69·5	20·8	20·19	36·47	29·31	
,, ...	,, 29	,,	38 59	31 39	63	17·2	20·08	36·27	29·15	
,, ...	,, 30	,,	41 21	26 05	62·2	16·8	19·90	35·95	28·89	
,, ...	,, 31	,,	43 59	20 13	61·2	16·2	19·81	35·79	28·76	
Sophocles... ...	,, 6	11.30 a.m.	48 37	5 49	56·5	13·6	19·58	35·37	28·43	
,, ...	,, 6	7.50 p.m.	47 20	7 09	58·5	14·7	19·71	35·61	28·62	
,, ...	,, 7	5.05 a.m.	45 56	8 28	61	16·1	19·78	35·73	28·72	
,, ...	,, 7	Noon	44 35	9 34	61·5	16·4	19·76	35·70	28·69	
,, ...	,, 8	,,	39 53	11 37	65	18·3	19·87	35·90	28·85	
,, ...	,, 9	,,	35 18	13 20	66	18·9	20·27	36·62	29·43	
,, ...	,, 10	,,	30 36	15 09	72·2	22·3	20·37	36·80	29·58	
,, ...	,, 11	,,	28 03	16 21	73·5	23·1	20·37	36·80	29·58	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1904.		° N. ′	° W. ′						
Sophocles	Oct. 12	Noon	23 06	17 25	71	21·7	20·19	36·47	29·31	
Egypt	„ 22	10.30 p.m.	48 21	5 36	57	13·9	19·54	35·30	28·37	
„	„ 23	4.30 a.m.	47 10	6 35	58	14·4	19·81	35·79	28·76	
„	„ 23	6.0 p.m.	44 15	8 55	61	16·1	19·74	35·66	28·66	
„	„ 24	Noon	39 49	9 37	64	17·8	19·86	35·88	28·83	
„	„ 25	„	36 03	6 05	68	20·0	20·15	36·40	29·26	
Kildonan Castle ...	„ 23	„	22 14	17 36	70	21·1	20·21	36·51	29·34	
„ ...	„ 24	„	28 06	16 59	71	21·7	20·39	36·83	29·61	
„ ...	„ 25	„	32 37	16 54	68	20·0	20·25	36·58	29·40	
„ ...	„ 26	„	37 41	13 27	66	18·9	20·19	36·47	29·31	
„ ...	„ 27	„	42 57	9 27	61	16·1	19·86	35·88	28·83	
„ ...	„ 27	11.0 p.m.	45 31	7 43	60	15·6	19·77	35·71	28·70	
„ ...	„ 28	6.20 a.m.	47 01	6 40	62	16·7	19·76	35·70	28·69	
„ ...	„ 28	4.0 p.m.	49 40	4 15	55	12·8	19·64	35·48	28·51	
Braemar Castle ...	„ 31	4.0 a.m.	20 42	17 36	66	18·9	20·26	36·60	29·42	
„ ...	„ 31	8.0 p.m.	23 33	17 03	68	20·0	20·58	37·18	29·88	
Samartian ...	Nov. 1	Noon	54 24	26 34	52	11·1	19·30	34·87	28·02	
„ ...	„ 2	„	53 15	32 53	49·5	9·7	19·35	34·96	28·09	
„ ...	„ 3	„	52 10	37 43	45·5	7·5	19·19	34·67	27·86	
„ ...	„ 4	„	50 12	43 41	52	11·1	19·62	35·44	28·48	
„ ...	„ 5	„	48 08	50 12	41	5·0	17·72	32·01	25·72	
„ ...	„ 8	„	45 52	56 08	45	7·2	17·74	32·05	25·75	
„ ...	„ 9	„	44 46	61 37	50	10·0	17·41	31·46	25·27	
„ ...	„ 10	„	44 12	63 53	49	9·4	17·75	32·07	25·77	
„ ...	„ 11	„	42 25	70 08	48	8·9	18·02	32·56	26·16	
„ ...	„ 20	„	42 24	70 07	47	8·3	18·14	32·77	26·33	
„ ...	„ 21	„	43 48	64 39	48	8·9	17·52	31·65	25·43	
„ ...	„ 22	„	44 50	60 33	45	7·2	17·19	31·06	24·95	
„ ...	„ 23	„	46 00	54 38	42	5·6	17·47	31·56	25·36	
„ ...	„ 24	„	48 19	49 12	38	3·3	17·97	32·47	26·09	
„ ...	„ 25	„	50 28	43 25	54	12·2	19·36	34·97	28·11	
„ ..	„ 26	„	53 11	37 18	45	7·2	19·14	34·58	27·79	
„ ...	„ 27	„	53 38	30 50	48	8·9	19·26	34·79	27·96	
„ ...	„ 28	„	54 43	23 28	50	10·0	19·36	34·97	28·11	
„ ...	„ 29	„	55 10	15 25	52	11·1	19·57	35·35	28·41	
„ ...	„ 30	„	55 30½	7 23½	52	11·1	19·51	35·25	28·32	
Numidian ...	„ 6	2.30 a.m.	55 29	7 38	53½	11·9	19·51	35·25	28·32	
„ ...	„ 6	11.55 a.m.	55 27	10 43	51	10·6	19·61	35·43	28·47	
„ ...	„ 6	8.20 p.m.	55 24	13 35	51½	10·8	19·56	35·34	28·40	
„ ...	„ 7	Noon	55 08	18 21	52	11·1	19·62	35·44	28·48	
„ ...	„ 8	„	54 34	24 27	50¾	10·4	19·44	35·12	28·22	
„ ...	„ 9	„	53 45	30 30	48½	9·2	19·32	34·90	28·05	
„ ...	„ 10	„	52 22	37 15	44¼	6·8	19·22	34·72	27·90	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
					Fahr.	C.				
	1904.		° N. ′	° W. ′						
Numidian ...	Nov. 11	Noon	50 58	41 05	58¾	14·8	19·58	35·37	28·43	
,, ...	,, 12	,,	48 58	47 10	44	6·7	19·13	34·56	27·77	
,, ...	,, 13	,,	46 29	52 26	42	5·6	17·72	32·01	25·72	
,, ...	,, 14	,,	44 08	57 50	46	7·8	17·33	31·31	25·16	
,, ...	,, 15	,,	42 42	60 55	55	12·8	19·39	35·03	28·15	
,, ...	,, 16	,,	41 16	66 08	54	12·2	18·67	33·73	27·10	
,, ...	,, 17	,,	40 31	72 25	51	10·6	18·44	33·31	26·77	
,, ...	,, 25	,,	40 48	68 43	49½	9·7	18·23	32·94	26·46	
,, ...	,, 26	,,	42 23	63 14	50	10·0	18·15	32·79	26·35	
,, ...	,, 27	,,	44 06	57 33	42	5·6	17·69	31·96	25·68	
,, ...	,, 28	,,	46 29	52 54	40	4·4	17·48	31·58	25·37	
,, ...	,, 29	,,	48 55	47 37	41	5·0	18·98	34·29	27·55	
,, ...	,, 30	,,	51 13	42 20	52	11·1	19·16	34·61	27·82	
Astoria	,, 28	3.0 a.m.	55 25	7 40	52	11·1	19·62	35·44	28·48	
,, ...	,, 28	9.0 a.m.	55 21	11 00	51	10·6	19·70	35·59	28·60	
,, ...	,, 29	Noon	55 00	20 20	51	10·6	19·89	35·93	28·88	
,, ...	,, 30	,,	54 10	26 20	48	8·9	19·60	35·41	28·46	
Minneapolis ...	,, 1	,,	49 45	31 28	55	12·8	19·58	35·37	28·43	
,, ...	,, 2	,,	48 20	40 06	60	15·6	19·78	35·73	28·72	
,, ...	,, 3	,,	46 21	46 42	49	9·4	18·49	33·40	26·84	
,, ...	,, 4	,,	44 08	55 02	56	13·3	18·68	33·75	27·12	
,, ...	,, 5	,,	42 20	62 39	55	12·8	19·45	35·14	28·24	
,, ...	,, 6	,,	40 37	70 06	52	11·1	18·24	32·95	26·48	
,, ...	,, 13	,,	40 57	65 45	64	17·8	19·78	35·73	28·72	
,, ...	,, 14	,,	42 57	58 09	56	13·3	18·68	33·75	27·12	
,, ...	,, 15	,,	45 06	50 16	45	7·2	17·77	32·10	25·79	
,, ...	,, 16	,,	46 57	42 25	56	13·3	19·19	34·67	27·86	
,, ...	,, 17	,,	48 55	33 15	54	12·2	19·49	35·21	28·30	
,, ...	,, 18	,,	49 47	23 52	55	12·8	19·66	35·52	28·54	
,, ...	,, 19	,,	49 47	14 11	54	12·2	19·66	35·52	28·54	
,, ...	,, 19	7.0 p.m.	49 47	11 37	55	12·8	19·70	35·59	28·60	
,, ...	,, 20	1.30 a.m.	49 47	9 02	54	12·2	19·58	35·37	28·43	
St. Paul	,, 1	Noon	46 02	46 50	51½	10·8	18·45	33·33	26·78	
,, ...	,, 2	,,	48 26	37 31	58	14·4	19·66	35·52	28·54	
,, ...	,, 3	,,	49 45	26 38	56	13·3	19·67	35·53	28·56	
,, ...	,, 4	,,	49 43	15 02	57	13·9	19·67	35·53	28·56	
,, ...	,, 4	8.0 p.m.	49 48	11 21	57	13·9	19·63	35·46	28·50	
,, ...	,, 5	6.0 a.m.	49 49	6 20	57	13·9	19·57	35·35	28·41	
,, ...	,, 13	4.0 a.m.	49 42	6 21	56	13·3	19·66	35·52	28·54	
,, ...	,, 13	10.0 a.m.	50 05	9 16	56	13·3	19·58	35·37	28·43	
,, ...	,, 13	3.30 p.m.	50 14	11 53	57	13·9	19·63	35·46	28·50	
,, ...	,, 14	Noon.	50 24	21 48	53	11·7	19·40	35·05	28·16	
,, ...	,, 15	,,	49 31	32 25	57	13·9	19·70	35·59	28·60	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
	1904.		° N. ′	° W. ′						
St. Paul	Nov. 16	Noon	47 38	41 49	49½	9·7	19·05	34·42	27·65	
,, ...	,, 17	,,	45 04	51 35	49	9·4	17·99	32·50	26·11	
,, ...	,, 19	,,	40 32	71 06	52¼	11·2	18·50	33·42	26·86	
,, ...	,, 27	,,	41 05	64 45	40	4·4	18·58	33·57	26·97	
,, ...	,, 28	,,	43 40	56 15	49	9·4	19·17	34·63	27·83	
,, ...	,, 29	,,	46 11	46 50	40	4·4	18·40	33·35	26·80	
,, ...	,, 30	,,	48 11	37 15	55	12·8	19·57	35·35	28·41	
Atrato	,, 1	,,	46 53	13 27	58·3	14·6	19·65	35·50	28·53	
,, ...	,, 1	9.0 p.m.	47 58	10 36	58·2	14·6	19·81	35·79	28·76	
,, ...	,, 2	4.0 a.m.	48 47	8 27	57	13·9	19·68	35·55	28·57	
,, ...	,, 2	10.20 a.m.	49 40	6 14	54·5	12·5	19·62	35·44	28·48	
,, ...	,, 24	8.30 a.m.	48 53	5 31	53·6	12·0	19·62	35·44	28·48	
,, ...	,, 24	5.0 p.m.	47 58	6 52	53	11·7	19·72	35·62	28·63	
,, ...	,, 24	Midnight	46 57	9 15	55·7	13·2	19·82	35·81	28·78	
,, ...	,, 25	Noon	45 25	12 53	58·5	14·7	19·80	35·77	28·75	
,, ...	,, 26	,,	42 02	18 46	62	16·7	19·94	36·02	28·95	
,, ...	,, 27	,,	38 29	24 07	64	17·8	20·09	36·29	29·17	
,, ...	,, 28	,,	34 51	29 50	65·6	18·7	20·05	36·22	29·11	
,, ...	,, 29	,,	31 31	34 35	70	21·1	20·44	36·92	29·68	
,, ...	,, 30	,,	28 01	39 51	73	22·8	20·51	37·05	29·78	
Port Royal ...	,, 1	,,	24 38	65 17	82	27·8	20·44	36·92	29·68	
,, ...	,, 2	,,	21 57	70 25	84	28·9	20·41	36·87	29·63	
,, ...	,, 11	,,	20 31	73 57	84	28·9	20·01	36·15	29·05	
,, ...	,, 12	,,	24 15	70 07	81	27·2	19·29	34·85	28·00	
,, ...	,, 13	,,	28 14	66 02	79	26·1	20·32	36·71	29·50	
,, ...	,, 14	,,	31 53	61 27	78	25·6	20·09	36·29	29·17	
,, ...	,, 15	,,	35 11	56 43	70	21·1	20·24	36·56	29·39	
,, ...	,, 16	,,	38 28	51 52	69	20·6	20·14	36·38	29·24	
,, ...	,, 17	,,	41 53	45 48	68	20·0	20·25	36·58	29·40	
,, ...	,, 18	,,	44 25	39 48	64	17·8	19·90	35·95	28·89	
,, ...	,, 19	,,	46 20	34 57	59	15·0	19·83	35·82	28·79	
,, ...	,, 20	,,	48 26	28 20	54	12·2	19·73	35·64	28·64	
,, ...	,, 21	,,	50 01	20 20	55	12·8	19·80	35·77	28·75	
,, ...	,, 22	,,	50 50	13 10	53	11·7	20·01	36·15	29·05	
,, ...	,, 22	10.0 p.m.	51 26	10 11	52	11·1	19·60	35·41	28·46	
,, ...	,, 23	9.30 a.m.	51 14	6 20	52	11·1	19·58	35·37	28·43	
Braemar Castle ...	,, 1	Noon	26 31	16 34	68	20·0	20·59	37·19	29·90	
,, ...	,, 2	,,	Santa Cruz Anchorage.		69	20·6	19·84	35·84	28·80	
,, ...	,, 3	,,	32 20	14 45	68	20·0	20·37	36·80	29·58	
,, ...	,, 4	,,	37 15	12 40	65	18·3	20·32	36·71	29·50	
,, ...	,, 5	,,	42 10	10 11	63	17·2	20·16	36·42	29·27	
,, ...	,, 6	7.30 a.m.	45 45	7 45	52	11·1	20·30	36·67	29·47	
,, ...	,, 6	3.15 p.m.	47 11	6 38	21	10·6	19·93	36·00	28·94	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1904.		° ′ N.	° ′ W.						
Braemar Castle ...	Nov. 6	9.57 p.m.	48 35	5 16	50	10·0	19·78	35·73	28·72	
Kildonan Castle ...	„ 13	7.0 a.m.	48 44	4 59	55	12·8	19·62	35·44	28·48	
„ ...	„ 13	2.40 p.m.	47 11	6 23	56	13·3	19·81	35·79	28·76	
„ ...	„ 13	9.15 p.m.	45 44	7 35	58	14·4	19·81	35·79	28·76	
„ ...	„ 14	Noon	42 18	10 18	61	16·1	19·87	35·90	28·85	
„ ...	„ 15	„	36 47	13 58	65	18·3	20·16	36·42	29·27	
„ ...	„ 16	„	Funchal Bay, Madeira.		68	20·0	20·33	36·73	29·52	
„ ...	„ 18	„	20 09	17 41	71	21·7	20·12	36·35	29·21	
United States ...	Dec. 3	Midnight	59 28	5 35	48·7	9·3	19·56	35·34	28·40	
„ ...	„ 4	4.0 a.m.	59 28	7 19	48·6	9·2	19·61	35·43	28·47	
„ ...	„ 4	8.0 a.m.	59 34	9 10	48·2	9·0	19·61	35·43	28·47	
„ ...	„ 4	1.0 p.m.	59 30	11 03	47·1	8·4	19·57	35·35	28·41	
„ ...	„ 4	4.0 p.m.	59 17	12 15	48·0	8·9	19·56	35·34	28·40	
„ ...	„ 4	8.0 p.m.	59 00	13 51	47·5	8·6	19·56	35·34	28·40	
„ ...	„ 4	Midnight	58 42	15 30	45·5	7·5	19·56	35·34	28·40	
„ ...	„ 5	Noon	57 57	20 32	47·5	8·6	19·49	35·21	28·30	
„ ...	„ 5	Midnight	56 45	25 03	47·7	8·7	19·46	35·16	28·25	
„ ...	„ 6	Noon	55 36	30 00	46·4	8·0	19·33	34·92	28·06	
„ ...	„ 7	4.0 a.m.	53 03	36 32	43·7	6·5	19·28	34·83	27·99	
„ ...	„ 7	4.0 p.m.	51 33	40 00	46·9	8·3	19·21	34·70	27·89	
„ ...	„ 8	8.0 a.m.	49 08	44 21	44·8	7·1	18·95	34·23	27·51	
„ ...	„ 9	8.0 a.m.	45 26	51 04	43·5	6·4	17·98	32·48	26·10	
„ ...	„ 9	Midnight	44 03	56 05	46·8	8·2	18·35	33·15	26·64	
„ ...	„ 10	1.0 p.m.	42 58	59 31	49·3	9·6	18·87	34·09	27·39	
„ ...	„ 11	6.0 a.m.	41 30	63 48	47·3	8·5	18·70	33·78	27·15	
„ ...	„ 11	8.0 p.m.	40 35	68 25	40·6	4·8	18·14	32·77	26·33	
„ ...	„ 22	4.0 a.m.	40 23	70 25	43·5	6·4	18·32	33·10	26·59	
„ ...	„ 22	4.0 p.m.	40 54	66 27	43·7	6·5	18·29	33·04	26·55	
„ ...	„ 23	1.0 p m.	42 17	59 55	58·8	14·9	19·96	36·06	28·98	
„ ...	„ 24	4.0 a.m.	43 35	55 16	50·4	10·2	19·11	34·52	27·74	
„ ...	„ 24	8.0 p.m.	45 24	50 02	43·3	6·3	17·88	32·30	25·95	
„ ...	„ 25	1.0 p.m.	45 54	45 12	40·5	4·7	18·86	34·07	27·38	
„ ...	„ 26	4.0 a.m.	47 43	40 37	50·2	10·1	19·62	35·44	28·48	
„ ...	„ 26	8.0 p.m.	49 32	35 40	46·2	7·9	19·27	34·81	27·98	
„ ...	„ 27	1.0 p.m.	51 26	29 43	47·5	8·6	19·31	34·88	28·03	
„ ...	„ 28	4.0 a.m.	53 10	24 24	48·4	9·1	19·35	34·96	28·09	
„ ...	„ 28	4.0 p.m.	54 34	20 14	52·7	11·5	19·56	35·34	28·40	
„ ...	„ 29	4.0 a.m.	55 54	15 47	50·9	10·5	19·59	35·39	28·44	
„ ...	„ 29	8.0 a m.	56 21	14 17	49·1	9·5	19·56	35·34	28·40	
„ ...	„ 29	1.0 p.m.	56 49	12 21	50·4	10·2	19·57	35·35	28·41	
„ ...	„ 29	4.0 p.m.	57 04	11 31	50·0	10·0	19·56	35·34	28·40	
„ ...	„ 29	8.0 p.m.	57 22	9 59	49·1	9·5	19·59	35·39	28·44	
„ ...	„ 29	Midnight	57 35	8 54	49·1	9·5	19·59	35·39	28·44	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1904.		° N. ′	° W. ′						
United States ...	Dec. 30	4.0 a.m.	58 03	7 57	48·2	9·0	19·61	35·43	28·47	
,, ...	,, 30	8.0 a.m.	58 22	7 20	48·2	9·0	19·43	35·10	28·21	
,, ...	,, 30	Noon	58 34	6 05	47·3	8·5	19·35	34·96	28·09	
Oscar II.	,, 17	10.0 p m.	59 40	5 36	47·8	8·8	19·57	35·35	28·41	
,, ...	,, 18	2.0 a.m.	59 40	6 25	47·7	8·7	19·63	35·46	28·50	
,, ...	,, 18	6.0 a.m.	59 42	7 49	43·5	6·4	19·63	35·46	28·50	
,, ...	,, 18	10.0 a.m.	59 46	8 10	47·3	8·5	19·69	35·57	28·59	
,, ...	,, 18	2.0 p.m.	59 48	9 40	47·8	8·8	19·61	35·43	28·47	
,, ...	,, 18	6.0 p.m.	59 32	11 20	47·7	8·7	19·60	35·41	28·46	
,, ...	,, 18	10.0 p m.	59 25	12 08	47·3	8·5	19·59	35·39	28·44	
,, ...	,, 19	2.0 a.m.	59 00	15 00	47·8	8·8	19·56	35·34	28·40	
,, ...	,, 19	2.0 p.m.	58 00	20 00	49·3	9·6	19·54	35·30	28·37	
,, ...	,, 19	6.0 a.m.	58 55	15 28	47·3	8·5	19·55	35·32	28·38	
,, ...	,, 20	4.0 a.m.	56 48	25 00	47·3	8·5	19·38	35·01	28·14	
,, ...	,, 20	3.45 p.m	55 13	30 00	45·9	7·7	19·38	35·01	28·14	
,, ...	,, 21	6.30 a.m.	53 12	34 45	43·7	6·5	19·27	34·81	27·98	
,, ...	,, 21	9.30 p.m.	51 00	40 00	45·5	7·5	19·14	34·58	27·79	
,, ...	,, 22	1.0 p.m.	48 45	45 00	39·0	3·9	19·04	34·40	27·64	
,, ...	,, 23	11.0 a.m.	45 50	50 00	30·2	−1·0	18·09	32·68	26·26	
,, ...	,, 24	4.0 a.m.	44 16	55 00	38·3	3·5	18·16	32·81	26·36	
,, ...	,, 24	7.30 p.m.	43 00	60 00	45·0	7·2	19·39	35·03	28·15	
,, ...	,, 25	1.30 p.m.	41 45	65 00	44·6	7·0	18·16	32·81	26·36	
,, ...	,, 26	3.30 a.m	40 35	70 00	41·7	5·4	18·18	32·84	26·39	
Astoria	,, 1	Noon	53 40	29 45	46	7·8	19·95	36·04	28·96	
,, ...	,, 2	,,	52 20	36 00	43	6·1	19·17	34·63	27·83	
,, ...	,, 3	,,	51 23	39 10	51	10·6	19·56	35·34	28·40	
,, ...	,, 4	,,	50 15	43 00	52	11·1	20·47	36·98	29·72	
,, ...	,, 5	,,	48 20	49 00	37	2·8	19·12	34·54	27·76	
,, ...	,, 6	,,	45 14	55 20	40	4·4	17·90	32·34	25·98	
,, ...	,, 7	,,	42 45	61 45	51	10·6	19·49	35·21	28·30	
,, ...	,, 8	,,	41 00	68 15	46	7·8	18·34	33·13	26·62	
,, ...	,, 19	,,	40 36	68 46	46	7·8	18·25	32·97	26·49	
,, ...	,, 20	,,	42 06	62 30	54	12·2	19·31	34·88	28·03	
,, ...	,, 21	,,	44 30	56 20	46	7·8	18·72	33·82	27·18	
,, ...	,, 22	,,	47 24	50 20	34	1·1	18·15	32·79	26·35	
,, ...	,, 23	,,	50 05	44 00	45	7·2	19·13	34·56	27·77	
,, ...	,, 24	,,	52 14	36 30	44	6·7	19·42	35·08	28·19	
,, ...	,, 25	,,	53 50	28 24	47	8·3	19·46	35·16	28·25	
,, ...	,, 26	,,	54 45	21 19	51	10·6	19·70	35·59	28·60	
,, ...	,, 27	,,	55 06	12 30	51	10·6	19·52	35·26	28·34	
,, ...	,, 27	8.0 p.m.	55 12	9 45	51	10·6	19·54	35·30	28·37	
,, ...	,, 28	—	55 24	7 40	49	9·4	19·38	35·01	28·14	
Numidian ...	,, 1	Noon	52 47	36 04	44	6·7	19·23	34·74	27·92	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1904.		° N. ′	° W. ′						
Numidian ...	Dec. 2	Noon	53 58	29 10	47	8·3	19·37	34·99	28·12	
,, ...	,, 3	,,	54 58	21 20	50	10·0	19·44	35·12	28·22	
,, ...	,, 4	,,	55 30	13 33	50	10·0	19·57	35·35	28·41	
,, ...	,, 4	10.0 p.m.	55 29	10 43	51	10·6	19·49	35·21	28·30	
,, ...	,, 5	6.10 a.m.	55 28	7 39	50	10·0	19·44	35·12	28·22	
,, ...	,, 17	10.0 a.m.	55 30	7 40	48½	9·2	19·43	35·10	28·21	
,, ...	,, 17	Noon	55 27	8 14	50	10·0	19·49	35·21	28·30	
,, ...	,, 17	7.30 p.m.	55 25	10 42	48	8·9	19·58	35·37	28·43	
,, ...	,, 18	6.30 a.m.	55 17	13 36	49	9·4	19·66	35·52	28·54	
,, ...	,, 18	Noon	55 09	15 21	50	10·0	19·59	35·39	28·44	
,, ...	,, 19	,,	54 37	22 57	50	10·0	19·50	35·23	28·31	
,, ...	,, 20	,,	53 42	30 21	45	7·2	19·23	34·74	27·92	
,, ...	,, 21	,,	51 51	37 07	44	6·7	19·23	34·74	27·92	
,, ...	,, 22	,,	50 03	43 27	45	7·2	18·89	34·13	27·42	
,, ...	,, 23	,,	48 12	48 57	29	−1·7	18·24	32·95	26·48	
,, ...	,, 24	,,	46 05	53 38	33	0·6	17·95	32·43	26·06	
,, ...	,, 25	,,	43 34	59 10	37	2·8	17·98	32·48	26·10	
,, ...	,, 26	,,	41 35	65 00	45	7·2	18·72	33·82	27·18	
,, ...	,, 27	,,	40 31	71 20	46	7·8	18·21	32·90	26·43	
St. Paul	,, 1	,,	49 36	26 50	50	10·0	19·25	34·78	27·95	
,, ...	,, 2	,,	49 51	16 00	53¼	11·8	19·68	35·55	28·57	
,, ...	,, 13	,,	49 58	28 16	52	11·1	19·59	35·39	28·44	
,, ...	,, 14	,,	48 56	36 22	54	12·2	19·61	35·43	28·47	
,, ...	,, 15	,,	47 19	44 06	44	6·7	18·09	32·68	26·26	
,, ...	,, 16	,,	44 45	53 08	39	3·9	18·06	32·63	26·22	
,, ...	,, 17	,,	42 20	63 00	55	12·8	19·67	35·53	28·56	
,, ...	,, 25	,,	41 05	65 00	43	6·1	18·55	33·51	26·93	
,, ...	,, 26	,,	43 10	56 30	43	6·1	18·73	33·84	27·19	
,, ...	,, 27	,,	45 52	47 35	38	3·3	18·78	33·93	27·26	
,, ...	,, 28	,,	48 05	37 50	54	12·2	19·66	35·52	28·54	
,, ...	,, 29	,,	49 28	27 25	50	10·0	19·38	35·01	28·14	
,, ...	,, 30	,,	49 35	16 00	54	12·2	19·67	35·53	28·56	
,, ...	,, 31	4.0 a.m.	49 52	9 00	52	11·1	19·57	35·35	28·41	
Atrato	,, 1	Noon	24 42	44 20	75·8	24·3	20·70	37·39	30·06	
,, ...	,, 2	,,	21 20	48 43	78·1	25·6	20·62	37·25	29·94	
Port Royal ...	,, 3	10.15 p.m.	50 34	6 23	51	10·6	19·72	35·62	28·63	
,, ...	,, 4	7.30 a.m.	49 41	8 55	53	11·7	19·67	35·35	28·41	
,, ...	,, 5	Noon	47 15	14 58	55	12·8	20·01	36·15	29·05	
,, ...	,, 6	,,	45 25	19 03	56	13·3	19·66	35·52	28·54	
,, ...	,, 7	,,	42 25	24 33	59	15·0	19·94	36·02	28·95	
,, ...	,, 8	,,	39 56	30 03	60	15·6	20·06	36·24	29·12	
,, ...	,, 9	,,	37 29	35 34	65	18·3	20·14	36·38	29·24	
,, ...	,, 10	,,	34 57	41 18	68	20·0	20·16	36·42	29·27	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
					Fahr.	C.				
	1904.		° N. ′	° W. ′						
Port Royal ...	Dec. 11	Noon	32 30	46 50	72	22·2	20·30	36·67	29·47	
,, ...	,, 12	,,	29 53	52 26	74	23·3	20·56	37·14	29·85	
,, ...	,, 13	,,	27 34	57 58	76	24·4	20·46	36·96	29·71	Bad stopper.
,, ...	,, 14	,,	25 06	63 28	78	25·6	20·26	36·60	29·42	
,, ...	,, 15	,,	22 38	68 56	79½	26·4	20·02	36·17	29·07	
,, ...	,, 24	,,	23 06	71 23	77	25·0	20·41	36·87	29·63	
,, ...	,, 25	,,	26 49	67 22	75	23·9	20·43	36·91	29·66	
,, ...	,, 26	,,	30 43	63 00	70	21·1	20·50	37·03	29·77	
,, ...	,, 27	,,	34 06	58 17	66	18·9	20·32	36·71	29·50	
,, ...	,, 28	,,	37 30	53 10	66	18·9	20·30	36·67	29·47	Bad stopper.
,, ...	,, 29	,,	40 39	47 25	61	16·1	19·93	36·00	28·94	
,, ...	,, 30	,,	43 50	40 50	63	17·2	19·44	35·12	28·22	
,, ...	,, 31	,,	46 40	34 00	56	13·3	19·72	35·62	28·63	
Egypt	,, 14	,,	37 25	9 11	62½	16·9	20·11	36·33	29·20	
,, ...	,, 15	,,	42 38	9 42	59	15·0	18·54	33·49	26·91	
,, ...	,, 15	7.15 p.m.	44 05	8 49	58	14·4	19·77	35·71	28·70	
,, ...	,, 16	11.35 a.m.	47 07	6 35	56½	13·6	19·72	35·62	28·63	Current from C. Villano E. by N. 12 miles.
,, ...	,, 16	7.45 p.m.	48 21	5 27	54½	12·5	19·58	35·37	28·43	Current from noon E. by S. 11 miles
,, ...	,, 31	7.06 p.m.	48 34	5 27	52	11·1	19·57	35·35	28·41	
Macedonia ...	,, 19	8.0 p.m.	36 15	6 49	61	16·1	20·12	36·35	29·21	
,, ...	,, 19	11.40 p.m.	36 37	7 58	62·2	16·8	20·20	36·49	29·33	
,, ...	,, 20	3.20 a.m.	36 56	8 55	60	15·6	2 ·10	36·31	29·18	
,, ...	,, 20	8.0 a.m.	38 15	9 30	60	15·6	20·10	36·31	29·18	
,, ...	,, 20	Noon	39 16	9 33	59	15·0	19·97	36·08	28·99	
,, ...	,, 20	3.10 p.m.	40 06	9 37	60	15·6	20·04	36·20	29·10	
,, ...	,, 20	11.35 p.m.	42 23	9 37	58	14·4	19·90	35·95	28·89	
,, ...	,, 21	3.0 am.	43 09	9 31	58	14·4	19·88	35·91	28·86	
,, ...	,, 21	11.45 a.m.	45 25	8 00	56	13·3	19·76	35·70	28·69	
,, ...	,, 21	3.12 p.m.	46 12	7 25	55	12·8	19·77	35·71	28·70	
,, ...	,, 21	11.45 p.m.	48 10	5 55	51	10·6	19·69	35·57	28·59	
Egypt	,, 22	3.0 a.m.	49 00	5 25	51	10·6	19·61	35·43	28·47	
Kildonan Castle ...	,, 25	Noon	22 43	17 32	67	19·4	20·21	36·51	29·34	
,, ...	,, 26	,,	28 17	17 03	67	19·4	20·38	36·82	29·59	
,, ...	,, 27	,,	Funchal Bay, Maderia.		64	17·8	20·35	36·76	29·55	
,, ...	,, 28	,,	37 43	13 23	60	15·6	20·29	36·65	29·46	
,, ...	,, 29	,,	43 09	9 23	56	13·3	19·75	35·68	28·67	
,, ...	,, 29	10.10 p.m.	45 34	7 35	54	12·2	19·83	35·82	28·79	
,, ...	,, 30	4.40 a.m.	47 01	6 21	52	11·1	20·17	36·44	29·29	
,, ...	,, 30	1.0 p.m.	48 35	5 18	50	10·0	19·79	35·75	28·73	
	1905.									
Hellig Olav ...	Jan. 28	Midnight	59 28	5 10	47·7	8·7	19·58	35·37	28·43	
,, ...	,, 29	4.0 a.m.	59 28	6 00	48·4	9·1	19·60	35·41	28·46	
,, ...	,, 29	8.0 a.m.	59 25	7 15	47·8	8·8	19·60	35·41	28·46	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Hellig Olav ...	Jan. 29	Noon	59 21	8 56	47·7	8·7	19·60	35·41	28·46	
,, ...	,, 29	4.0 p.m.	59 15	10 05	47·7	8·7	19·60	35·41	28·46	
,, ...	,, 29	8.0 p.m.	59 05	11 32	48·2	9·0	19·61	35·43	28·47	
,, ...	,, 29	Midnight	59 00	13 05	47·5	8·6	19·58	35·37	28·43	
,, ...	,, 30	4.0 a.m.	58 52	14 25	47·3	8·5	19·56	35·34	28·40	
,, ...	,, 30	8.0 a.m.	58 45	15 10	46·7	8·2	19·56	35·34	28·40	
,, ...	,, 31	,,	56 50	21 00	47·6	8·7	19·56	35·34	28·40	
,, ...	,, 31	8.0 p.m.	55 40	25 00	47·1	8·4	19·54	35·30	28·37	
Oscar II.	,, 5	5.30 a.m.	40 10	70 00	42·3	5·7	18·29	33·04	26·55	
,, ...	,, 5	9.0 p.m.	41 10	65 00	44·2	6·8	18·77	33·91	27·25	
,, ...	,, 6	1.30 p.m.	41 52	60 00	51·8	11·0	18·91	34·16	27·45	
,, ...	,, 7	6.30 a.m.	43 30	55 00	47·5	8·6	19·17	34·63	27·83	
,, ...	,, 7	11.0 p.m.	44 12	50 00	32·9	0·5	18·40	33·24	26·71	
,, ...	,, 8	5.30 p.m.	48 10	45 00	38·3	3·5	18·77	33·91	27·25	
,, ...	,, 9	10.0 a.m.	50 38	40 00	43·9	6·6	19·22	34·72	27·90	
,, ...	,, 10	1.0 a.m.	52 35	35 00	41·9	5·5	19·23	34·44	27·92	
,, ...	,, 10	3.0 p.m.	54 20	30 00	44·8	7·1	19·33	34·92	28·06	
,, ...	,, 11	4.30 a.m.	56 12	25 00	47·3	8·5	19·49	35·21	28·30	
,, ...	,, 11	5.30 p.m.	57 00	20 00	48·4	9·1	19·55	35·32	28·38	
,, ...	,, 12	4.0 a.m.	57 11	15 00	46·6	8·1	19·57	35·35	28·41	
,, ...	,, 12	Noon	58 12	12 27	47·3	8·5	19·61	35·43	28·47	
,, ...	,, 12	4.0 p.m.	58 13	10 40	48·6	9·2	19·61	35·43	28·47	
,, ...	,, 12	8.0 p.m.	58 15	9 10	48·2	9·0	19·58	35·37	28·43	
,, ...	,, 12	Midnight	58 26	7 20	48·2	9·0	19·54	35·30	28·37	
,, ...	,, 13	4.0 a.m.	58 37	5 45	46·8	8·2	19·29	34·85	28·00	
Numidian ...	,, 6	Noon	40 39	69 21	40	4·4	18·41	33·26	26·72	
,, ...	,, 7	,,	41 45	64 11	48	8·9	18·74	33·86	27·20	
,, ...	,, 8	,,	42 20	60 40	46	7·8	18·78	33·93	27·26	
,, ...	,, 9	,,	43 50	55 45	40	4·4	18·48	33·39	26·83	
,, ...	,, 10	,,	45 36	50 16	36	2·2	18·20	32·88	26·42	
,, ...	,, 11	,,	48 05	45 06	38	3·3	19·10	34·51	27·73	Doubtful stopper.
,, ...	,, 12	,,	50 45	39 17	48	8·9	19·41	35·07	28·18	
,, ...	,, 13	,,	52 30	32 20	45	7·2	19·38	35·01	28·14	
,, ...	,, 14	,,	54 06	25 35	46	7·8	19·40	35·05	28·16	
,, ...	,, 15	,,	55 03	18 25	50	10·0	19·74	35·66	28·66	
,, ...	,, 16	,,	55 22	13 40	49	9·4	19·71	35·61	28·62	
,, ...	,, 16	—	55 24	12 45	49	9·4	19·66	35·52	28·54	Ship stopped from 16th, 6 p.m., to 17th, 6 p.m.
,, ...	,, 18	3.0 a.m.	55 26	10 42	50	10·0	19·79	35·75	28·73	
,, ...	,, 18	Noon	55 20	9 43	48	8·9	19·79	35·75	28·73	
,, ...	,, 18	9.30 p.m.	55 28	7 40	46	7·8	19·59	35·39	28·44	
,, ...	,, 19	Noon	55 22	5 12	46	7·8	18·61	33·62	27·02	
Astoria	,, 8	—	55 21	7 48	49	9·4	19·34	34·94	28·08	
,, ...	,, 8	Midnight	120 miles W. of Innistrahull.		50	10·0	19·88	35·91	28·86	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		$Cl.\,‰$.	$S.\,‰$.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		°N. ′	°W. ′						
Astoria	Jan. 9	Noon	55 17	12 15	50	10·0	19·63	35·46	28·50	
„	„ 10	„	55 08	16 50	50	10·0	19·56	35·34	28·40	
„	„ 11	„	54 45	21 20	48	8·9	19·56	35·34	28·40	
„	„ 12	„	54 00	26 30	49	9·4	19·46	35·16	28·25	
„	„ 13	„	52 20	33 40	42	5·6	19·23	34·74	27·92	
„	„ 14	„	51 27	39 46	47	8·3	19·46	35·16	28·25	
„	„ 15	„	49 45	45 00	39	3·9	18·98	34·29	27·55	
„	„ 16	„	47 40	50 00	29	−1·7	19·22	34·72	27·90	
„	„ 17	„	45 10	54 45	31	−0·6	18·00	32·52	26·13	
„	„ 18	„	43 15	60 00	—	—	18·69	33·77	27·13	
„	„ 19	„	41 30	66 40	42	5·6	18·32	33·10	26·59	
„	„ 20	„	40 34	73 13	40	4·4	18·02	32·56	26·16	
„	„ 29	„	40 32	68 00	41	5·0	18·28	33·03	26·54	
„	„ 30	„	42 00	61 20	40	4·4	18·43	33·30	26·75	
„	„ 31	„	44 00	54 00	41	5·0	18·46	33·35	26·80	
Corean	„ 29	1·0 a.m.	55 16	10 42	50	10·0	19·60	35·41	28·46	
„	„ 29	3.0 p.m.	54 33	13 41	50	10·0	19·59	35·39	28·44	
„	„ 30	Noon	53 47	19 00	50	10·0	19·54	35·30	28·37	
„	„ 31	„	52 30	25 15	52	11·1	19·52	35·26	28·34	
Minneapolis ...	„ 20	9.45 p.m.	49 49	9 03	50	10·1	19·62	35·44	28·48	
„ ...	„ 21	4.15 a.m.	49 47	11 38	52	11·1	19·79	35·75	28·73	
„ ...	„ 21	Noon	49 50	13 54	52	11·1	19·69	35·57	28·59	
„ ...	„ 22	„	48 57	22 10	52	11·1	19·66	35·52	28·54	
„ ...	„ 23	„	47 40	29 52	52	11·1	19·77	35·71	28·70	
„ ...	„ 24	„	45 25	37 57	59	15·0	19·87	35·90	28·85	
„ ...	„ 25	„	42 49	44 50	59	15·0	20·11	36·33	29·20	
„ ...	„ 26	„	41 57	52 16	42	5·6	18·67	33·73	27·10	
„ ...	„ 27	„	41 45	57 48	55	12·8	19·84	35·84	28·80	
„ ...	„ 28	„	41 06	63 53	50	10·0	19·56	35·34	28·40	
„ ...	„ 29	„	40 35	71 44	34	1·1	18·26	32·99	26·51	
St. Paul	„ 29	„	49 46	10 30	50	10·0	19·59	35·39	28·44	
„	„ 30	„	48 50	21 45	52	11·1	19·59	35·39	28·44	
„	„ 31	„	46 57	32 22	55	12·8	19·75	35·68	28·67	
Port Kingston ...	„ 1	8.0 a.m.	49 33	8 53	51	10·6	19·54	35·30	28·37	
„ ...	„ 1	Noon	48 51	10 17	53	11·7	19·65	35·50	28·53	
„ ...	„ 2	„	45 30	18 25	55	12·8	19·70	35·59	28·60	
„ ...	„ 3	„	42 32	26 23	59	15·0	19·82	35·81	28·78	
„ ...	„ 4	„	39 31	34 29	61	16·1	20·01	36·15	29·05	
„ ...	„ 5	„	36 06	41 51	65·5	18·6	20·17	36·44	29·29	
„ ...	„ 6	„	32 41	48 53	67·5	19·7	20·28	36·64	29·45	
„ ...	„ 7	„	29 30	55 34	72	22·2	20·28	36·64	29·45	
„ ...	„ 8	„	26 17	62 16	75	23·9	20·36	36·78	29·56	
„ ...	„ 9	„	23 01	68 34	78	25·6	20·08	36·27	29·15	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		N. ° ′	W. ° ′						
Port Kingston ...	Jan. 10	Noon	19 09	74 23	79	26·1	19·86	35·88	28·83	... ...
,, ...	,, 20	,,	20 45	73 50	78·5	25·8	19·86	35·88	28·83	... ...
,, ...	,, 21	,,	25 25	68 54	75·5	24·2	20·16	36·42	29·27	... ...
,, ...	,, 22	,,	30 00	63 40	69	20·6	20·33	36·73	29·52	... ...
,, ...	,, 23	,,	34 22	57 55	67	19·4	20·27	36·62	29·43	... ...
,, ...	,, 24	,,	38 17	51 46	63	17·2	19·98	36·09	29·01	... ...
,, ...	,, 25	,,	41 59	44 14	61	16·1	20·25	36·58	29·40	... ...
,, ...	,, 26	,,	45 03	36 21	55	12·8	19·86	35·88	28·83	... ...
,, ...	,, 27	,,	47 52	27 47	53	11·7	19·78	35·73	28·72	... ...
,, ...	,, 28	,,	49 50	18 36	53	11·7	19·78	35·73	28·72	...
,, ...	,, 29	6.0 a.m.	50 35	11 20	52	11·1	19·75	35·68	28·67	...
,, ...	,, 29	Noon	51 26	8 08	49	9·4	19·55	35·52	28·38	... ...
,, ...	,, 29	4.30 p.m.	51 10	6 10	49	9·4	19·50	35·23	28·31	...
Port Royal ...	,, 1	Noon	49 03	26 24	53·1	11·7	19·64	35·48	28·51	... ...
,, ...	,, 2	,,	50 12	17 52	54·0	12·2	19·80	35·77	28·75	... ...
,, ...	,, 3	9.20 a.m.	51 20	11 15	52·0	11·1	19·68	35·55	28·57	...
,, ...	,, 3	3.10 p.m.	51 21	8 50	50	10·0	19·40	35·05	28·16	... ...
,, ...	,, 3	10.30 p.m.	51 15	6 20	51	10·6	19·53	35·28	28·35	...
,, ...	,, 15	2.0 a.m.	50 44	6 28	50	10·0	19·70	35·59	28·60	... ...
,, ...	,, 15	10.0 a.m.	50 11	8 46	51	10·6	19·56	35·34	28·40	...
,, ...	,, 15	8.0 p.m.	49 05	11 05	53	11·7	19·86	35·88	28·83	...
,, ...	,, 16	Noon	47 59	14 38	53	11·7	19·86	35·88	28·83	...
,, ...	,, 17	,,	45 12	18 44	55	12·8	19·86	35·88	28·83	...
,, ...	,, 18	,,	41 28	23 10	57	13·9	19·96	36·06	28·98	...
,, ...	,, 19	,,	38 14	27 23	60	15·6	20·13	36·36	29·23	...
,, ...	,, 20	,,	36 29	32 08	60·5	15·8	20·19	36·47	29·31	...
,, ...	,, 21	,,	34 48	38 20	64	17·8	20·38	36·82	29·59	...
,, ...	,, 22	,,	32 48	44 10	67	19·4	20·38	36·82	29·59	...
,, ...	,, 23	,,	30 44	49 53	69	20·6	20·34	36·74	29·53	...
,, ...	,, 24	,,	28 28	55 20	70	21·1	20·52	37·07	29·79	...
,, ...	,, 25	,,	26 06	60 52	74	23·3	20·54	37·10	29·82	... ...
,, ...	,, 26	,,	23 48	66 25	76	24·4	20·30	36·67	29·74	... ...
Atrato	,, 2	,,	20 12	54 04	78·4	25·8	20·78	37·54	30·17	... ...
,, ...	,, 3	,,	24 32	49 57	75·2	24·0	20·59	37·19	29·90	...
,, ...	,, 4	,,	28 18	46 18	71·8	22·1	20·62	37·25	29·94	...
,, ...	,, 5	,,	31 46	42 21	67·3	19·6	20·20	36·49	29·33	...
,, ...	,, 6	,,	35 21	37 30	64·2	17·9	20·23	36·55	29·37	...
,, ...	,, 7	,,	38 37	32 10	62·1	16·7	20·03	36·18	29·08	...
,, ...	,, 8	,,	41 29	25 58	57·9	14·4	19·92	35·99	28·92	...
,, ...	,, 9	,,	44 07	19 19	55·0	12·8	19·82	35·81	28·78	...
,, ...	,, 10	,,	47 15	12 36	54·0	12·2	19·75	35·68	28·67	...
,, ...	,, 10	6.0 p.m.	47 32	9 54	53·4	11·9	19·76	35·70	28·69	...
,, ...	,, 11	1.30 a.m.	48 50	8 23	51·3	10·7	19·74	35·66	28·66	...

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
	1905.		° N. ′	° W. ′						
Atrato	Jan. 11	7.0 a.m.	Between Scilly and Ushant.		51·1	10·6	19·62	35·44	28·48	
Moravian	„ 8	8.0 p.m.	33 31	14 15	63·5	17·5	20·18	36·45	29·30	
„	„ 9	6.0 a.m.	35 25	13 28	63·0	17·2	20·28	36·64	29·45	
„	„ 9	Noon	36 28	13 07	61·5	16·4	20·07	36·26	29·14	
„	„ 10	„	40 40	11 19	57·9	14·4	19·95	36·04	28·96	
„	„ 11	„	44 19	8 44	55·0	12·8	19·78	35·73	28·72	
„	„ 11	8.0 p.m.	45 35	7 52	55·9	13·3	19·80	35·77	28·75	
„	„ 12	4.30 a.m.	47 13	6 38	54·0	12·2	19·72	35·62	28·63	
„	„ 12	4.0 p.m.	48 54	5 33	51·4	10·8	19·60	35·41	28·46	
Kildonan Castle ...	„ 15	—	48 13	5 30	52	11·1	19·69	35·57	28·59	
„ ...	„ 15	—	47 19	5 53	53	11·7	19·73	35·64	28·64	
„ ...	„ 16	—	45 55	8 58	54	12·2	19·77	35·71	28·70	
„ ...	„ 16	—	45 02	10 15	56	13·3	19·84	35·84	28·80	
„ ...	„ 17	—	38 25	12 51	59	15·0	20·02	36·17	29·07	
„ ...	„ 20	—	21 36	17 28	66	18·9	19·90	35·95	28·89	
Braemar Castle ...	„ 28	Noon	19 21	17 45	64	17·8	20·07	36·26	29·14	
„ ...	„ 29	„	23 12	16 57	62	16·7	20·53	37·09	29·81	
„ ...	„ 30	8.0 a.m.	25 41	15 51	63	17·2	20·79	37·56	30·19	
„ ...	„ 30	8.0 p.m.	27 05	15 21	62	16·7	20·56	37·14	29·85	
„ ...	„ 31	8.0 a.m.	Las Palmas Anchorage.		62	16·7	20·65	37·30	29·98	
Egypt	„ 1	1.30 a.m.	47 10	6 33	53	11·9	19·72	35·62	28·63	
„	„ 1	4.0 p.m.	43 59	9 03	56	13·3	—	—	—	
„	„ 2	Noon	39 18	9 42	58·5	14·7	20·00	36·13	29·04	
„	„ 3	„	35 58	5 37	60	15·6	20·21	36·51	29·34	
Macedonia ...	„ 15	3.30 a.m.	48 30	5 26	49	9·4	19·68	35·55	28·57	
„ ...	„ 15	8.0 a.m.	47 35	6 15	53	11·7	19·67	35·53	28·56	
„ ...	„ 15	Noon	46 54	6 51	53	11·7	19·76	35·70	28·69	
„ ...	„ 15	3.30 p.m.	46 08	7 25	54	12·2	19·79	35·75	28·73	
„ ...	„ 15	8.0 p.m.	45 10	8 07	54	12·2	19·76	35·70	28·69	
„ ...	„ 15	Midnight	44 17	8 45	55	12·8	19·85	35·86	28·82	
„ ...	„ 16	3.30 a.m.	43 40	9 10	56	13·3	19·85	35·86	28·82	
„ ...	„ 16	8.0 a.m.	42 48	9 30	57	13·9	19·94	36·02	28·95	
„ ...	„ 16	Noon	41 50	9 30	58	14·4	19·95	36·04	28·96	
„ ...	„ 16	3.30 p.m.	41 01	9 33	57½	14·2	19·98	36·09	29·01	
„ ...	„ 16	8.0 p.m.	39 55	9 42	59	15·0	20·22	36·53	29·36	
„ ...	„ 16	Midnight	39 00	9 40	58	14·4	20·09	36·29	29·17	
„ ...	„ 17	3.30 a.m.	38 06	9 26	58	14·4	20·12	36·35	29·21	
„ ...	„ 17	8.05 a.m.	36 59	8 59	59½	15·3	20·15	36·40	29·26	
„ ...	„ 17	Noon	36 33	7 43	60½	15·8	20·16	36·42	29·27	
„ ...	„ 17	3.30 p.m.	36 11	6 38	60	15·6	20·19	36·47	29·31	
„ ...	„ 18	3.30 a.m.	36 18	4 05	57	13·9	20·31	36·69	29·49	
United States ...	Feb. 12	8.0 a.m.	59 51	5 20	46·4	8·0	19·61	35·43	28·47	
„ ...	„ 12	1.0 p.m.	60 00	8 02	46·6	8·1	19·58	35·37	28·43	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		$Cl.$ °/₀₀.	$S.$ °/₀₀.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		°N. ′	°W. ′						
United States ...	Feb. 12	4.0 p.m.	59 48	9 33	46·8	8·2	19·19	34·67	27·86	
„ ...	„ 12	8.0 p.m.	59 32	11 30	48·4	9·1	19·59	35·39	28·44	
„ ...	„ 12	Midnight	59 15	13 32	46·9	8·3	19·55	35·32	28·38	
„ ...	„ 13	4.0 a.m.	59 00	15 24	48·2	9·0	19·58	35·37	28·43	
„ ...	„ 13	4.0 p.m.	58 13	20 57	48·0	8·9	19·57	35·35	28·41	
„ ...	„ 13	Midnight	57 11	24 08	47·1	8·4	19·45	35·14	28·24	
„ ...	„ 14	8.0 p.m.	55 03	30 06	44·6	7·0	19·37	34·99	28·12	
„ ...	„ 16	4.0 a.m.	52 47	34 36	41·7	5·4	19·28	34·83	27·99	
„ ...	„ 17	4.0 a.m.	49 05	39 19	53·8	12·1	19·62	35·44	28·48	
„ ...	„ 18	Noon	45 42	43 59	54·7	12·6	18·98	34·29	27·55	
„ ...	„ 19	8.0 a.m.	43 52	50 24	38·1	3·4	18·23	32·94	26·46	
„ ...	„ 20	„	42 07	55 40	44·6	7·0	19·39	35·03	28·15	
„ ...	„ 20	8.0 p.m.	41 23	59 30	52·7	11·5	19·80	35·77	28·75	
„ ...	„ 21	Noon	40 45	63 54	47·1	8·4	19·32	34·90	28·05	
„ ...	„ 22	4.0 a.m.	40 24	69 35	36·0	2·2	18·35	33·15	26·64	
Hellig Olav ...	„ 1	Noon	53 43	30 18	43·7	6·5	19·40	35·05	28·16	
„ ...	„ 2	4.0 a.m.	51 00	34 50	48·2	9·0	19·36	34·97	28·11	
„ ...	„ 2	7.0 p.m.	49 00	39 45	50·2	10·1	19·56	35·34	28·40	
„ ...	„ 4	2.0 a.m.	45 20	45 00	42·8	6·0	18·69	33·77	27·13	
„ ...	„ 4	9.0 p.m.	43 30	50 00	32·0	0·0	18·23	32·94	26·46	
„ ...	„ 5	Noon	42 42	55 10	44·2	6·8	19·03	34·38	27·63	
„ ...	„ 6	1.0 a.m.	42 00	60 00	52·2	11·2	19·73	35·64	28·64	
„ ...	„ 6	7.0 p.m.	41 00	65 00	42·8	6·0	18·70	33·78	27·15	
„ ...	„ 7	9.30 a.m.	40 35	69 56	35·2	1·8	18·33	33·12	26·61	
„ ...	„ 16	8.0 a.m.	40 10	69 10	35·6	2·0	18·21	32·90	26·43	
„ ...	„ 16	8.0 p.m.	40 16	65 00	59·9	15·5	20·00	36·13	29·04	
„ ...	„ 17	Noon	40 23	59 50	54·5	12·5	19·74	35·66	28·66	
„ ...	„ 18	2.0 a.m.	40 40	55 15	59·5	15·3	20·02	36·17	29·07	
„ ...	„ 18	9.0 p.m.	42 45	49 55	33·3	0·7	18·32	33·10	26·59	
„ ...	„ 19	2.0 p.m.	44 40	45 25	54·5	12·5	19·68	35·55	28·57	
„ ...	„ 20	11.0 a.m.	48 05	40 00	52·7	11·5	19·63	35·46	28·50	
„ ...	„ 21	4.0 a.m.	50 50	35 00	47·3	8·5	19·43	35·10	28·21	
„ ...	„ 21	6.0 p.m.	53 10	29 45	43·3	6·3	19·27	34·81	27·98	
„ ...	„ 22	8.0 a.m.	55 10	24 50	46·6	8·1	19·43	35·10	28·21	
„ ...	„ 22	8.0 p.m.	56 20	19 55	46·6	8·1	19·53	35·28	28·35	
„ ...	„ 23	8.0 a.m.	57 20	15 45	47·3	8·5	19·54	35·30	28·37	
„ ...	„ 23	Noon	58 20	14 00	47·3	8·5	19·51	35·25	28·32	
„ ...	„ 23	4.0 p.m.	58 30	12 00	47·7	8·7	19·57	35·35	28·41	
„ ...	„ 23	8.0 p.m.	58 30	10 15	47·7	8·7	19·55	35·32	28·38	
„ ...	„ 23	Midnight	58 25	8 40	48·2	9·0	19·57	35·35	28·41	
„ ...	„ 24	4.0 a.m.	58 31	6 52	45·5	7·5	19·54	35·30	28·37	
„ ...	„ 24	8.0 a.m.	58 45	5 00	43·7	6·5	19·19	34·67	27·86	
Oscar II.	„ 25	4.0 p.m.	59 30	5 38	46·8	8·2	19·58	35·37	28·43	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Oscar II.	Feb. 25	8.0 p.m.	59 30	7 23	47·3	8·5	19·59	35·39	28·44	
„	„ 25	Midnight	59 30	9 20	46·4	8·0	19·70	35·59	28·60	
„	„ 26	4.0 a.m.	59 30	11 10	47·3	8·5	19·58	35·37	28·43	
„	„ 26	8.0 a.m.	59 30	12 15	49·1	9·5	19·55	35·32	28·38	
„	„ 26	Noon	59 02	14 10	46·2	7·9	19·54	35·30	28·37	
„	„ 26	4.0 p.m.	58 55	15 00	46·4	8·0	19·47	35·17	28·27	
„	„ 27	3.0 p.m.	58 10	20 00	45·5	7·5	19·59	35·39	28·44	
„	„ 28	4.0 a.m.	56 30	25 00	45·5	7·5	19·39	35·03	28·15	
„	„ 28	5.0 p.m.	54 30	30 00	42·8	6·0	19·41	35·07	28·18	
Corean	„ 1	Noon	50 48	31 20	50	10·0	19·40	35·05	28·16	
„	„ 2	„	48 54	35 52	54	12·2	19·62	35·44	28·48	
„	„ 3	„	47 37	38 30	55	12·8	19·58	35·37	28·43	
„	„ 4	„	46 39	40 15	60	15·6	19·49	35·21	28·30	
„	„ 5	„	44 20	43 35	55	12·8	19·28	34·83	27·99	
„	„ 6	„	42 28	47 32	56	13·3	19·73	35·64	28·64	
„	„ 7	„	41 52	52 35	43	6·1	18·44	33·31	26·77	
„	„ 8	„	41 17	57 30	66	18·9	20·14	36·38	29·24	
„	„ 9	„	41 10	58 55	65	18·3	20·17	36·44	29·29	
„	„ 10	„	41 04	63 10	46	7·8	20·20	36·49	29·33	
„	„ 11	„	40 51	65 30	47	8·3	19·28	34·83	27·99	
„	„ 12	„	40 35	68 06	38	3·3	18·25	32·97	26·49	
„	„ 13	„	40 28	73 30	29·5	−1·4	16·72	30·21	24·27	
„	„ 19	„	40 34	68 50	32	0·0	18·25	32·97	26·49	
„	„ 20	„	41 21	63 04	42	5·6	18·77	33·91	27·25	
„	„ 21	„	41 54	57 12	52	11·1	19·50	35·23	28·31	
„	„ 22	„	42 10	51 20	34	1·1	18·38	33·21	26·68	
„	„ 23	„	42 14	46 53	58	14·4	19·46	35·16	28·25	
„	„ 24	„	44 49	42 34	58	14·4	19·92	35·99	28·92	
„	„ 25	„	47 39	37 37	58	14·4	19·73	35·64	28·64	
„	„ 26	„	49 59	32 23	48	8·9	19·45	35·14	28·24	
„	„ 27	„	52 03	27 05	50·5	10·3	19·60	35·41	28·46	
„	„ 28	„	54 30	21 49	50	10·0	19·60	35·41	28·46	
Astoria	„ 1	„	46 00	48 30	32	0·0	18·31	33·08	26·58	
„	„ 2	„	48 30	42 30	50	10·0	19·36	34·97	28·11	
„	„ 3	„	50 50	34 30	49	9·4	19·43	35·10	28·21	
„	„ 4	„	53 00	26 10	46	7·8	19·30	34·87	28·02	
„	„ 4	8.0 p.m.	53 28	23 46	49	9·4	19·45	35·14	28·24	
„	„ 5	4.0 a.m.	53 55	21 22	49	9·4	19·55	35·32	28·38	
„	„ 5	Noon	54 30	17 30	50	10·0	19·64	35·48	28·51	
„	„ 5	8.0 p.m.	54 47	14 16	51	10·6	19·58	35·37	28·43	
„	„ 6	4.0 a.m.	55 04	11 00	50	10·0	19·61	35·43	28·47	
„	„ 6	Noon	6 miles N. of Arranmore Lt.		49	9·4	19·56	35·34	28·40	
„	„ 6	8.0 p.m.	1 mile W. of Rathlin.		48	8·9	19·23	34·74	27·92	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		°N. ′	°W. ′						
Astoria	Feb. 19	7.0 p.m.	55 30	7 19	44	6·7	19·30	34·87	28·02	
„	„ 20	8.0 a.m.	55 26	10 07	48	8·9	19·69	35·57	28·59	
„	„ 20	6.0 p.m.	55 10	13 40	47	8·3	19·67	35·53	28·56	
„	„ 21	Noon	54 27	20 15	50	10·0	19·72	35·62	28·63	
„	„ 22	„	53 20	27 47	46	7·8	19·37	34·99	28·12	
„	„ 23	„	51 10	34 10	49	9·4	19·56	35·34	28·40	
„	„ 24	„	48 42	40 07	54	12·2	19·81	35·79	28·76	
„	„ 25	„	45 50	46 00	41	5·0	18·80	33·96	27·29	
„	„ 26	„	43 25	51 40	38	3·3	18·39	33·22	26·70	
„	„ 27	„	42 33	58 30	49	9·4	19·28	34·83	27·99	
„	„ 28	„	41 45	62 20	38	3·3	18·73	33·84	27·19	
St. Paul	„ 1	„	43 57	42 25	62	16·7	20·09	36·29	29·17	
„	„ 2	„	41 54	51 23	44	6·7	18·68	33·75	27·12	
„	„ 3	„	41 20	59 10	54	12·2	18·23	32·94	26·46	
„	„ 4	„	41 44	66 50	38	3·3	18·22	32·92	26·45	
„	„ 12	„	40 28	65 00	52	11·1	20·00	36·13	29·04	
„	„ 13	„	40 49	56 06	62	16·7	20·07	36·26	29·14	
„	„ 14	„	42 00	47 00	48	8·9	18·84	34·04	27·35	
„	„ 15	„	44 34	38 02	59	15·0	19·63	35·46	28·50	
„	„ 16	„	47 20	28 36	53	11·7	19·65	35·50	28·53	
„	„ 17	„	49 00	18 12	52	11·1	19·69	35·57	28·59	
„	„ 17	8.0 p.m.	49 12	16 24	54	12·2	19·52	35·26	28·34	
„	„ 18	2.0 a.m.	49 38	10 19	54	12·2	19·51	35·25	28·32	
„	„ 18	8.0 a.m.	49 45	9 00	50	10·0	19·50	35·23	28·31	
„	„ 26	4.0 a.m.	49 50	6 27	48	8·9	20·28	36·64	29·45	
„	„ 26	10.0 a.m.	49 48	9 02	46	7·8	19·87	35·90	28·85	
„	„ 27	Noon	49 26	16 47	44	6·7	20·08	36·27	29·15	
„	„ 28	„	47 56	27 43	51	10·6	19·83	35·82	28·79	
Minneapolis ...	„ 5	„	40 12	67 50	37	2·8	18·32	33·10	26·59	
„ ...	„ 6	„	40 39	59 44	55	12·8	19·92	35·99	28·92	
„ ...	„ 7	„	40 51	51 56	55	12·8	19·85	35·86	28·82	
„ ...	„ 8	„	42 03	44 26	61	16·1	20·17	36·44	29·29	
„ ...	„ 9	„	44 35	37 36	59	15·0	19·99	36·11	29·02	
„ ...	„ 10	„	46 49	30 18	53	11·7	19·83	35·82	28·79	
„ ...	„ 11	„	48 32	22 15	51	10·6	19·67	35·53	28·56	
„ ...	„ 12	„	49 37	13 04	51	10·6	19·72	35·62	28·63	
„ ...	„ 12	?	49 40	11 30	51	10·6	19·72	35·62	28·63	
„ ...	„ 13	?	49 45	9 45	49	9·4	19·65	35·50	28·53	
„ ...	„ 24	10.0 p.m.	49 48	9 03	48	8·9	19·60	35·41	28·46	
„ ...	„ 25	4.0 a.m.	49 43	11 38	49	9·4	19·89	35·93	28·88	
„ ...	„ 25	Noon	49 44	14 26	52	11·1	19·83	35·82	28·79	
„ ...	„ 26	„	48 53	20 35	51	10·6	19·88	35·91	28·86	
, ...	„ 27	„	47 53	28 21	54	12·2	20·04	36·20	29·10	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Minneapolis ...	Feb. 28	Noon	45 35	36 49	57	13·9	19·85	35·86	28·82	
Port Royal ...	„ 3	„	20 39	73 54	78	25·6	—	<1·0	—	
„ ...	„ 4	„	24 23	70 12	76	24·4	20·32	36·71	29·50	
„ ...	„ 5	„	28 21	65 50	72	22·2	20·31	36·69	29·49	
„ ...	„ 6	„	31 57	61 23	67	19·4	20·29	36·65	29·46	
„ ...	„ 7	„	35 31	56 44	66	18·9	20·20	36·49	29·33	
„ ...	„ 8	„	38 48	51 19	64	17·8	20·15	36·40	29·26	
„ ...	„ 9	„	41 57	45 00	60	15·6	20·10	36·31	29·18	
„ ...	„ 10	„	44 54	39 04	59	15·0	19·99	36·11	29·02	
„ ...	„ 11	„	47 17	32 35	55	12·8	19·74	35·66	28·66	
„ ...	„ 12	„	49 12	25 21	52	11·1	19·64	35·48	28·51	
„ ...	„ 13	„	50 25	17 30	51·5	10·8	19·68	35·55	28·57	
„ ...	„ 14	„	51 44	9 03	49	9·4	19·59	35·39	28·44	
„ ...	„ 15	8.0 pm.	51 14	6 18	50	10·0	19·85	35·86	28·82	
„ ...	„ 26	Noon	49 31	10 14	50	10·0	19·72	35·62	28·63	
„ ...	„ 27	„	47 55	13 18	52	11·1	19·96	36·06	28·98	
„ ...	„ 28	„	45 08	19 07	55	12·8	19·83	35·82	28·79	
Port Kingston ...	„ 13	—	44 04	21 18	54	12·2	19·79	35·75	28·73	
„ ...	„ 14	Noon	41 41	28 52	56	13·3	19·84	35·84	28·80	
„ ...	„ 15	„	38 33	36 04	59	15·0	20·03	36·18	29·08	
„ ...	„ 16	„	35 06	43 20	62	16·7	20·10	36·31	29·18	
„ ...	„ 17	„	31 41	50 19	67	19·4	20·24	36·56	29·39	
„ ...	„ 18	„	28 33	57 19	70	21·1	20·37	36·80	29·58	
„ ...	„ 19	„	25 11	63 53	72	22·2	20·26	36·60	29·42	
„ ...	„ 20	„	21 54	70 23	76·5	24·7	19·93	36·00	28·94	
„ ...	„ 21	„	18 25	75 28	78	25·6	19·86	35·88	28·83	
Atrato	„ 2	10.30 a.m.	48 38	5 15	50·5	10·3	19·61	35·43	28·47	
„	„ 2	5.30 p.m.	47 04	6 26	52	11·1	19·73	35·64	28·64	
„	„ 3	0.30 a.m.	46 16	8 48	52·5	11·4	19·79	35·75	28·73	
„	„ 4	Noon	41 49	18 35	57	13·9	20·32	36·71	29·50	
„	„ 5	„	38 21	23 53	59	15·0	20·00	36·13	29·04	
„	„ 6	„	35 08	29 30	62	16·7	20·08	36·27	29·15	
„	„ 7	„	31 44	34 13	64·2	17·9	20·21	36·51	29·34	
„	„ 8	„	28 06	39 10	70	21·1	20·42	36·89	29·65	
„	„ 9	„	24 42	43 57	72	22·2	20·80	37·57	30·20	
„	„ 10	„	21 21	48 25	75	23·9	20·56	37·14	29·85	
Sophocles ...	„ 5	„	21 46	17 55	64	17·8	20·11	36·33	29·20	
„ ...	„ 6	„	25 49	16 56	64	17·8	20·34	36·74	29·53	
„ ...	„ 8	„	31 44	14 47	63	17·2	20·25	36·58	29·40	
„ ...	„ 9	„	36 16	13 12	60	15·6	20·08	36·27	29·15	
„ ...	„ 10	„	40 42	11 18	57	13·9	19·90	35·95	28·89	
„ ...	„ 11	„	44 35	8 55	53	11·7	19·85	35·86	28·82	
„ ...	„ 12	4.0 p.m.	49 00	4 55	50	10·0	19·70	35·59	28·60	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Moravian	Feb. 9	7.0 a.m.	48 21	5 33	50	10·0	19·63	35·46	28·50	
„	„ 9	3.0 p.m.	47 18	6 52	52	11·1	19·76	35·70	28·69	
„	„ 9	11.0 p.m.	45 37	7 58	53	11·7	19·76	35·70	28·69	
„	„ 10	Noon	43 22	9 55	56	13·3	19·87	35·90	28·85	
„	„ 11	„	38 47	12 07	60	15·6	19·96	36·06	28·98	
„	„ 12	„	34 00	13 57	63	17·2	20·21	36·51	29·34	
„	„ 13	„	29 15	15 52	64·5	18·1	20·27	36·62	29·43	
„	„ 14	„	25 25	16 55	65	18·6	20·36	36·78	29·56	
„	„ 15	„	20 23	18 01	63	17·2	19·87	35·90	28·85	
„	„ 16	„	15 53	17 46	63	17·2	19·83	35·82	28·79	
„	„ 17	„	10 54	17 38	75	23·9	19·48	35·19	28·28	
Braemar Castle ...	„ 1	?	Tenerife Anchorage		63	17·2	20·68	37·36	30·03	
„ ...	„ 3	Noon	32 14	14 53	62	16·7	20·42	36·89	29·65	
„ ...	„ 4	8.0 a.m.	35 39	13 18	59	15·0	20·40	36·85	29·62	
„ ...	„ 4	8.0 p.m.	37 50	12 28	57	13·9	20·46	36·96	29·71	
„ ...	„ 5	Noon	40 39	11 06	58	14·4	20·47	36·98	29·72	
„ ...	„ 6	2.45 a.m.	Off Cape Villano		54	12·2	20·16	36·42	29·27	
Kildonan Castle ...	„ 26	—	23 04	17 36	63	17·2	20·27	36·62	29·43	
„ ...	„ 27	—	28 14	17 01	65	18·3	20·32	36·71	29·50	
„ ...	„ 28	—	Funchal Bay		65	18·3	20·21	36·51	29·34	
Egypt	„ 21	Noon	37 20	9 10	52	11·1	20·04	36·20	29·10	
„	„ 22	„	41 15	9 38	50	10·0	19·92	35·99	28·92	
„	„ 22	„	44 10	8 45	49	9·4	19·83	35·82	28·79	
„	„ 23	„	48 29	5 26	—	—	19·65	35·50	28·53	
United States ...	Mar. 2	8.0 a.m.	40 19	68 44	35·6	2·0	18·25	32·97	26·49	
„ ...	„ 2	8.0 p.m.	40 28	64 52	49·1	9·5	19·69	35·57	28·59	
„ ...	„ 3	8.0 a.m.	40 36	60 44	56·1	13·4	19·89	35·93	28·88	
„ ...	„ 3	Midnight	41 13	55 19	59·9	15·5	20·03	36·18	29·08	
„ ...	„ 4	8.0 p.m.	41 46	50 54	38·1	3·4	18·58	33·57	26·97	
„ ...	„ 5	1.0 p.m.	42 55	45 24	60·3	15·7	20·09	36·29	29·17	
„ ...	„ 6	8.0 a.m.	45 50	40 43	55·9	13·3	19·94	36·02	28·95	
„ ...	„ 7	8.0 a.m.	50 04	34 57	48·2	9·0	19·58	35·37	28·43	
„ ...	„ 7	Midnight	52 53	30 37	41·9	5·5	19·27	34·81	27·98	
„ ...	„ 8	7.0 p.m.	55 39	23 50	45·3	7·4	19·50	35·23	28·31	
„ ...	„ 9	8.0 p.m.	58 16	13 50	46·6	8·1	19·58	35·37	28·43	
„ ...	„ 9	Midnight	58 26	12 04	46·4	8·0	19·58	35·37	28·43	
„ ...	„ 10	4.0 a.m.	58 18	10 05	46·4	8·0	19·60	35·41	28·46	
„ ...	„ 10	8.0 a.m.	58 19	8 10	47·1	8·4	19·58	35·37	28·43	
„ ...	„ 10	Noon	58 32	6 25	46·6	8·1	19·52	35·26	28·34	
„ ...	„ 26	8.0 p.m.	49 08	6 12	50·5	10·3	17·93	32·39	26·03	
„ ...	„ 26	Midnight	48 33	7 36	49·3	9·6	19·60	35·41	28·46	
„ ...	„ 27	4.0 a.m.	47 58	8 57	51·8	11·0	19·68	35·55	28·57	
„ ...	„ 27	8.0 a.m.	47 25	10 12	52·0	11·1	19·30	34·87	28·02	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
United States ...	Mar. 27	1.0 p.m.	46 40	11 36	52·7	11·5	19·70	35·59	28·60	
,, ...	,, 27	4.0 p.m.	46 14	12 31	52·9	11·6	19·70	35·59	28·60	
,, ...	,, 27	8.0 p.m.	45 43	13 43	53·4	11·9	19·70	35·59	28·60	
,, ...	,, 27	Midnight	45 09	15 01	53·6	12·0	19·74	35·66	28·66	
,, ...	,, 28	8.0 p.m.	42 26	21 02	56·5	13·6	19·76	35·70	28·69	
,, ...	,, 29	1.0 p.m.	40 21	25 47	56·3	13·5	19·81	35·79	28·76	
,, ...	,, 30	4.0 p.m.	38 40	30 44	59·4	15·2	19·97	36·08	28·99	
,, ...	,, 31	4.0 a.m.	38 40	34 43	59·4	15·2	20·01	36·15	29·05	
,, ...	,, 31	8.0 p.m.	38 41	38 33	59·7	15·4	20·12	36·35	29·21	
Hellig Olav ...	,, 12	4.0 a.m.	59 30	6 35	45·5	7·5	19·58	35·37	28·43	
,, ...	,, 12	8.0 a.m.	59 26	8 28	45·9	7·7	19·58	35·37	28·43	
,, ...	,, 12	Noon	59 24	10 38	46·9	8·3	19·58	35·37	28·43	
,, ...	,, 12	4.0 p.m.	59 15	12 35	46·0	7·8	19·58	35·37	28·43	
,, ...	,, 12	8.0 p.m.	59 00	14 00	46·0	7·8	19·55	35·12	28·38	
,, ...	,, 12	10.0 p.m.	58 45	15 30	46·4	8·0	19·55	35·32	28·38	
,, ...	,, 13	9.0 a.m.	57 25	20 15	47·3	8·5	19·55	35·32	28·38	
,, ...	,, 13	8.0 p.m.	56 00	24 45	46·4	8·0	19·53	35·28	28·35	
,, ...	,, 14	2.0 p.m.	54 10	29 45	42·8	6·0	19·32	34·90	28·05	
,, ...	,, 15	Noon	51 19	35 13	47·3	8·5	19·48	35·19	28·28	
,, ...	,, 16	9.0 a.m.	47 35	40 15	54·9	12·7	19·87	35·90	28·85	
,, ...	,, 17	,,	43 40	45 25	41·9	5·5	18·97	34·27	27·54	
,, ...	,, 17	Midnight	42 15	50 15	32·9	0·5	18·58	33·57	26·97	
,, ...	,, 18	2.0 p.m.	41 30	54 45	37·8	3·2	18·47	33·37	26·81	
,, ...	,, 19	7.0 a.m.	41 10	60 30	55·4	13·0	19·95	36·04	28·96	
,, ...	,, 19	11.0 p.m.	40 10	65 40	44·6	7·0	18·90	34·14	27·44	
,, ...	,, 20	1.0 p.m.	40 20	69 40	37·6	3·1	18·26	32·99	26·51	
,, ...	,, 30	3.0 a.m.	40 20	70 15	41·0	5·0	18·31	33·08	26·58	
,, ...	,, 30	8.0 p.m.	40 25	65 00	52·7	11·5	19·37	34·99	28·12	
,, ...	,, 31	Noon	40 35	60 00	65·7	18·7	20·11	36·33	29·20	
Oscar II.	,, 1	7.0 a.m.	52 32	35 00	41·9	5·5	19·25	34·78	27·95	
,, ...	,, 1	Midnight	50 20	40 00	50·0	10·0	19·73	35·64	28·64	
,, ...	,, 2	6.30 p.m.	46 45	45 00	37·0	2·8	18·86	34·07	27·38	
,, ...	,, 3	2.0 p.m.	44 10	50 00	33·1	0·6	18·31	33·08	26·58	
,, ...	,, 4	4.0 a.m.	43 30	55 00	37·4	3·0	18·28	33·03	26·54	
,, ...	,, 4	6.30 p.m.	42 25	60 00	36·5	2·5	18·52	33·46	26·88	
,, ...	,, 5	9.0 a.m.	40 10	65 00	42·8	6·0	19·18	34·65	27·84	
,, ...	,, 16	4.0 a.m.	40 10	70 00	37·4	3·0	18·28	33·03	26·54	
,, ...	,, 16	8.0 p.m.	40 20	65 00	45·9	7·7	19·27	34·81	27·98	
,, ...	,, 17	Noon	40 30	60 00	60·4	15·8	20·07	36·26	29·14	
,, ...	,, 18	3.0 a.m.	40 44	55 00	39·2	4·0	18·59	33·58	26·99	
,, ...	,, 18	6.0 p.m.	40 50	50 00	58·1	14·5	20·11	36·33	29·20	
,, ...	,, 19	1.0 p.m.	44 30	45 48	44·6	7·0	19·49	35·21	28·30	
,, ...	,, 19	4.0 p.m.	45 00	45 00	55·4	13·0	19·88	35·91	28·86	

TABLE II.—*continued.*

Ship.	Date.	Time	Lat.	Long.	Temp.		$Cl.$ ‰.	$S.$ ‰.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Oscar II.	Mar. 20	11.0 a.m.	48 28	40 00	54·9	12·7	19·51	35·25	28·32	
,, ...	,, 21	4.0 a.m.	51 20	35 00	42·3	5·7	19·59	34·39	28·44	
,, ...	,, 21	9.0 p.m.	53 35	30 00	42·6	5·9	19·33	34·92	28·06	
,, ...	,, 22	11.0 a.m.	55 40	25 00	46·4	8·0	19·50	35·23	28·31	
,, ...	,, 22	Midnight	57 02	20 00	47·3	8·5	19·56	35·34	28·40	
,, ...	,, 23	10.0 a.m.	58 25	15 00	47·1	8·4	19·56	35·34	28·40	
,, ...	,, 23	4.0 p.m.	58 15	13 05	47·1	8·4	19·56	35·34	28·40	
,, ...	,, 23	8.0 p.m.	58 26	11 25	55·7	7·6	19·59	35·39	28·54	
,, ...	,, 23	Midnight	58 28	9 25	46·8	8·2	19·59	35·39	28·44	
,, ...	,, 24	4.0 a.m.	58 24	7 50	46·4	8·0	19·59	35·39	28·44	
,, ...	,, 24	8.0 a.m.	58 35	5 44	44·1	6·7	19·22	34·72	27·90	
Astoria	,, 1	Noon	40 38	69 25	36	2·2	18·47	33·37	26·81	
,, ...	,, 1	7.0 p.m.	40 34	71 25	35	1·7	18·46	33·35	26·80	
,, ...	,, 12	Noon	40 33	68 00	38	3·3	18·38	33·21	26·68	
,, ...	,, 13	,,	41 30	61 15	55	12·8	19·88	35·91	28·86	
,, ...	,, 14	,,	42 50	54 30	43	6·1	19·03	34·38	27·63	
,, ...	,, 15	,,	44 35	47 50	44	6·7	19·12	34·54	27·76	
,, ...	,, 16	,,	47 12	42 00	38	3·3	19·21	34·70	27·89	
,, ...	,, 17	,,	50 08	35 30	48	8·9	19·48	35·19	28·28	
,, ...	,, 17	Midnight	51 20	31 50	48	8·9	19·54	35·30	28·37	
,, ...	,, 18	Noon	52 37	28 00	48	8·9	19·72	35·62	28·63	
,, ...	,, 18	Midnight	53 40	24 10	46	7·8	19·44	35·12	28·22	
,, ...	,, 19	Noon	54 38	19 50	49	9·4	19·54	35·30	28·37	
,, ...	,, 19	?	54 55	17 30	48	8·9	19·70	35·59	28·60	
,, ...	,, 19	?	54 55	16 50	48	8·9	19·58	35·37	28·43	
,, ...	,, 20	Noon	55 10	11 00	45	7·2	19·73	35·64	28·64	
,, ...	,, 20	9.0 p.m.	55 20½	6 14	46	7·8	19·49	35·21	28·30	
,, ...	,, 21	4.0 a.m.	55 16	5 48	46	7·8	18·92	34·18	27·47	
,, ...	,, 21	6.0 a.m.	55 25	5 04½	47	8·3	18·66	33·71	27·09	
Corean	,, 1	—	54 30	16 45	48	8·9	19·60	35·41	28·46	
,, ...	,, 2	11.0 a.m.	54 47	13 43	49	9·4	19·61	35·43	28·47	
,, ...	,, 3	1.0 a.m.	55 11	10 45	48	8·9	19·64	35·48	28·51	
Minneapolis ...	,, 1	Noon	43 06	44 35	62	16·7	19·98	36·09	29·01	
,, ...	,, 2	,,	41 45	52 18	55	12·8	19·79	35·75	28·73	
,, ...	,, 3	,,	41 19	60 01	61	16·1	20·08	36·27	29·15	
,, ...	,, 4	,,	40 50	68 21	37	2·8	18·44	33·31	26·77	
,, ...	,, 12	,,	40 30	65 44	48	8·9	19·18	34·65	27·84	
,, ...	,, 13	,,	40 46	57 42	65	18·3	20·19	36·47	29·31	
,, ...	,, 14	,,	41 05	49 35	54	12·2	19·79	35·75	28·73	
,, ...	,, 15	,,	43 07	41 54	60	15·6	20·14	36·38	29·24	
,, ...	,, 16	,,	45 37	34 18	55	12·8	19·93	36·00	28·94	
,, ...	,, 17	,,	47 44	26 01	53	11·7	19·70	35·59	28·60	
,, ...	,, 18	,,	49 16	16 56	52	11·1	19·69	35·57	28·59	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Minneapolis ...	Mar. 19	Noon	49 52	7 35	50	10·0	19·60	35·41	28·46	
St. Paul	„ 1	„	45 22	38 00	57	13·9	19·90	35·95	28·89	
„	„ 2	„	42 00	47 00	61	16·1	19·26	34·79	27·96	
„	„ 3	„	41 34	57 00	54	12·2	20·02	36·17	29·07	
„	„ 13	„	40 47	54 50	49	9·4	18·53	33·48	26·90	
„	„ 14	„	41 46	45 27	59	15·0	20·05	36·18	29·08	
„	„ 15	„	44 36	37 20	52	11·1	19·74	35·66	28·66	
„	„ 16	„	47 15	28 00	54	12·2	19·64	35·48	28·51	
„	„ 17	„	49 01	18 07	54	12·2	19·73	35·64	28·64	
„	„ 18	8.0 a.m.	49 45	9 00	50	10·0	19·57	35·35	28·41	
„	„ 25	4.0 a.m.	49 46	6 24	49	9·4	19·75	35·68	28·67	
„	„ 26	Noon	49 52	10 07	50	10·0	19·73	36·64	28·64	
„	„ 27	„	48 00	21 40	49	9·4	19·70	35·59	28·60	
„	„ 28	„	47 20	31 00	52	11·1	19·67	35·54	28·56	
„	„ 29	„	44 25	41 05	59	15·0	20·06	36·24	29·12	
„	„ 30	„	41 50	50 14	33	0·6	20·08	36·27	29·15	
„	„ 31	„	41 28	59 42	56	13·3	20·09	36·30	29·17	
Port Royal ...	„ 1	„	42 12	24 47	57	13·9	20·03	36·18	29·08	
„ ...	„ 2	„	39 33	30 56	60	15·6	20·03	36·18	29·08	
„ ...	„ 3	„	36 58	36 40	61	16·1	20·11	36·33	29·20	
„ ...	„ 4	„	34 45	41 56	65	18·3	20·37	36·80	29·58	
„ ...	„ 5	„	32 38	46 45	66	18·9	20·27	36·62	29·43	
„ ...	„ 6	„	30 10	52 02	69	20·6	20·32	36·71	29·50	
„ ...	„ 7	„	27 41	57 46	72	22·2	20·42	36·89	29·65	
„ ...	„ 8	„	25 09	63 26	75	23·9	20·36	36·78	29·56	
„ ...	„ 9	„	22 43	68 53	78	25·6	20·12	36·35	29·21	
„ ...	„ 17	„	20 20	74 03	78	25·6	20·12	36·35	29·21	
„ ...	„ 18	„	24 05	70 29	76	24·4	20·23	36·55	29·37	
„ ...	„ 19	„	27 47	66 38	72	22·2	20·25	36·58	29·40	
„ ...	„ 20	„	31 17	62 26	68	20·0	20·23	36·55	29·37	
„ ...	„ 21	„	34 49	57 48	66	18·9	20·20	36·49	29·33	
„ ...	„ 22	„	38 15	52 34	65	18·3	20·18	36·45	29·30	
„ ...	„ 23	„	40 57	46 43	58·5	14·7	20·05	36·22	29·11	
„ ...	„ 24	„	43 22	41 45	56	13·3	20·10	36·31	29·18	
„ ...	„ 25	„	45 41	36 00	53	11·7	19·74	35·66	28·66	
„ ...	„ 26	„	47 23	29 58	52	11·1	19·72	35·62	28·63	
„ ...	„ 27	„	49 36	22 52	52	11·1	19·65	35·50	28·53	
„ ...	„ 28	„	50 34	15 00	51	10·6	19·68	35·55	28·57	
Port Kingston ...	„ 3	„	21 12	73 39	78	25·6	19·93	36·08	28·94	
„ ...	„ 4	„	25 09	69 13	72	22·2	20·24	36·56	29·39	
„ ...	„ 5	„	29 22	64 27	68	20·0	20·42	36·89	29·65	
„ ...	„ 6	„	33 30	59 10	64	17·8	20·28	36·64	29·45	
„ ...	„ 7	„	37 23	53 20	60	15·6	20·24	36·56	29·39	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Port Kingston ...	Mar. 8	Noon	41 05	46 47	60	15·6	20·12	36·35	29·21	
„ ...	„ 9	„	44 23	39 21	58	14·4	19·92	35·99	28·92	
„ ...	„ 10	„	47 18	30 30	51	10·6	19·71	35·61	28·62	
„ ...	„ 11	„	48 50	22 04	50	10·0	19·67	35·53	28·56	
„ ...	„ 12	„	50 08	12 20	53	11·7	19·71	35·61	28·62	
„ ...	„ 12	4.0 p.m.	50 20	10 48	51	10·6	19·73	35·64	28·64	
„ ...	„ 12	10.0 p.m.	50 08	8 24	—	—	19·54	35·30	28·37	
„ ...	„ 25	Noon	50 57	5 57	—	—	19·48	35·19	28·28	
„ ...	„ 25	9.15 p.m.	50 37	8 30	48	8·9	19·51	35·25	28·32	
„ ...	„ 26	3.45 a.m.	50 18	11 05	—	—	19·61	35·43	28·47	
„ ...	„ 26	Noon	48 10	12 20	52	11·1	19·70	35·59	28·60	
„ ...	„ 27	„	45 07	20 24	55	12·8	19·84	35·85	28·81	
„ ...	„ 28	„	41 52	28 17	58	14·4	19·85	35·86	28·82	
„ ...	„ 29	„	38 27	36 00	60	15·6	20·08	36·27	29·15	
„ ...	„ 30	„	35 13	43 00	64	17·8	20·19	36·47	29·31	
„ ...	„ 31	„	31 41	49 47	68	20·0	20·41	36·87	29·63	
Atrato	„ 13	„	20 15	54 00	75·9	24·4	20·51	37·05	29·78	
„	„ 14	„	20 30	50 15	73·6	23·1	20·63	37·27	29·95	
„	„ 15	„	28½	46	73	22·8	20·54	37·10	29·82	
„	„ 16	„	32½	41	68	20·0	20·24	36·56	29·39	
„	„ 17	„	36	36	62·1	16·7	20·15	36·40	29·26	
„	„ 18	„	39½	30½	57	13·9	19·91	35·97	28·91	
„	„ 19	„	42	24¼	55	12·8	19·84	35·84	28·80	
„	„ 20	„	44 38	17 43	54	12·2	20·15	36·40	29·26	
„	„ 21	„	47 18	11 16	53·1	11·7	20·13	36·36	29·23	
„	„ 21	3.0 p.m.	47 34	9 50	53·1	11·7	19·72	35·62	28·63	
„	„ 21	10.0 p.m.	48 40	8 05	50·5	10·3	19·72	35·62	28·63	
Kildonan Castle ...	„ 1	—	37 21	13 16	59	15·0	20·13	36·36	29·23	
„ ...	„ 2	—	42 12	10 01	55	12·8	19·98	36·09	29·01	
„ ...	„ 3	—	45 28	7 23	53	11·7	19·85	35·86	28·82	
„ ...	„ 3	—	47 05	6 25	54	12·2	19·85	35·86	28·82	
„ ...	„ 3	—	48 29	5 15	49	9·4	19·80	35·77	28·75	
„ ...	„ 19	8.0 a.m.	48 30	5 15	50	10·0	19·54	35·30	28·37	
„ ...	„ 19	2.0 p.m.	47 15	6 12	53	11·7	19·73	35·64	28·64	
„ ...	„ 19	8.0 p.m.	45 41	7 31	53	11·7	17·13	30·95	24·87	By pycnometer σ_0 =. 24·48.
„ ...	„ 20	3.0 a.m.	44 17	8 54	54	12·2	19·73	35·64	28·64	
„ ...	„ 20	Noon	42 24	10 23	54	12·2	19·79	35·75	28·73	
„ ...	„ 21	„	36 32	13 48	59	15·0	18·88	34·11	27·41	
„ ...	„ 22	„	Funchal Bay, Madeira.		64	17·8	20·17	36·44	29·29	
„ ...	„ 23	„	26 20	17 37	66	18·9	20·38	36·82	29·59	
„ ...	„ 24	„	19 52	17 49	63	17·2	19·90	35·95	28·89	
Braemar Castle ...	„ 19	9.30 p.m.	48 27	5 12	50	10·0	19·72	35·62	28·63	
„ ...	„ 20	8.0 a.m.	44 41	8 57	54	12·2	19·78	35·73	28·72	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		° ′ N.	° ′ W.						
Braemar Castle ...	Mar. 20	6.0 p.m.	43 50	9 35	52	11·1	19·99	36·11	29·02	By pycnometer σ_o = 29·02.
,, ...	,, 21	8.0 a.m.	36 47	12 33	60	15·6	20·14	36·38	29·24	
,, ...	,, 22	8.0 p.m.	34 17	13 46	60	15·6	20·36	36·78	29·56	
,, ...	,, 23	Noon	31 08	14 36	63	17·2	20·37	36·80	59·58	
,, ...	,, 24	10.0 a.m.	Las Palmas Anchorage.		64	17·8	19·44	35·12	28·22	
,, ...	,, 24	8.0 p.m.	26 53	15 45	62	16·7	20·61	37·23	29·93	
,, ...	,, 25	Noon	23 52	16 53	64	17·8	20·38	36·82	29·59	
,, ...	,, 25	8.0 p.m.	22 23	17 10	63	17·2	20·57	37·16	29·87	
,, ...	,, 25	Midnight	21 39	17 18	60	15·6	20·34	36·74	29·53	
,, ...	,, 26	8.0 a.m.	20 12	17 39	61	16·1	20·04	36·20	29·10	
,, ...	,, 27	Noon	14 17	17 36	65	18·3	19·81	35·79	28·76	
Egypt	,, 12	—	48 53	5 20	44	6·7	19·62	35·44	28·48	
,, ...	,, 12	—	47 00	6 49	46	7·8	19·76	35·70	28·69	
,, ...	,, 13	—	44 10	8 39	48	8·9	19·79	35·75	28·73	
,, ...	,, 14	—	37 10	9 03	49	9·4	20·02	36·17	29·07	
Macedonia ...	,, 21	8.0 a.m.	36 56	8 59	—	—	19·95	36·04	28·96	
,, ...	,, 21	Noon	37 46	9 16	—	—	19·69	35·57	28·59	
,, ...	,, 21	3.30 p.m.	38 22	9 30	—	—	20·06	36·24	29·12	
,, ...	,, 21	8.0 p.m.	39 30	9 37	—	—	19·89	35·93	28·88	
,, ...	,, 22	4.0 a.m.	41 25	9 39	—	—	19·96	36·06	28·98	
,, ...	,, 22	8.0 a.m.	42 22	9 39	—	—	19·76	35·70	28·69	
,, ...	,, 22	11.51 a.m.	43 10	9 19	—	—	19·56	35·34	28·40	
,, ...	,, 22	4.0 p.m.	43 56	8 50	—	—	19·78	35·73	28·72	
,, ...	,, 22	8.0 p.m.	44 44	8 16	—	—	19·75	35·68	28·67	
,, ...	,, 23	4.0 a.m.	46 20	7 10	—	—	19·75	35·68	28·67	
,, ...	,, 23	8.0 a.m.	46 58	6 45	—	—	19·71	35·61	28·62	
,, ...	,, 23	Noon	47 44	6 12	—	—	19·61	35·43	28·47	By pycnometer σ_o = 28·46.
,, ...	,, 23	3.20 p.m.	48 36	5 33	—	—	19·63	35·46	28·50	
United States ...	April 1	Noon	38 41	44 44	59·7	15·4	20·16	36·42	29·27	
,, ...	,, 2	4.0 a.m.	38 37	50 00	63·3	17·4	20·28	36·64	29·45	
,, ...	,, 2	Midnight	38 26	55 35	62·2	16·8	20·19	36·47	29·31	
,, ...	,, 3	8.0 p.m.	38 36	60 41	64·8	18·2	20·36	36·78	29·56	
,, ...	,, 4	4.0 p.m.	38 50	65 12	56·3	13·5	19·87	35·90	28·85	
,, ...	,, 12	8.0 p.m.	40 22	72 41	41·9	5·5	20·14	36·38	29·24	
,, ...	,, 14	1.0 p.m.	40 22	60 32	63·9	17·7	20·16	36·42	29·27	
,, ...	,, 15	8.0 a.m.	40 22	54 48	61·9	16·6	20·12	36·35	29·21	
,, ...	,, 15	8.0 p.m.	40 28	50 00	63·5	17·4	20·20	36·49	29·33	
,,	,, 16	Noon	41 36	45 15	60·8	16·0	20·14	36·38	29·24	
,, ...	,, 17	8.0 a.m.	44 23	39 44	59·4	15·2	20·08	36·27	29·15	
,, ...	,, 17	Midnight	46 34	35 14	56·3	13·5	19·76	35·70	28·69	
,, ...	,, 18	4.0 p.m.	48 48	30 27	54·5	12·5	19·68	35·55	28·57	
,, ...	,, 19	8.0 a.m.	50 55	24 31	47·3	8·5	19·41	35·07	28·18	
,, ...	,, 19	Midnight	53 26	19 24	49·5	9·7	19·58	35·37	28·43	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_t.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
United States ...	April 20	1.0 p.m.	55 22	15 15	48·6	9·2	19·68	35·55	28·57	
„ ...	„ 20	8.0 a.m.	56 19	12 44	48·6	9·2	19·72	35·62	28·63	
„ ...	„ 20	Midnight	56 50	11 20	48·2	9·0	19·63	35·46	28·50	
„ ...	„ 21	4.0 a.m.	57 22	9 53	48·2	9·0	19·63	35·46	28·50	
„ ...	„ 21	8.0 a.m.	57 54	8 22	47·5	8·6	19·64	35·48	28·51	
„ ...	„ 21	1.0 p.m.	58 35	6 16	45·0	7·2	19·44	35·12	28·22	
Hellig Olav ...	„ 1	4.0 a.m.	40 42	55 10	55·4	13·0	19·91	35·97	28·91	
„ ...	„ 1	7.0 p.m.	41 15	49 30	56·8	13·8	20·01	36·15	29·05	
„ ...	„ 2	Noon	43 06	44 45	59·0	15·0	19·80	35·77	28·75	
„ ...	„ 3	8.0 a.m.	46 45	40 05	55·4	13·0	19·91	35·97	28·91	
„ ...	„ 4	4.0 a.m.	50 00	35 00	50·9	10·5	19·55	35·32	28·38	
„ ...	„ 4	7.0 p.m.	52 20	29 45	43·7	6·5	19·30	34·87	28·02	
„ ...	„ 5	Noon	55 12	24 15	46·8	8·2	19·47	35·17	28·27	
„ ...	„ 5	Midnight	56 30	20 00	46·8	8·2	19·52	35·26	28·34	
„ ...	„ 6	Noon	57 42	15 02	46·8	8·2	19·55	35·32	28·38	
„ ...	„ 6	4.0 p.m.	57 45	13 00	46·8	8·2	19·55	35·32	28·38	
„ ...	„ 6	8.0 p.m.	57 55	11 25	46·4	8·0	19·57	35·35	28·41	
„ ...	„ 6	Midnight	58 05	10 00	46·4	8·0	19·60	35·41	28·46	
„ ...	„ 7	4.0 a.m.	58 15	8 10	45·9	7·7	19·55	35·32	28·38	
„ ...	„ 7	8.0 a.m.	58 25	6 00	43·7	6·5	19·40	35·05	28·16	
„ ...	„ 22	4.0 p.m.	59 30	5 31	43·5	6·4	19·63	35·46	28·50	
„ ...	„ 22	8.0 p.m.	59 25	7 36	43·7	6·5	19·58	35·37	28·43	
„ ...	„ 22	Midnight	59 20	9 34	44·2	6·8	19·58	35·37	28·43	
„ ...	„ 23	4.0 a.m.	59 15	11 20	43·9	6·6	19·66	35·52	28·54	
„ ...	„ 23	8.0 a.m.	59 07	13 15	44·2	6·8	19·59	35·39	28·44	
„ ...	„ 23	Noon	58 34	15 28	44·6	7·0	19·55	35·32	28·38	
„ ...	„ 23	11.0 p.m.	57 20	20 00	45·3	7·4	19·49	35·21	28·30	
„ ...	„ 24	10.0 a.m.	55 40	24 55	44·6	7·0	19·45	35·14	28·24	
„ ...	„ 25	0.30 a.m.	53 32	30 00	41·2	5·1	19·29	34·85	28·00	
„ ...	„ 25	6.0 p.m.	50 20	35 25	46·0	7·8	19·50	35·23	28·31	
„ ...	„ 26	9.0 a.m.	47 45	40 00	54·1	12·3	19·94	36·02	28·95	
„ ...	„ 27	8.0 a.m.	44 00	45 00	56·7	13·7	20·06	36·24	29·12	
„ ...	„ 28	4.30 a.m.	41 48	50 00	36·7	2·6	18·41	33·26	26·72	
„ ...	„ 28	10·0 p.m.	41 45	55 20	51·8	11·0	19·71	35·61	28·62	
„ ...	„ 29	1.0 p.m.	41 20	59 55	50·2	10·1	19·34	34·94	28·08	
„ ...	„ 30	4.30 a.m.	40 55	65 00	54·0	12·2	19·77	35·71	28·70	
„ ...	„ 30	7.0 p.m.	40 32	70 00	42·3	5·7	18·32	33·10	26·59	
Oscar II. ...	„ 8	4.0 p.m.	59 30	5 52	46·8	8·2	19·56	35·34	28·40	
„ ...	„ 8	8.0 p.m.	59 30	7 52	43·9	6·6	19·59	35·39	28·44	
„ ...	„ 8	Midnight	59 30	9 52	44·6	7·0	—	—	—	
„ ...	„ 9	4.0 a.m.	59 15	11 38	46·4	8·0	19·62	35·44	28·44	
„ ...	„ 9	8.0 a.m.	59 00	13 20	46·4	8·0	19·59	35·39	28·44	
„ ...	„ 9	Noon	58 38	15 10	44·6	7·0	19·53	35·28	28·35	

TABTE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Oscar II.	April 9	Midnight	57 00	20 00	46·4	8·0	19·55	35·32	28·38	
„	„ 10	11.45 a.m.	55 29	25 17	46·6	8·1	19·47	35·17	28·27	
„	„ 11	2.0 a.m.	53 17	30 00	41·9	5·5	19·29	34·85	28·00	
„	„ 11	5.0 p.m.	50 55	35 00	52·2	11·2	19·65	35·50	28·53	
„	„ 12	Noon	47 20	40 00	55·4	13·0	19·92	35·99	28·92	
„	„ 13	9.0 a.m.	43 50	45 00	57·7	14·3	20·00	36·13	29·04	
„	„ 14	8.0 a.m.	41 30	50 00	34·7	1·5	18·52	33·46	26·88	
„	„ 15	1.0 a.m.	41 14	55 00	61·7	16·5	19·97	36·08	28·99	
„	„ 16	4.0 a.m.	41 00	60 00	50·0	10·0	19·83	35·82	28·79	
„	„ 16	6.0 p.m.	40 50	65 00	40·5	4·7	18·43	33.30	26·75	
„	„ 17	10.0 a.m.	40 35	70 00	36·0	2·2	18·43	33·30	26·75	
„	„ 27	5.0 a.m.	40 10	70 00	43·5	6·4	18·17	32·83	26·38	
„	„ 27	9.0 p.m.	40 00	65 00	60·4	15·8	19·68	35·55	28·57	
„	„ 28	1.0 p.m.	40 15	60 00	64·0	17·8	19·95	36·04	28·96	
„	„ 29	4.0 a.m.	40 22	55 00	64·4	18·0	19·35	34·96	28·09	
„	„ 29	9.0 p.m.	40 35	50 00	66·6	19·2	18·43	33·30	26·75	
„	„ 30	1.0 p.m.	42 10	45 00	60·1	15·6	20·05	36·22	29·11	
Morning	„ 28	1.30 p.m.	58 38	8 20	47	8·3	19·55	35·32	28·38	
„	„ 29	Noon	58 40	13 30	48	8·9	19·60	35·41	28·46	
„	„ 30	„	58 36	18 52	48	8·9	19·54	35·30	28·37	
Astoria	„ 2	8.0 a.m.	55 20	10 00	51	10·6	19·63	35·46	28·50	
„	„ 2	Noon	55 16	11 30	52	11·1	19·64	35·48	28·51	
„	„ 2	8.0 p.m.	55 04	14 28	52	11·1	19·61	35·43	28·47	
„	„ 3	Noon	54 30	21 20	52	11·1	19·50	25·23	28·31	
„	„ 4	„	52 48	29 55	49	9·4	19·32	34·90	28·05	
„	„ 5	„	50 00	37 00	51	10·6	19·47	35·17	28·27	
„	„ 6	„	46 50	43 20	48	8·9	19·29	34·85	28·00	
„	„ 7	„	44 30	50 30	37	2·8	18·30	33·06	26·56	
„	„ 8	„	42 48	57 00	52	11·1	19·34	34·94	28·08	
„	„ 9	„	41 17	65 00	45	7·2	18·57	33·55	26·96	
„	„ 10	„	40 34	72 30	43	6·1	17·85	32·25	25·91	
„	„ 16	„	40 30	68 20	41	5·0	18·31	33·08	26·58	
„	„ 17	„	41 20	61 15	54	12·2	19·68	35·55	28·57	
„	„ 18	„	43 00	54 20	39	3·9	18·53	33·48	26·90	
„	„ 19	„	45 12	47 17	40	4·4	18·87	34·09	27·39	
„	„ 20	„	48 30	41 20	52	11·1	19·57	35·35	28·41	
„	„ 21	„	50 40	34 35	54	12·2	19·75	35·68	28·67	
„	„ 21	8.0 p.m.	51 30	32 20	49	9·4	19·54	35·30	28·37	
„	„ 22	4.0 a.m.	52 10	30 06	47	8·3	19·40	35·05	28·16	
„	„ 22	Noon	52 55	27 06	48	8·9	19·45	35·14	28·24	
„	„ 22	8.0 p.m.	53 21	24 09	50	10·0	19·48	35·19	28·28	
„	„ 23	4.0 a.m.	53 50	21 22	51	10·6	19·59	35·39	28·44	
„	„ 23	Noon	54 20	18 20	51	10·6	19·54	35·30	28·37	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Astoria	April 23	8.0 p.m.	54 40	15 04	49	9·4	19·70	35·59	28·60	
„	„ 24	4.0 a.m.	54 54	12 00	48	8·9	19·62	35·44	28·48	
„	„ 24	Noon	55 10	9 15	48	8·9	19·50	35·23	28·31	
„	„ 24	3.30 p.m.	55 17½	8 16	47	8·3	19·41	35·07	28·18	
„	„ 24	6.30 p.m.	55 24	7 16	47	8·3	19·47	35·17	28·27	
„	„ 24	11.0 p.m.	55 17	5 59	45	7·2	19·22	34·72	27·90	
St. Paul	„ 1	Noon	Off Nantucket Light Vessel.		47	8·3	19·79	35·75	28·73	
„	„ 9	„	40 24	64 45	44	6·7	20·10	36·31	29·18	
„	„ 10	„	40 40	55 05	62	16·7	20·12	36·35	29·21	
„	„ 11	„	41 30	46 00	59	15·0	19·76	35·70	28·69	
„	„ 12	„	44 43	37 25	54	12·2	19·75	35·68	28·67	
„	„ 13	„	47 13	28 10	54	12·2	19·69	35·57	28·59	
„	„ 14	„	49 00	18 35	53	11·7	19·68	35·55	28·57	
„	„ 23	5.0 a.m.	49 46	6 24	49	9·4	19·88	35·91	28·86	
„	„ 23	3.0 p.m.	49 50	11 30	53	11·7	19·89	35·93	28·88	
„	„ 24	Noon	48 55	21 32	54	12·2	19·74	35·66	28·66	
„	„ 25	„	46 55	32 32	56	13·3	19·74	35·66	28·66	
„	„ 26	„	43 55	41 45	58	14·4	18·93	34·20	27·48	
„	„ 27	„	41 50	50 30	40	4·4	18·93	34·20	27·48	
Port Kingston ...	„ 1	„	28 30	56 42	70	21·1	20·40	36·85	29·62	
„ ...	„ 2	„	25 31	63 15	71	21·7	20·52	37·07	29·79	
„ ...	„ 3	„	22 18	69 57	77	25·0	20·08	36·27	29·15	
„ ...	„ 4	„	18 13	75 38	79·5	26·4	19·86	35·88	28·83	
„ ...	„ 14	4.0 p.m.	21 10	73 39	79	26·1	20·14	36·38	29·24	
„ ...	„ 15	Noon	25 27	69 20	76	24·4	20·25	36·58	29·40	
„ ...	„ 16	„	29 36	64 24	71	21·7	20·24	36·56	29·39	
„ ...	„ 17	„	33 27	59 19	66·5	19·2	20·21	36·51	29·34	
„ ...	„ 18	„	37 08	53 43	65	18·3	20·16	36·43	29·28	
„ ...	„ 19	„	40 58	47 37	61	16·1	20·06	36·24	29·12	
„ ...	„ 20	„	44 20	40 54	61	16·1	20·04	36·20	29·10	
„ ...	„ 21	„	46 35	33 50	55	12·8	19·85	35·86	28·82	
„ ...	„ 22	„	48 30	26 52	53·5	11·9	19·66	35·52	28·54	
„ ...	„ 23	„	50 22	18 11	52	11·1	19·67	35·53	28·56	
„ ...	„ 24	„	51 23	9 01	49·5	9·7	19·37	34·99	28·12	The position of one or both of these samples is evidently wrong.
„ ...	„ 24	„	51 18	9 00	49	9·4	19·43	35·10	28·21	
Port Antonio ...	„ 8	7.30 p.m.	50 50	6 00	49	9·4	19·57	35·35	28·41	
„ ...	„ 9	Noon	49 23	11 47	50	10·0	19·66	35·52	28·54	
„ ...	„ 10	„	46 53	18 34	54	12·2	19·68	35·55	28·57	
„ ...	„ 11	„	44 25	24 45	55	12·8	19·66	35·52	28·54	By pycnometer σ_0 = 28·56.
„ ...	„ 12	„	42 00	30 10	57½	14·2	19·86	35·88	28·83	
„ ...	„ 13	„	40 23	32 56	56	13·3	20·01	36·15	29·05	Hurricane from North-West.
„ ...	„ 14	„	37 43	38 00	61	16·1	20·69	37·38	30·04	
„ ...	„ 15	„	35 10	43 33	63	17·2	20·84	37·65	30·26	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Port Antonio ...	April 16	Noon	32 44	48 40	65	18·3	20·29	36·65	29·46	
„ ...	„ 17	„	30 13	53 52	67	19·4	20·55	37·12	29·84	
„ ...	„ 18	„	27 29	59 01	72·5	22·5	20·33	36·73	29·52	
„ ...	„ 19	„	24 56	64 26	74	23·3	20·53	37·09	29·81	
„ ...	„ 20	„	22 26	69 32	77	25·0	20·17	36·44	29·29	
„ ...	„ 28	„	20 26	74 01	81	27·2	19·94	36·02	28·95	
„ ...	„ 29	„	24 14	70 31	76	24·4	20·36	36·78	29·56	
„ ...	„ 30	„	27 58	66 45	73	22·8	20·62	37·25	29·94	
Atrato	„ 13	8.0 a.m.	49 40	5 55	51	10·6	19·66	35·52	28·54	
„	„ 13	3.0 p.m.	48 12	7 45	52	11·1	19·64	35·48	28·51	
„	„ 13	10.0 p.m.	47 08	9 38	53	11·7	19·69	35·57	28·59	
„	„ 14	Noon	46 15	11 00	53·5	11·9	19·87	35·90	28·85	
„	„ 15	„	43 23	15 42	56	13·3	19·86	35·88	28·83	
„	„ 16	„	40 00	21 15	59	15·0	19·98	36·09	29·01	
„	„ 17	„	36 30	27 00	65	18·3	20·21	36·51	29·34	
„	„ 18	„	32 45	32 45	67	19·4	20·28	36·64	29·45	
„	„ 19	„	29 00	38 00	68	20·0	20·23	36·55	29·37	By pycnometer σ_0 = 29·36.
„	„ 20	„	25 30	43 00	72·6	22·6	20·53	37·09	29·81	
„	„ 21	„	22 00	47 45	75	23·9	20·60	37·21	29·91	
Braemar Castle ...	„ 27	8.0 a.m.	21 18	17 11	61	16·1	20·09	36·29	29·17	
„ ...	„ 27	8.0 p.m.	23 09	16 28	62	16·7	20·58	37·18	29·88	
„ ...	„ 28	8.0 a.m.	24 56	15 40	62	16·7	20·26	36·60	22·42	
„ ...	„ 28	Noon.	25 21	15 46	62	16·7	20·54	37·10	29·82	
„ ...	„ 29	5.0 p.m.	Las Palmas Anchorage		66	18·9	19·56	35·34	28·40	
„ ...	„ 30	8.0 a.m.	Tenerife Anchoroge		66	18·9	20·70	37·39	30·06	
Kildonan Castle ...	„ 30	Noon	22 34	17 35	65	18·3	20·26	36·60	29·42	
Macedonia ...	„ 8	4.0 p.m.	48 29	5 19	50½	10·3	19·57	35·35	28·41	
„ ...	„ 8	8.0 p.m.	47 43	5 57	52½	11·4	19·72	35·62	28·63	
„ ...	„ 8	Midnight	46 50	6 35	53	11·7	19·70	35·59	28·60	
„ ...	„ 9	3.45 p.m.	46 00	7 16	54·5	12·5	19·67	35·53	28·56	
„ ...	„ 9	Noon	44 17	8 33	55	12·8	19·73	35·64	28·64	
„ ...	„ 9	3.45 p.m.	43 28	9 08	55½	13·1	19·49	35·21	28·30	
„ ...	„ 9	8.0 p.m.	42 29	9 26	58	14·4	19·53	35·28	28·35	
„ ...	„ 9	Midnight	41 31	9 30	59	15·0	19·67	35·53	28·56	
„ ...	„ 10	4.0 a.m.	40 34	9 33	58½	14·7	19·82	35·81	28·78	
„ ...	„ 10	8.0 a.m.	39 36	9 36	58½	14·7	19·88	35·91	28·86	
„ ...	„ 10	Noon	38 47	9 36	59¼	15·1	19·86	35·88	28·83	
„ ...	„ 10	4.0 p.m.	37 52	9 22	60	15·6	19·98	36·09	29·01	
„ ...	„ 10	8.0 p.m.	36 55	8 50	60	15·6	22·01	36·15	29·05	
„ ...	„ 10	Midnight	36 31	7 41	61½	16·4	20·11	36·33	29·20	
„ ...	„ 11	4.0 a.m.	36 08	6 30	62	16·7	20·10	36·31	29·18	
United States ...	May 6	Midnight	59 22	6 28	46·4	8·0	19·61	35·43	28·47	
„ ...	„ 7	4.0 a.m.	59 17	8 12	46·2	7·9	19·65	35·50	28·53	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		°N. ′	°W. ′						
United States ...	May 7	8.0 a.m.	58 58	9 58	46·4	8·0	19·63	35·46	28·50	
„ ...	„ 7	1.0 p.m.	58 43	13 03	46·8	8·2	19·61	35·43	28·47	
„ ...	„ 7	4.0 p.m.	58 24	15 18	46·8	8·2	19·62	35·44	28·48	
„ ...	„ 8	8.0 a.m.	56 01	21 06	49·1	9·5	19·51	35·25	28·32	
„ ...	„ 8	8.0 p.m.	54 18	24 14	50·0	10·0	19·55	35·32	28·38	
„ ...	„ 9	4.0 p.m.	51 15	28 58	49·5	9·7	19·52	35·26	28·34	
„ ...	„ 10	8.0 a.m.	48 57	34 02	53·6	12·0	19·79	35·75	28·73	
„ ...	„ 11	4.0 a.m.	45 29	39 50	58·8	14·9	19·91	35·97	28·91	
„ ...	„ 12	8.0 a.m.	42 05	45 38	56·7	13·7	20·13	36·36	29·23	
„ ...	„ 12	Midnight	41 36	50 57	37·8	3·2	18·32	33·10	26·59	
„ ...	„ 13	Noon	41 25	55 08	49·1	9·5	19·10	34·51	27·73	
„ ...	„ 14	4.0 a.m.	41 10	60 19	68·2	20·1	20·10	36·31	29·18	
„ ...	„ 14	8.0 p.m.	41 01	65 25	64·4	18·0	20·15	36·40	29·26	
„ ...	„ 15	Noon	40 34	70 20	50·2	10·1	17·95	32·43	26·06	
„ ...	„ 25	4.0 a.m.	40 10	70 07	48·2	9·0	18·18	32·84	26·39	
„ ...	„ 25	8.0 p.m.	40 09	64 48	45·5	7·5	17·89	32·32	25·97	
„ ...	„ 26	8.0 a.m.	40 24	60 35	71·6	22·0	20·15	36·40	29·26	
„ ...	„ 26	Midnight	40 40	54 59	61·7	16·5	19·86	35·88	28·83	
„ ...	„ 27	6.0 p.m.	40 57	49 07	59·9	15·5	19·80	35·77	28·75	
„ ...	„ 28	8.0 a.m.	43 08	44 53	61·0	16·1	20·04	36·20	29·10	
„ ...	„ 29	4.0 a.m.	46 17	40 12	54·9	12·7	19·81	35·79	28·76	
„ ...	„ 29	Midnight	49 59	34 59	52·2	11·2	19·56	35·34	28·40	
„ ...	„ 30	6.0 p.m.	52 52	29 17	47·7	8·7	19·33	34·92	28·06	
„ ...	„ 31	8.0 p.m.	56 30	19 19	50·9	10·5	19·54	35·30	28·37	
„ ...	„ 31	Midnight	56 56	17 44	50·0	10·0	19·56	35·34	28·40	
Hellig Olav ...	„ 11	5.0 a.m.	40 10	70 15	41·2	5·1	18·24	32·95	26·48	
„ ...	„ 11	8.0 p.m.	40 15	65 00	59·0	15·0	19·98	36·09	29·01	
„ ...	„ 12	11.0 a.m.	40 12	60 00	60·8	16·0	20·01	36·15	29·05	
„ ...	„ 13	3.0 a.m.	40 12	55 10	57·2	14·0	19·95	36·04	28·96	
„ ...	„ 13	4.0 p.m.	40 20	50 10	55·4	13·0	19·81	35·79	28·76	
„ ...	„ 14	2.0 p.m.	43 08	45 00	56·3	13·5	20·04	36·20	29·10	
„ ...	„ 15	11.0 a.m.	46 31	39 40	53·8	12·1	19·89	35·93	28·88	
„ ...	„ 16	4.0 a.m.	49 30	34 45	49·1	9·5	19·60	35·41	28·46	
„ ...	„ 16	7.0 p.m.	51 45	30 00	46·8	8·2	19·44	35·12	28·22	
„ ...	„ 17	10.0 a.m.	54 20	25 00	49·1	9·5	19·58	35·37	28·43	
„ ...	„ 17	11.0 p.m.	55 30	19 45	47·5	8·6	19·54	35·30	28·37	
„ ...	„ 18	Noon	56 48	14 58	46·8	8·2	19·55	35·32	28·38	
„ ...	„ 18	4.0 p.m.	57 10	12 55	46·4	8·0	19·55	35·32	28·38	
„ ...	„ 18	8.0 p.m.	57 26	11 26	47·1	8·4	19·57	35·35	28·41	
„ ...	„ 18	Midnight	57 58	10 20	46·6	8·1	19·57	35·35	28·41	
„ ...	„ 19	4.0 a.m.	58 13	8 30	47·1	8·4	19·60	35·41	28·46	
„ ...	„ 19	8.0 a.m.	58 20	6 40	44·8	7·1	19·42	35·08	28·19	
Oscar II.	„ 1	Noon	46 29	40 00	54·5	12·5	19·74	35·66	28·66	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Oscar II.	May 2	6.40 a.m.	49 50	35 00	52·2	11·2	19·63	35·46	28·50	
,, ...	,, 2	11.0 p.m.	52 20	30 00	48·4	9·1	19·30	34·87	28·02	
,, ...	,, 3	3.0 p.m.	54 35	25 00	48·2	9·0	19·40	35·05	28·16	
,, ...	,, 4	4.0 a m.	56 18	20 00	49·6	9·8	19·51	35·25	28·32	
,, ...	,, 4	4.0 p.m.	57 35	15 00	48·0	8·9	19·53	35·28	28·35	
,, ...	,, 4	8.0 p.m.	57 50	13 00	48·2	9·0	19·58	35·37	28·43	
,, ...	,, 4	Midnight	58 08	11 08	48·6	9·2	19·58	35·37	28·43	
,, ...	,, 5	4.0 a.m.	58 18	9 15	48·2	9·0	19·58	35·37	28·43	
,, ...	,, 5	8.0 a.m.	58 30	7 25	47·3	8·5	19·60	35·41	28·46	
,, ...	,, 5	Noon	58 38	5 19	48·2	9·0	19·22	34·72	27·90	
,, ...	,, 20	4.0 p.m.	59 29	7 00	48·9	9·4	19·57	35·35	28·41	
,, ...	,, 20	8.0 p.m.	59 29	9 00	48·2	9·0	19·59	35·39	28·44	
,, ...	,, 20	Midnight	59 25	10 52	48·2	9·0	19·60	35·41	28·46	
,, ...	,, 21	4.0 a.m.	59 00	12 40	48·2	9·0	19·55	35·32	28·38	
,, ...	,, 21	8.0 a.m.	58 30	14 50	48·2	9·0	19·53	35·28	28·35	
,, ...	,, 21	8.40 p.m.	57 00	20 00	50·5	10·3	19·55	35·32	28·38	
,, ...	,, 22	9.20 a.m.	55 20	25 00	49·1	9·5	19·47	35·17	28·27	
,, ...	,, 22	11.0 p.m.	53 05	30 00	48·6	9·2	19·32	34·90	28·05	
,, ...	,, 23	5.0 p.m.	50 30	35 00	50·9	10·5	19·58	35·37	28·43	
,, ...	,, 24	Noon	46 50	40 00	56·3	13·5	20·04	36·20	29·10	
,, ...	,, 25	9.0 a.m.	43 00	45 00	60·8	16·0	20·10	36·31	29·18	
,, ...	,, 26	4.0 a m.	42 00	50 00	41·2	5·1	19·86	35·88	28·83	
,, ...	,, 26	7.30 p.m.	41 35	55 00	59·0	15·0	20·05	36·22	29·11	
,, ...	,, 27	10.0 a.m.	41 22	60 00	67·6	19·8	18·12	32·74	26·30	
,, ...	,, 28	1.0 a.m.	41 00	65 00	50·9	10·5	17·67	31·92	25·65	
,, ...	,, 28	4.0 p.m.	40 35	70 00	54·5	12·5	18·44	33·31	26·77	
Morning	,, 1	Noon	58 38	23 37	49	9·4	19·48	35·19	28·28	
,, ...	,, 2	,,	58 32	27 23	46	7·8	19·42	35·08	28·19	
,, ...	,, 3	,,	58 30	32 24	44	6·7	19·35	34·96	28·09	
,, ...	,, 4	,,	59 03	35 25	41·5	5·3	19·34	34·94	28·08	
,, ...	,, 5	,,	59 11	37 26	41	5·0	19·38	35·01	28·14	
,, ...	,, 7	,,	59 13	37 15	41	5·0	19·43	35·10	28·21	
,, ...	,, 8	,,	58 40	41 16	39	3·9	19·27	34·81	27·98	
,, ...	,, 10	,,	57 38	42 12	38·5	3·6	19·40	35·05	18·16	
,, ...	,, 12	,,	59 00	42 27	38	3·3	19·29	34·85	28·00	
,, ...	,, 13	,,	59 58	50 20	38·2	3·4	19·40	35·05	28·16	
,, ...	,, 14	,,	60 32	51 05	31·5	−0·3	18·49	33·40	26·84	
,, ...	,, 15	,,	61 44	54 09	32	0·0	18·62	33·64	27·03	
,, ...	,, 16	,,	63 53	55 20	31·8	−0·1	18·63	33·66	27·04	
,, ...	,, 17	4.0 p.m.	64 24	56 20	30·0	−1·1	18·73	33·84	27·19	
,, ...	,, 19	Noon	65 09	56 09	31	−0·6	18·66	33·71	27·09	
,, ...	,, 20	,,	65 47	56 06	32·7	0·4	18·77	33·91	27·25	
,, ...	,, 21	,,	67 00	56 00	32	0·0	18·72	33·82	27·18	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Morning	May 23	Noon	67 36	55 30	32·5	0·3	18·59	33·58	26·99	
„	„ 25	„	68 35	55 00	34·5	1·4	19·04	34·40	27·64	
„	„ 26	„	69 00	55 10	34·5	1·4	18·66	33·71	27·09	
„	„ 27	8.0 p.m.	68 50	55 05	30·5	−0·8	18·57	33·55	26·96	
„	„ 28	4.0 p.m.	Hare Island		32	0·0	18·55	33·51	26·93	70° 25′ N. 54° 52′ W.?
„	„ 31	8.0 p.m.	Kingartak Harbour		32	0·0	18·65	33·69	27·07	72° 04′ N. 55° 50′ W.?
Astoria	„ 27	Midnight	55 25	8 22	54	12·2	19·60	35·41	28·46	
„	„ 28	4.0 a.m.	55 17	9 42	54	12·2	19·58	35·37	28·43	
„	„ 28	Noon	55 12	12 35	54	12·2	19·68	35·55	28·57	
„	„ 28	8.0 p.m.	55 04	15 10	54	12·2	19·65	35·50	28·53	
„	„ 29	4.0 a.m.	54 50	17 40	54	12·2	19·57	35·35	28·41	
„	„ 29	Noon	54 30	19 06	56	13·3	19·57	35·35	28·41	
„	„ 30	„	53 08	28 53	50	10·0	19·31	34·88	28·03	
„	„ 31	„	51 20	35 17	50	10·0	19·41	35·07	28·18	
Minneapolis ...	„ 1	3.05 p.m.	49 48	9 02	52	11·1	19·70	35·59	28·60	
„ ...	„ 1	10.05 p.m.	49 43	11 37	52	11·1	20·00	36·13	29·04	
„ ...	„ 2	Noon	49 25	17 00	53	11·7	19·68	35·55	28·57	
„ ...	„ 3	„	48 13	26 11	57	13·9	19·71	35·61	28·62	
„ ...	„ 4	„	46 11	35 09	55	12·8	19·76	35·70	28·69	
„ ...	„ 5	„	43 43	42 11	61	16·1	20·18	36·45	29·30	
„ ...	„ 6	„	41 49	49 46	37	2·8	18·46	33·35	26·80	
„ ...	„ 7	„	41 20	57 41	58	14·4	19·72	35·62	28·63	
„ ...	„ 8	„	40 49	65 46	53	11·7	18·98	34·29	27·55	
„ ...	„ 14	„	40 10	67 18	52	11·1	18·81	33·98	27·31	
„ ...	„ 15	„	40 10	59 08	61	16·1	19·62	35·44	28·48	
„ ...	„ 16	„	40 18	50 52	64	17·8	20·14	36·38	29·24	
„ ...	„ 17	„	42 08	43 47	61	16·1	20·08	36·27	29·15	
„ ...	„ 18	„	44 55	35 59	56	13·3	19·86	35·88	28·83	
„ ...	„ 19	„	47 27	27 35	58	14·4	19·76	35·70	28·69	
„ ...	„ 20	„	48 56	18 34	58	14·4	19·73	35·64	28·64	
„ ...	„ 21	„	49 49	9 27	59	15·0	19·66	35·52	28·54	
Port Antonio ...	„ 1	„	31 36	62 44	71	21·7	20·31	36·69	29·49	
„ ...	„ 2	„	35 00	58 18	64½	18·1	20·23	36·55	29·37	
„ ...	„ 3	„	38 05	53 35	65	18·3	20·57	37·16	29·87	
„ ...	„ 4	„	40 55	47 43	59	15·0	19·98	36·09	29·01	
„ ...	„ 5	„	43 45	41 37	62	16·7	20·16	36·42	29·27	
„ ...	„ 6	„	46 05	34 53	56	13·3	19·86	35·88	28·83	
„ ...	„ 7	„	48 16	28 02	54	12·2	19·69	35·57	28·59	
„ ...	„ 8	„	49 58	20 45	53	11·7	19·73	35·64	28·64	
„ ...	„ 9	„	51 00	12 51	53	11·7	19·71	35·61	28·62	
„ ...	„ 10	7.30 a.m.	51 00	6 00	51	10·6	19·42	35·08	28·19	
Port Kingston ...	„ 7	Noon	48 07	12 48	55	12·8	19·77	35·71	28·70	
„ ...	„ 8	„	44 55	21 03	58	14·4	19·80	35·77	28·75	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Port Kingston ...	May 9	Noon	41 42	28 58	62	16·7	19·82	35·81	28·78	
,, ...	,, 10	,,	38 24	36 13	65½	18·6	20·01	36·15	29·05	
,, ...	,, 11	,,	35 07	43 22	68	20·0	20·17	36·44	29·29	
,, ...	,, 12	,,	31 41	50 12	72	22·2	20·40	36·85	29·62	
,, ...	,, 13	,,	28 32	56 54	75	23·9	20·58	37·18	29·88	
,, ...	,, 14	,,	25 19	63 35	77	25·0	20·31	36·69	29·49	
,, ...	,, 15	,,	22 05	70 06	79	26·1	20·07	36·26	29·14	
,, ...	,, 16	,,	18 13	75 39	82	27·8	19·80	35·77	28·75	
,, ...	,, 26	,,	21 10	73 39	82	27·8	20·04	36·20	29·10	
,, ...	,, 27	,,	25 44	68 50	80	26·7	20·23	36·55	29·37	
,, ...	,, 27	8.0 p.m.	27 17	67 13	77	25·0	20·28	36·64	29·45	
,, ...	,, 28	Noon	30 13	63 38	70	21·1	20·21	36·51	29·34	
,, ...	,, 29	,,	34 27	57 52	73	22·8	20·17	36·44	29·29	
,, ...	,, 29	8.0 p.m.	36 10	56 14	68	20·0	20·14	36·38	29·24	
,, ...	,, 30	Noon	38 21	51 58	69	20·6	20·12	36·35	29·21	
,, ...	,, 30	8.0 p.m.	40 04	50 05	67	19·4	18·75	33·87	27·22	Analysis repeated.
,, ...	,, 31	Noon	40 05	44 44	64	17·8	20·03	36·18	29·08	
,, ...	,, 31	8.0 p.m.	41 56	43 15	63	17·2	19·97	36·08	28·99	
Port Antonio ...	,, 20	5.30 p.m.	51 00	6 20	55	12·8	19·52	35·26	28·34	
,, ...	,, 21	8.20 a.m.	49 34	11 06	56	13·3	19·69	35·57	28·59	
,, ...	,, 21	Noon	49 07	12 17	56	13·3	19·79	35·75	28·73	
,, ...	,, 22	,,	47 13	19 53	58	14·4	19·74	35·66	28·66	
,, ...	,, 23	,,	45 10	26 45	59	15·0	19·66	35·52	28·54	
,, ...	,, 24	,,	42 28	32 48	60	15·6	20·60	37·21	29·91	
,, ...	,, 25	,,	39 54	38 42	62	16·7	20·26	36·60	29·42	
,, ...	,, 26	,,	37 27	43 23	64	17·8	20·45	36·94	29·69	
,, ...	,, 27	,,	34 32	48 52	68	20·0	20·68	37·36	30·03	
,, ...	,, 28	,,	31 51	54 14	72	22·2	20·73	37·45	30·10	
,, ...	,, 29	,,	28 54	59 29	75	23·9	20·62	37·25	29·94	
,, ...	,, 30	,,	25 48	64 10	77½	25·3	20·18	36·45	29·30	
,, ...	,, 31	,,	22 44	69 02	78	25·6	20·41	36·87	20·63	
Atrato	,, 22	,,	22 30	53 30	76	24·4	20·39	36·83	29·61	
,, ...	,, 23	,,	25 00	49 00	76	24·4	20·63	37·27	29·95	
,, ...	,, 24	,,	29 00	45 00	74	23·3	20·50	37·03	29·77	
,, ...	,, 25	,,	33 00	40 30	73	22·8	20·35	36·76	29·55	
,, ...	,, 26	,,	36 00	35 00	68	20·0	20·03	36·18	29·08	
,, ...	,, 27	,,	39 00	30 00	64	17·8	19·91	35·97	28·91	
,, ...	,, 28	,,	42 00	24 00	60	15·6	19·90	35·95	28·89	
,, ...	,, 29	,,	45 00	17 00	60	15·6	19·87	35·90	28·85	
,, ...	,, 30	,,	47 30	11 00	59	15·0	19·78	35·73	28·72	
,, ...	,, 30	2.0 p.m.	47 48	10 18	—	—	19·74	35·66	28·66	By pycnometer σ_0 = 28·66.
,, ...	,, 30	9.30 p.m.	49 00	8 00	52	11·1	19·66	35·52	28·54	
,, ...	,, 31	4.0 a.m.	49 35	6 08	57	13·9	19·57	35·35	28·41	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Braemar Castle ...	May 1	8.0 a.m.	30 33	15 27	63	17·2	20·56	37·14	29·85	
,, ...	,, 1	8.0 p.m.	32 45	13 38	64	17·8	20·67	37·34	30·01	
,, ...	,, 3	8.0 a.m.	38 52	11 48	58	14·4	20·46	36·96	29·71	
,, ...	,, 3	8.0 p.m.	40 58	10 51	56	13·3	19·96	36·06	28·98	
,, ...	,, 4	8.30 a.m.	42 50	9 35	56	13·3	19·86	35·88	28·83	
,, ...	,, 4	Noon	43 34	9 16	55	12·8	19·91	35·97	28·91	
,, ...	,, 5	8.0 a.m.	46 52	6 39	53	11·7	20·01	36·15	29·05	
,, ...	,, 5	6.30 a.m.	48 27	5 12	50	10·0	19·82	35·81	28·78	
Kildonan Castle ...	,, 1	Noon	28 09	17 01	66	18·9	20·41	36·87	29·63	By pycnometer σ_0 = 29·65.
,, ...	,, 2	,,	Funchal Bay, Madeira.		65	18·3	20·27	36·62	29·43	By pycnometer σ_0 = 29·44.
,, ...	,, 3	,,	37 40	13 28	60	15·6	20·05	36·22	29·11	
,, ...	,, 4	,,	43 00	9 33	58	14·4	19·95	36·04	28·96	
,, ...	,, 4	4.30 p.m.	44 03	8 40	56	13·3	19·82	35·81	28·78	
,, ...	,, 4	10.50 p.m.	45 34	7 39	54	12·2	19·83	35·82	28·79	
,, ...	,, 5	5.20 a.m.	47 03	6 30	52	11·1	19·71	35·61	28·62	
,, ...	,, 5	0.30 p.m.	48 36	5 11	51	10·6	19·68	35·55	28·57	
,, ...	,, 21	8.45 a.m.	48 29	5 16	53	11·7	19·68	35·55	28·57	
...	,, 21	2.35 p.m.	47 08	6 20	52	11·1	19·81	35·79	28·76	
...	,, 21	10.40 p.m.	45 40	7 45	58	14·4	20·19	36·47	29·31	
...	,, 22	4.50 a.m.	44 15	9 00	57	13·9	19·84	35·84	28·80	
...	,, 22	Noon	42 15	10 34	59	15·0	19·81	35·79	28·76	
,, ...	,, 23	,,	36 44	14 02	63	17·2	20·08	36·27	29·15	
,, ...	,, 24	?	Funchal Bay, Madeira.		66	18·9	20·20	36·49	29·33	
,, ...	,, 25	Noon	26 22	17 34	69	20·6	20·36	36·78	29·56	
,, ...	,, 26	,,	19 52	17 48	66	18·9	19·95	36·04	28·96	
Moravian ...	,, 31	,,	18 39	17 36	68	20·0	20·06	36·24	29·12	
Macedonia ...	,, 29	Midnight	36 01	6 11	63	17·2	20·26	36·60	29·42	
,, ...	,, 30	Noon	37 19	9 06	61·2	16·2	19·95	36·04	28·96	
,, ...	,, 30	Midnight	39 51	9 39	60·7	15·9	19·77	35·71	28·70	
,, ...	,, 31	Noon	42 33	9 28	59·8	15·4	19·60	35·41	28·46	
,, ...	,, 31	4.0 p.m.	43 19	9 24	58	14·4	19·48	35·19	28·28	
,, ...	,, 31	8.0 p.m.	44 07	8 43	58	14·4	19·68	35·55	28·57	
,, ...	,, 31	Midnight	44 52	8 10	60	15·6	19·77	35·71	28·70	
Egypt	,, 2	—	38 43	9 40	50	10·0	19·93	36·00	28·94	
,, ...	,, 3	—	44 10	8 43	50	10·0	19·85	35·86	28·82	
,, ...	,, 3	—	46 50	6 20	45	7·2	19·73	35·64	28·64	
,, ...	,, 4	—	48 28	5 11	45	7·2	19·67	35·53	28·56	
,, ...	,, 20	4.0 p.m.	48 28	5 15	51	10·6	19·57	35·35	28·41	
,, ...	,, 20	—	47 00	6 30	55	12·8	19·72	35·62	28·63	
,, ...	,, 21	11.0 a.m.	44 00	8 40	52	11·1	19·73	35·64	28·64	
,, ...	,, 22	Noon.	38 29	9 29	54	12·2	19·86	35·88	28·83	
United States ...	June 1	4.0 a.m.	57 36	15 53	50·4	10·2	19·51	35·25	28·32	
,, ...	,, 1	8.0 a.m.	57 56	14 37	50·2	10·1	19·54	35·30	28·37	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
United States ...	June 1	Noon	57 58	12 15	50·0	10·0	19·58	35·37	28·43	
„ ...	„ 1	4.0 p.m.	58 06	10 57	50·0	10·0	19·60	35·41	28·46	
„ ...	„ 1	8.0 p.m.	58 16	8 56	50·7	10·4	19·59	35·39	28·44	
„ ...	„ 1	Midnight	58 24	7 21	51·3	10·7	19·54	35·30	28·37	
„ ...	„ 2	4.0 a.m.	58 35	5 54	49·5	9·7	19·42	35·08	28·19	
„ ...	„ 17	4.0 p.m.	59 18	5 54	53·4	11·9	19·64	35·48	28·51	
„ ...	„ 17	8.0 p.m.	59 11	7 52	53·6	12·0	19·57	35·35	28·41	
„ ...	„ 17	Midnight	59 01	10 50	51·3	10·7	19·61	35·43	28·47	
„ ...	„ 18	4.0 a.m.	58 52	12 19	53·1	11·7	19·61	35·43	28·47	
„ ...	„ 18	8.0 a.m.	58 44	14 09	52·7	11·5	19·52	35·26	28·34	
„ ...	„ 18	Noon	58 33	16 15	52·2	11·2	19·52	35·26	28·34	
„ ...	„ 18	9.0 p.m.	57 16	19 56	52·7	11·5	19·52	35·26	28·34	
„ ...	„ 19	7.0 a.m.	55 53	23 48	51·3	10·7	19·40	35·05	28·16	
„ ...	„ 19	10.0 p.m.	53 48	29 58	51·6	10·9	19·39	35·03	28·15	
„ ...	„ 20	1.0 p.m.	51 11	34 47	52·7	11·5	19·64	35·48	28·51	
„ ...	„ 21	7.0 a.m.	47 54	39 42	58·1	14·5	19·89	35·93	28·88	
„ ...	„ 22	1.0 a.m.	45 07	44 50	59·9	15·5	20·05	36·22	29·11	
„ ...	„ 22	7.0 p.m.	43 06	50 10	40·5	4·7	18·24	32·95	26·48	
„ ...	„ 23	9.0 a.m.	42 33	54 45	57·6	14·2	18·54	33·49	26·91	
„ ...	„ 23	Midnight	41 54	60 20	63·5	17·5	19·48	35·19	28·28	
„ ...	„ 24	1.0 p.m.	41 16	64 57	56·1	13·4	19·53	35·28	28·35	
„ ...	„ 25	4.0 a.m.	40 36	69 59	55·4	13·0	18·08	32·66	26·24	
Hellig Olav ...	„ 3	4.0 p.m.	59 34	5 20	47·1	8·4	19·66	25·52	28·54	
„ ...	„ 3	8.0 p.m.	59 30	7 00	46·4	8·0	19·64	35·48	28·51	
„ ...	„ 3	Midnight	59 20	9 05	46·6	8·1	19·49	35·21	28·30	
„ ...	„ 4	4.0 a.m.	59 10	10 50	46·6	8·1	19·54	35·30	28·37	
„ ...	„ 4	8.0 a.m.	59 06	13 00	46·8	8·2	19·54	35·30	28·37	
„ ...	„ 4	Noon	58 49	14 46	46·6	8·1	19·55	35·32	28·38	
„ ...	„ 4	Midnight	57 22	20 10	47·3	8·5	19·51	35·25	28·32	
„ ...	„ 5	1.0 p.m.	55 40	25 05	46·0	7·8	19·49	35·21	28·30	
„ ...	„ 6	3.0 a.m.	53 42	30 00	44·4	6·9	19·27	34·81	27·98	
„ ...	„ 6	8.0 p.m.	50 50	35 10	46·0	7·8	19·42	35·08	28·19	
„ ...	„ 7	1.0 p.m.	47 30	39 48	54·3	12·4	19·83	35·82	28·79	
„ ...	„ 8	Noon	43 39	45 09	58·1	14·5	19·96	36·06	28·98	
„ ...	„ 9	6.30 a.m.	41 15	50 00	60·4	15·8	20·00	36·13	29·04	
„ ...	„ 9	Midnight	41 00	55 45	62·1	16·7	19·73	35·64	28·64	
„ ...	„ 10	4.0 p.m.	40 55	60 15	55·6	13·1	19·15	34·60	27·80	
„ ...	„ 11	6.0 a.m.	40 45	65 00	49·1	9·5	18·51	33·44	26·87	
„ ...	„ 11	7.0 p.m.	40 35	70 00	52·2	11·2	18·26	32·99	26·51	
„ ...	„ 22	5.0 a.m.	40 10	70 30	57·2	14·0	18·16	32·81	26·36	
„ ...	„ 22	Midnight	40 08	64 52	62·6	17·0	19·40	35·05	28·16	
„ ...	„ 23	1.0 p.m.	40 10	60 20	61·7	16·5	19·31	34·88	28·03	
„ ...	„ 24	4.0 a.m.	40 16	55 15	70·0	21·1	20·00	36·13	29·04	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Hellig Olav ...	June 24	9.0 p.m.	40 25	50 00	69·1	20·6	19·39	35·03	28·15	
„ ...	„ 25	4.0 p.m.	42 35	45 10	63·5	17·5	20·00	36·13	29·04	
„ ...	„ 26	Noon	46 35	40 03	55·4	13·0	19·79	35·75	28·73	
„ ...	„ 27	6.0 a.m.	49 30	34 50	51·4	10·8	19·61	35·43	28·47	
„ ...	„ 27	8.0 p.m.	51 25	30 00	47·7	8·7	19·35	34·96	28·09	
„ ...	„ 28	11.0 a.m.	53 25	24 40	49·5	9·7	19·48	35·19	28·28	
„ ...	„ 28	Midnight	55 20	20 00	52·7	11·5	19·55	35·32	28·38	
„ ...	„ 29	1.0 p.m.	56 48	15 00	54·0	12·2	19·55	35·32	28·38	
„ ...	„ 29	4.0 p.m.	57 05	13 40	54·1	12·3	19·57	35·35	28·41	
„ ...	„ 29	8.0 p.m.	57 28	12 00	53·6	12·0	19·57	35·35	28·41	
„ ...	„ 29	Midnight	57 52	10 20	53·1	11·7	19·59	35·39	28·44	
„ ...	„ 30	4.0 a.m.	58 08	8 40	53·6	12·0	19·58	33·37	28·43	
„ ...	„ 30	8.0 a.m.	58 30	6 42	53·6	12·0	19·42	35·08	28·19	
Oscar II	„ 8	6.0 a.m.	40 05	70 00	52·2	11·2	18·84	34·04	27·35	
„	„ 8	9.0 p.m.	40 15	65 00	52·7	11·5	19·60	35·41	28·46	
„	„ 9	1.0 p.m.	40 30	60 00	67·5	19·7	19·92	35·99	28·92	
„	„ 10	6.0 a.m.	40 40	55 00	69·8	21·0	19·82	35·81	28·78	
„	„ 10	9.0 p.m.	40 50	50 00	62·4	16·9	19·47	35·17	28·27	
„	„ 11	4.0 p.m.	43 25	45 00	63·9	17·7	19·99	36·11	29·02	
„	„ 12	Noon.	47 29	40 00	58·1	14·5	19·59	35·39	28·44	
„	„ 13	8.0 a.m.	50 30	35 00	52·7	11·5	19·61	35·43	28·47	
„	„ 13	9.20 p.m.	52 40	30 00	51·8	11·0	19·27	34·81	27·98	
„	„ 14	11.0 a.m.	54 10	25 00	51·8	11·0	19·49	35·21	28·30	
„	„ 15	2.0 a.m.	56 05	20 00	52·7	11·5	19·48	35·19	28·28	
„	„ 15	4.0 p.m.	57 43	14 16	55·0	12·8	19·52	35·26	28·34	
„	„ 15	8.0 p.m.	57 49	12 27	53·6	12·0	19·50	35·23	28·31	
„	„ 15	Midnight	58 03	10 36	53·6	12·0	19·56	35·34	28·40	
„	„ 16	4.0 a.m.	58 12	9 03	54·0	12·2	19·59	35·39	28·44	
„	„ 16	8.0 a.m.	58 23	7 30	54·5	12·5	19·47	35·17	28·27	
„	„ 16	Noon	58 37	5 10	51·4	10·8	19·19	34·67	27·86	
Morning	„ 2	4.0 p.m.	Duck Island		32	0·0	18·38	33·21	26·68	
„	„ 3	„	75 45	60 00	32	0·0	18·55	33·51	26·93	
„	„ 4	Midnight	75 13	69 30	33·3	0·7	18·75	33·87	27·22	
„	„ 6	Noon	74 15	74 45	30	−1·1	17·99	32·50	26·11	
„	„ 7	„	74 11	76 30	31·2	−0·4	18·19	32·86	26·40	
„	„ 9	„	74 03	75 00	30·5	−0·8	17·92	32·38	26·01	
„	„ 10	„	73 58	75 35	31·5	−0·3	17·96	30·45	26·07	
„	„ 11	„	73 48	75 00	32	0·0	17·95	32·43	26·06	
„	„ 12	„	73 13	73 35	31	−0·6	18·06	32·63	26·22	
„	„ 13	„	73 03	73 40	32	0·0	17·98	32·48	26·10	
„	„ 14	„	73 09	73 50	32	0·0	17·98	32·48	26·10	
„	„ 16	„	73 11	73 20	32	0·0	17·84	32·23	25·90	
Astoria	„ 1	„	50 15	38 18	50	10·0	19·52	35·26	28·34	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Astoria	May 2	Noon	48 10	44 40	42	5·6	19·07	34·45	27·68	
,, ...	,, 3	,,	45 22	51 10	42	5·6	18·10	32·70	26·27	
,, ...	,, 4	,,	43 20	57 30	48	8·9	17·98	32·48	26·10	
,, ...	,, 5	,,	41 20	64 30	64	17·8	19·76	35·70	28·69	
,, ...	,, 6	,,	40 30	71 37	59	15·0	17·86	32·27	25·93	
,, ...	,, 11	,,	40 45	67 40	58	14·4	18·36	33·17	26·65	
,, ...	,, 12	,,	42 36	61 00	58	14·4	19·52	35·26	28·34	
,, ...	,, 13	,,	45 20	54 40	44	6·7	17·99	32·50	26·11	
,, ...	,, 14	,,	48 20	48 40	42	5·6	18·76	33·89	27·23	Passed about 30 icebergs from 8 a.m. to noon.
,, ...	,, 15	,,	51 15	41 00	55	12·8	19·56	35·34	28·40	
,, ...	,, 16	,,	53 06	32 48	49	9·4	19·26	34·79	27·96	
,, ...	,, 17	,,	54 25	24 06	56	13·3	19·55	35·32	28·38	
,, ...	,, 17	?	54 45	20 22	55	12·8	19·58	35·37	28·43	
,, ...	,, 18	Noon	55 08	15 52	56	13·3	19·56	35·34	28·40	
,, ...	,, 18	6.0 p.m.	55 09	13 30	56	13·3	19·58	35·37	28·43	
,, ...	,, 18	Midnight	55 12	11 00	56	13·3	19·61	35·43	28·47	
,, ...	,, 19	6.0 a.m.	55 15	9 00	58	14·4	19·41	35·07	28·18	
,, ...	,, 19	9.45 a.m.	55 22	7 39	56	13·3	19·32	34·90	28·05	
,, ...	,, 19	2.45 p.m.	55 20	6 10	53	11·7	19·12	34·54	27·76	
,, ...	,, 19	4.30 p.m.	55 19	5 50	52	11·1	18·93	34·20	27·48	
,, ...	,, 19	—	55 31	5 01½	56	13·3	17·48	31·58	25·37	
Numidian ...	,, 9	5.09 a.m.	55 30	7 40	53	11·7	19·46	35·16	28·25	
,, ...	,, 9	1.0 p.m.	55 21	10 44	54	12·2	19·61	35·43	28·47	
,, ...	,, 9	8.56 p.m.	55 18	13 38	53	11·7	19·65	35·50	28·53	
,, ...	,, 10	Noon	54 48	19 10	53	11·7	19·65	35·50	28·53	
,, ...	,, 11	,,	54 23	26 00	50	10·0	19·42	35·08	28·19	
,, ...	,, 12	,,	53 00	33 15	47	8·3	19·30	34·87	28·02	
,, ...	,, 13	,,	51 00	40 59	51	10·6	19·38	35·01	28·14	
,, ...	,, 14	,,	48 33	48 05	39	3·9	18·81	33·98	27·31	
,, ...	,, 15	,,	46 27	52 15	44	6·7	18·17	32·83	26·38	
,, ...	,, 16	,,	43 47	58 45	50	10·0	17·78	32·12	25·81	
,, ...	,, 17	,,	41 08	65 00	63	17·2	19·44	35·12	28·22	
,, ...	,, 18	,,	40 20	71 20	64	17·8	17·73	32·03	25·74	
,, ...	,, 24	,,	42 22	63 00	51	10·6	17·85	32·25	25·91	
,, ...	,, 26	,,	47 18	50 50	40	4·4	18·26	32·99	26·51	
,, ...	,, 27	,,	50 11	44 45	52	11·1	19·34	34·94	28·08	
,, ...	,, 28	,,	52 20	37 49	45	7·2	19·29	34·85	28·00	
,, ...	,, 29	,,	53 53	30 16	49	9·4	19·32	34·90	28·05	
Minneapolis ...	,, 26	,,	49 40	11 37	61	16·1	19·83	35·82	28·79	
,, ...	,, 26	,,	49 32	14 10	60	15·6	19·69	35·57	28·59	
,, ...	,, 28	,,	46 40	31 50	57	13·9	19·72	35·62	28·63	
,, ...	,, 29	,,	43 58	39 45	64	17·8	20·07	36·26	29·14	
,, ...	,, 30	,,	41 44	47 04	69	20·6	19·83	35·82	28·79	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
	1905.		° N. ′	° W. ′						
Port Antonio ...	June 1	Noon	19 50	73 28	83	28·3	20·14	36·38	29·24	
,, ...	,, 9	,,	20 19	73 58	82	27·8	20·39	36·83	29·61	
,, ...	,, 10	,,	24 08	70 38	79½	26·4	20·28	36·64	29·45	
,, ...	,, 11	,,	27 56	66 58	75	23·9	20·31	36·69	29·49	
,, ...	,, 12	,,	31 38	62 48	75	23·9	20·33	36·73	29·52	
,, ...	,, 13	,,	35 10	58 13	73½	23·1	20·45	36·94	29·69	
,, ...	,, 14	,,	38 14	52 54	73½	23·1	20·18	36·45	29·30	
,, ...	,, 15	,,	40 57	47 00	64½	18·1	19·20	34·69	27·87	
,, ...	,, 16	,,	43 38	41 12	64	17·8	20·26	36·60	29·42	
,, ...	,, 17	,,	46 05	34 59	56½	13·6	20·06	36·24	29·12	
,, ...	,, 18	,,	48 14	28 14	54	12·2	20·63	37·27	29·95	
,, ...	,, 19	,,	49 37	21 08	56½	13·6	20·71	37·41	30·07	
,, ...	,, 20	,,	50 50	13 12	56½	13·6	19·97	36·08	28·99	
,, ...	,, 21	,,	51 00	6 20	57½	14·2	19·25	34·78	27·95	
Port Kingston ...	,, 1	,,	43 53	36 33	60	15·6	19·96	36·06	28·98	
,, ...	,, 1	8.0 p.m.	45 46	35 09	59	15·0	20·00	36·13	29·04	
,, ...	,, 2	Noon	46 50	28 14	58	14·4	19·82	35·81	28·78	
,, ...	,, 2	8·0 p.m.	48 47	26 44	55	12·8	19·69	35·57	28·59	
,, ...	,, 3	Noon	49 06	18 56	55	12·8	19·69	35·57	28·59	
,, ...	,, 3	8.0 p.m.	49 41	16 12	56	13·3	19·72	35·62	28·63	
,, ...	,, 4	Noon	50 54	9 22	—	—	19·55	35·32	28·38	
,, ...	,, 4	8.0 p.m.	51 03	6 09	58	14·4	19·50	35·23	28·31	
,, ...	,, 18	Noon	50 15	14 43	58	14·4	19·69	35·57	28·59	
,, ...	,, 19	,,	48 42	24 11	55	12·8	19·63	35·46	28·50	
,, ...	,, 20	,,	46 29	32 33	57	13·9	19·88	35·91	28·86	
,, ...	,, 21	,,	42 37	39 56	64	17·8	20·18	36·45	29·30	
,, ...	,, 22	,,	39 16	46 54	71	21·7	20·09	36·29	29·17	
,, ...	,, 23	,,	35 25½	53 25	74	23·3	20·23	36·55	29·37	
,, ...	,, 25	,,	27 37	65 55	81	27·2	20·18	36·45	29·30	
,, ...	,, 26	,,	22 10	70 13	82	27·8	20·04	36·20	29·10	
,, ...	,, 27	,,	18 15	74 16	84	28·9	18·91	34·16	27·45	
Atrato	,, 22	9.24 a m.	Between Ushant and Scilly.		58½	14·7	19·58	35·37	28·43	
,, ...	,, 22	4.30 p.m.	48 05	7 30	58½	14·7	19·66	35·52	28·54	
,, ...	,, 22	Midnight	46 52	8 24	60	15·6	19·75	35·68	28·67	
,, ...	,, 23	Noon	45 14	12 32	62	16·7	19·76	35·70	28·69	
,, ...	,, 24	,,	41 53	18 21	64·5	18·1	19·80	35·77	28·75	
,, ...	,, 25	,,	38 29	23 54	69	20·6	19·99	36·11	29·02	
,, ...	,, 26	,,	35 06	29 01	71	21·7	20·12	36·35	29·21	
,, ...	,, 27	,,	31 33	33 54	76	24·4	20·33	36·73	29·52	
,, ...	,, 28	,,	28 08	38 50	76	24·4	20·51	37·05	29·78	
,, ...	,, 29	,,	24 48	48 34	77·5	25·3	20·64	37·29	29·97	
,, ...	,, 30	,,	21 45	48 21	79	26·1	20·42	36·89	29·65	
Moravian	,, 1	,,	22 59	17 20	66	18·9	20·12	36·35	29·21	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Moravian	June 1	Midnight	25 08	16 54	69	20·6	20·35	36·76	29·55	
„	„ 2	Noon	27 17	16 28	69	20·6	20·28	36·64	29·45	
„	„ 3	„	30 07	15 34	67	19·4	20·36	36·78	29·56	
„	„ 3	Midnight	32 02	14 51	64	17·8	20·50	37·03	29·77	
„	„ 4	Noon	34 02	14 26	65	18·3	20·11	36·33	29·20	
„	„ 4	Midnight	35 50	13 20	63	17·2	20·15	36·40	29·26	
„	„ 5	Noon	37 32	12 55	63	17·2	20·10	36·31	29·18	
„	„ 5	Midnight	39 15	11 55	62	16·7	20·06	36·24	29·12	
„	„ 6	Noon	41 29	10 52	61	16·1	19·89	35·93	28·88	
„	„ 6	Midnight	43 20	9 25	58	14·4	19·75	35·68	28·67	
„	„ 7	Noon	45 21	8 01	60	15·6	19·89	35·93	28·88	
„	„ 7	3.0 p.m.	45 52	7 40	61	16·1	19·82	35·81	28·78	
„	„ 7	Midnight	47 15	6 36	57	13·9	19·80	35·77	28·75	
„	„ 8	4.0 a.m.	48 00	6 02	57	13·9	19·69	35·57	28·59	
„	„ 8	9.0 a.m.	48 52	5 40	56	13·3	19·66	35·52	28·54	
„	„ 8	Noon	49 17	5 20	56	13·3	19·63	35·46	28·50	
Braemar Castle ...	„ 3	8.0 p.m.	50 25	2 51	54	12·2	19·45	35·14	28·24	
„ ...	„ 4	„	47 08	6 50	56	13·3	19·76	35·70	28·69	
„ ...	„ 5	8.0 a.m.	45 08	8 19	58	14·4	19·94	36·02	28·95	
„ ...	„ 5	—	Off Cape Villano.		56	13·3	19·78	35·73	28·72	
„ ...	„ 6	8·0 a.m.	41 15	10 31	60	15·6	19·93	36·00	28·94	
„ ...	„ 6	8.0 p.m.	38 58	11 23	60	15·6	19·96	36·06	28·98	
„ ...	„ 7	8.0 a.m.	36 33	12 20	61	16·1	20·39	36·83	29·61	
„ ...	„ 7	8.0 p.m.	34 35	12 56	65	18·3	20·31	36·69	29·49	
„ ...	„ 8	8.0 a.m.	32 26	13 37	63	17·2	20·22	36·53	**29·36**	
„ ...	„ 8	8.0 p.m.	30 17	16 30	66	18·9	20·25	36·58	29·40	
„ ...	„ 9	9.0 a.m.	Las Palmas Anchorage.		67	19·4	20·40	36·85	29·62	
„ ...	„ 10	Noon	24 05	16 39	66	18·9	20·28	36·64	29·45	
„ ...	„ 11	—	19 25	17 41	67	19·4	19·86	35·88	28·83	
Macedonia ...	„ 1	4.0 a.m.	45 37	7 42	59	15·0	19·75	35·68	28·67	
„ ...	„ 1	8.0 a.m.	46 21	7 10	58·2	14·6	19·72	35·62	28·63	
„ ...	„ 1	Noon	47 14	6 25	59·2	15·1	19·73	35·64	28·64	
„ ...	„ 1	4.0 p.m.	47 55	5 55	59	15·0	19·58	35·37	28·43	
„ ...	„ 1	8.0 p.m.	48 43	5 12	59	15·0	19·61	35·43	28·47	
„ ...	„ 1	Midnight	49 25	4 40	59	15·0	19·63	35·46	28·50	
„ ...	„ 2	4.0 a.m.	50 11	4 14	56	13·3	19·54	35·30	28·37	
„ ...	„ 24	4.0 p.m.	Off Ushant.		55	12·8	19·56	35·34	28·40	Hazy; D. R.; S. 14° E. 15 miles.
„ ...	„ 24	8.0 p.m.	47 48	5 56	60·8	16·1	19·66	35·52	28·54	
„ ...	„ 24	Midnight	47 00	6 35	61·5	16·4	19·74	35·66	28·66	
„ ...	„ 25	4.0 a.m.	46 10	7 15	62	16·7	19·76	35·70	28·69	
„ ...	„ 25	8.0 a.m.	45 10	7 55	63·1	17·3	19·72	35·62	28·63	
„ ...	„ 25	Noon	44 16	8 33	62	16·7	19·63	35·46	28·50	
„ ...	„ 25	4.0 p.m.	43 25	9 10	62	16·7	19·72	35·62	28·63	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Macedonia ...	June 25	8.0 p.m.	42 33	9 26	63·8	17·7	19·79	35·75	28·73	
„ ...	„ 25	Midnight	41 37	9 29	64	17·8	19·81	35·79	28·76	
„ ...	„ 26	4.0 a.m.	40 38	9 36	64	17·8	19·81	35·79	28·76	
„ ...	„ 26	8.0 a.m.	39 33	9 33	65	18·3	19·77	35·71	28·70	
„ ...	„ 26	Noon	38 35	9 33	61	16·1	19·84	35·84	28·80	
„ ...	„ 26	4.0 p.m.	37 40	9 13	67	19·4	19·96	36·06	28·98	
„ ...	„ 26	8.0 p.m.	36 52	8 32	63	17·2	19·95	36·04	28·96	
„ ...	„ 26	Midnight	36 29	7 24	68½	20·3	19·17	34·63	27·83	
Morning	July 10	4.0 p.m.	71 30	70 42	35	1·7	17·98	32·48	26·10	
„	„ 12	8.0 p.m.	71 15	70 10	30	−1·1	18·24	32·95	26·48	
„	„ 14	4.0 p m.	72 05	73 30	36	2·2	17·82	32·20	25·87	
„	„ 16	„	Ponds Inlet		35·5	1·9	14·5	26·2	21·0	72° 45′ N. 75° 50′ W.?
„	„ 18	„	72 14	73 35	31	−0·6	17·37	31·38	25·21	
„	„ 27	Noon	40 miles off Cape Kater.		31	−0·6	17·24	31·15	25·02	70° 13′ N. 65° 10′ W.?
„	„ 30	1.0 p.m.	70 05	65 00	32·3	0·2	14·7	26·5	21·3	
Numidian ...	„ 1	Noon	55 27	13 50	63	17·2	19·55	35·32	28·38	
„ ...	„ 1	1.0 p.m.	55 27	13 35	63	17·2	19·56	35·34	28·40	
„ ...	„ 1	9.0 p.m.	55 27	10 35	57	13·9	19·62	35·44	28·48	
„ ...	„ 2	4.0 a.m.	55 30	7 40	58	14·4	19·36	34·97	28·11	
„ ...	„ 7	—	55 30	7 40	—	—	19·52	35·26	28·34	
„ ...	„ 7	1.30 p.m.	55 25	10 35	57	13·9	19·61	35·43	28·47	
„ ...	„ 7	10.0 p.m.	55 21	13 35	57	13·9	19·59	35·39	28·44	
„ ...	„ 8	Noon	55 00	18 25	55	12·8	19·56	35·34	28·40	
„ ...	„ 9	„	54 13	26 40	55	12·8	19·53	35·28	28·35	
„ ...	„ 10	„	52 43	34 52	49	9·4	19·33	34·92	28·06	
„ ...	„ 11	„	50 36	42 17	54	12·2	19·41	35·07	28·18	
„ ...	„ 12	„	47 58	49 50	44	6·7	18·22	32·92	26·45	
„ ...	„ 13	„	44 50	56 20	53	11·7	17·82	32·20	25·87	
„ ...	„ 14	„	42 13	62 35	69	20·6	19·45	35·14	28·24	
„ ...	„ 15	„	40 42	69 00	61	16·1	18·16	32·81	26·36	
„ ...	„ 21	„	40 53	68 45	57	13·9	17·96	32·45	26·07	
„ ...	„ 22	„	42 26	62 20	62	16·7	17·94	32·41	26·04	
„ ...	„ 23	„	44 46	56 00	56	13·3	17·92	32·38	26·01	
„ ...	„ 24	„	47 39	49 58	50	10·0	18·11	32·72	26·29	
„ ...	„ 25	„	50 24	43 35	54	12·2	19·68	35·55	28·57	
„ ...	„ 26	„	52 31	36 15	50	10·0	19·30	34·87	28·02	
„ ...	„ 27	„	54 04	28 07	53	11·7	19·49	35·21	28·30	
„ ...	„ 28	„	55 14	19 20	54	12·2	19·71	35·61	28·62	
„ ...	„ 29	„	55 20	13 35	58	14·4	19·35	34·96	28·09	
„ ...	„ 29	?	55 20	10 35	59	15·0	19·53	35·28	28·35	
„ ...	„ 29	?	55 30	7 40	59	15·0	19·37	34·99	28·12	
Astoria	„ 22	Midnight	55 27	8 15	61	16·1	19·48	35·19	28·28	
„	„ 23	6.0 a.m.	55 24	10 56	60	15·6	19·53	35·37	28·43	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Astoria	July 23	Noon	55 17	13 15	62	16·7	19·56	35·34	28·40	Current N.E. 6 miles in 12 hours.
,, ...	,, 23	Midnight	55 05	18 10	59	15·0	19·58	35·37	28·43	
,, ...	,, 24	6.0 a.m.	54 35	20 25	59	15·0	19·54	35·30	28·37	
,, ...	,, 24	Noon	54 32	22 45	59	15·0	19·54	35·30	28·37	No current observed.
,, ...	,, 24	Midnight	53 55	27 18	54	12·2	19·48	35·19	28·28	
,, ...	,, 25	Noon	53 20	31 50	54	12·2	19·29	34·85	28·00	No current observed.
,, ...	,, 25	Midnight	52 22	36 03	52	11·1	19·37	34·99	28·12	
,, ...	,, 26	Noon	51 15	40 20	54	12·2	19·48	35·19	28·28	No current observed.
,, ...	,, 27	Midnight	48 45	47 15	51	10·6	19·03	34·38	27·63	
,, ...	,, 28	Noon	45 40	54 30	58	14·4	17·91	32·36	26·00	
,, ...	,, 29	,,	42 30	61 30	64	17·8	17·79	32·14	25·82	Current S.W. 12 miles in 24 hours.
,, ...	,, 30	,,	40 44	68 47	68	20·0	18·14	32·77	26·33	
Minneapolis ...	,, 1	,,	41 18	55 38	70	21·1	19·75	35·68	28·67	
,, ...	,, 2	,,	40 58	64 07	67	19·4	18·90	34·14	27·44	
,, ...	,, 9	,,	40 14	66 28	65	18·3	18·80	33·96	27·29	
,, ...	,, 10	,,	40 23	57 56	74	23·3	19·99	36·11	29·02	
,, ...	,, 11	,,	40 36	50 06	71	21·7	19·88	35·91	28·86	
,, ...	,, 12	,,	42 51	42 10	65	18·3	19·80	35·77	28·75	
,, ...	,, 13	,,	45 38	34 31	59	15·0	19·79	35·75	28·73	
,, ...	,, 14	,,	47 59	26 02	60	15·6	19·77	35·71	28·70	
,, ...	,, 15	,,	49 17	17 09	61	16·1	19·62	35·44	28·48	
Port Antonio ...	,, 1	5.20 p.m.	50 43	6 23	60	15·6	19·59	35·39	28·44	
,, ...	,, 2	1.0 a.m.	50 00	9 00	60	15·6	19·57	35·35	28·41	Positions only approximate.
,, ...	,, 2	9.0 a.m.	49 30	11 10	58	14·4	20·05	36·22	29·11	
,, ...	,, 3	Noon	47 43	19 31	59	15·0	20·14	36·38	29·24	
,, ...	,, 4	,,	45 31	26 06	60	15·6	20·01	36·15	29·05	
,, ...	,, 5	,,	42 59	32 23	60	15·6	20·37	36·80	29·58	
,, ...	,, 6	,,	40 20	37 52	68	20·0	19·51	35·25	28·32	
,, ...	,, 7	,,	37 34	43 09	71	21·7	20·52	37·07	29·79	
,, ...	,, 8	,,	34 35	48 41	73	22·8	20·89	37·74	30·33	
,, ...	,, 9	,,	31 48	53 52	78	25·6	21·27	38·42	30·89	
,, ...	,, 10	,,	29 00	59 00	81	27·2	20·99	37·92	30·48	
,, ...	,, 11	,,	26 11	63 50	81	27·2	20·58	37·18	29·88	
,, ...	,, 12	,,	23 13	68 32	82	27·8	20·70	37·39	30·06	
,, ...	,, 21	,,	20 47	74 00	82	28·3	20·23	36·55	29·37	
,, ...	,, 22	,,	24 14	70 25	86	27·8	21·02	37·97	30·52	
,, ...	,, 23	,,	28 15	66 42	82½	28·1	20·32	36·71	29·50	
,, ...	,, 24	,,	32 36	63 32	80	26·7	20·56	37·14	29·85	
,, ...	,, 25	,,	36 06	58 50	80	26·7	20·32	36·71	29·50	
,, ...	,, 26	,,	39 16	53 43	79	26·1	20·16	36·42	29·27	
,, ...	,, 28	,,	44 09	41 31	62	16·7	19·59	35·39	28·44	
,, ...	,, 29	,,	46 26	35 19	61½	16·1	19·88	35·91	28·86	
,, ...	,, 30	,,	48 25	28 33	59	15·0	19·89	35·93	28·88	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks
	1905.		° N. ′	° W. ′						
Port Antonio ...	July 31	Noon	49 48	21 12	59½	15·3	19·66	35·52	28·54	
Port Kingston ...	„ 7	„	21 20	73 28	83	28·3	20·07	36·26	29·14	
„ ...	„ 8	„	26 00	68 35	82	27·8	20·05	36·22	29·11	
„ ...	„ 9	„	30 37	63 22	79·5	26·4	19·98	36·09	29·01	
„ ...	„ 10	„	34 54	57 43	79·5	26·4	20·26	36·60	29·42	
„ ...	„ 11	„	38 45	51 30	79	26·1	20·15	36·40	29·26	
„ ...	„ 12	„	42 40	44 30	66	18·9	20·13	36·36	29·23	
„ ...	„ 13	„	46 30	36 23	62	16·7	19·91	35·97	28·91	
„ ...	„ 14	„	48 04	27 38	63	17·2	19·71	35·61	28·62	
„ ...	„ 15	„	49 59	18 02	60	15·6	19·66	35·52	28·54	
„ ...	„ 16	„	51 16	8 32	62	16·7	19·33	34·92	28·06	
„ ...	„ 16	5.30 p.m.	51 11	6 12	—	—	19·32	34·90	28·05	
„ ...	„ 29	2.0 p.m.	51 00	6 20	64	17·8	19·70	35·59	28·60	
„ ...	„ 30	2.0 a.m.	50 45	11 40	63	17·2	19·68	35·55	28·57	Position probably inaccurate.
„ ...	„ 30	Noon	48 29	13 46	64	17·8	19·77	35·71	28·70	
„ ...	„ 31	„	45 36	22 38	64	17·8	19·85	35·86	28·82	
Atrato	„ 31	„	19 14	54 31	81	27·2	19·35	34·96	28·09	
Moravian	„ 6	3.30 a.m.	48 45	5 25	60	15·6	19·63	35·46	28·50	
„	„ 6	Noon	47 08	6 49	62	16·7	19·75	35·68	28·67	
„	„ 6	8.30 p.m.	45 47	7 58	62	16·7	19·74	35·66	28·66	
„	„ 7	Noon	42 47	10 12	64	17·8	19·85	35·86	28·82	
„	„ 8	„	38 16	12 10	69	20·6	20·07	36·26	29·14	
„	„ 9	„	33 35	13 50	69	20·6	20·17	36·44	29·29	
„	„ 10	„	28 55	15 55	71	21·7	20·35	36·76	29·55	
„	„ 11	„	24 51	17 00	69	20·6	20·26	36·60	29·42	
„	„ 12	„	20 02	17 50	70	21·1	19·78	35·73	28·72	
Kildonan Castle ...	„ 3	„	28 06	17 02	71	21·7	20·32	36·71	29·50	
„ ...	„ 4	„	Funchal Bay, Madeira.		71	21·7	20·31	36·69	29·49	
„ ...	„ 5	„	37 38	13 23	66	18·9	20·22	36·53	29·36	
„ ...	„ 6	„	42 43	9 46	63	17·2	19·85	35·86	28·82	
„ ...	„ 6	6.40 p.m.	44 12	8 35	62	16·7	19·88	35·91	28·86	
„ ...	„ 7	1.15 a.m.	45 41	7 30	65	18·3	19·80	35·77	28·75	
„ ...	„ 7	7.45 a.m.	47 06	6 26	59	15·0	19·81	35·79	28·76	
„ ...	„ 7	?	48 29	5 17	62	16·7	19·67	35·53	28·56	
„ ...	„ 23	8.30 a.m.	Off Ushant.		66	18·9	19·62	35·44	28·48	
„ ...	„ 23	3.15 p.m.	47 03	6 43	67	19·4	19·75	35·68	28·67	
„ ...	„ 23	9.0 p.m.	45 35	7 58	67	19·4	19·77	35·71	28·70	
„ ...	„ 24	3.15 a.m.	44 08	9 10	70	21·1	19·73	35·64	28·64	
„ ...	„ 25	Noon	36 32	14 00	68	20·0	20·06	36·24	29·12	
„ ...	„ 26	„	Funchal Anchorage.		73	22·8	20·23	36·55	29·37	
„ ...	„ 27	„	26 13	17 31	72	22·2	20·36	36·78	29·56	
„ ...	„ 28	„	19 41	17 39	68	20·0	19·90	35·95	28·98	
Braemar Castle ...	„ 28	8.0 p.m.	21 01	17 26	65	18·3	20·10	36·31	29·18	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Braemar Castle ...	July 29	8.0 a.m.	22 48	17 08	66	18·9	20·32	36·71	29·50	
,, ...	,, 29	8.0 p.m.	24 19	16 51	69	20·6	20·91	37·77	30·36	
,, ...	,, 30	8.0 a.m.	26 00	16 23	70	21·1	20·46	36·96	29·71	
,, ...	,, 30	8.0 p.m.	27 49	16 41	70	21·1	20·76	37·50	30·14	
,, ...	,, 31	,,	Teneriffe Anchorage.		70	21·1	20·42	36·89	29·65	
Egypt	,, 13	Noon	42 13	9 38	65	18·3	19·78	35·73	28·72	
,, ...	,, 13	10.0 p.m.	44 00	8 50	65	18·3	19·77	35·71	28·70	
,, ...	,, 14	2.0 p.m.	47 00	7 00	63	17·2	19·76	35·70	28·69	
,, ...	,, 14	10.0 p.m.	48 28	5 15	64	17·8	19·61	35·43	28·47	
,, ...	,, 29	6.0 p.m.	Off Ushant.		65	18·3	19·60	35·41	28·46	
,, ...	,, 30	2.0 a.m.	47 04	6 30	67	19·4	19·79	35·75	28·73	
,, ...	,, 30	Noon	44 21	8 26	69	20·6	19·79	35·75	28·73	
,, ...	,, 31	8.0 a.m.	39 40	9 30	66	18·9	19·74	35·66	28·66	
,, ...	,, 31	4.0 p.m.	38 01	9 12	69	20·6	19·95	36·04	28·96	
,, ...	,, 31	Midnight	36 30	7 55	68	20·0	19·97	36·08	28·99	
Morning	Aug. 7	Noon	72 10	74 30	37	2·8	16·05	29·00	23·30	
,, ...	,, 10	8.0 p.m.	72 20	78 20	42·5	5·8	14·2	25·6	20·6	
,, ...	,, 17	Noon	Monument, Ponds Inlet.		39	3·9	15·63	28·24	22·69	
,, ...	,, 18	1.0 p.m.	Monument, Ponds Inlet.		39·5	4·2	15·45	27·92	22·43	
,, ...	,, 23	2.0 p.m.	Coutts Inlet.		37	2·8	16·56	29·92	24·04	
,, ...	,, 26	4.0 p.m.	Round Island, Coutts Inlet.		38·5	3·6	16·85	30·44	24·46	
Numidian... ...	,, 4	2.0 p.m.	55 30	7 40	60	15·6	19·43	35·10	28·21	
,, ...	,, 4	10.0 p.m.	55 26	10 35	56	13·3	19·58	35·37	28·43	
,, ...	,, 5	6.0 a.m.	55 20	13 35	54	12·2	19·60	35·41	28·46	
,, ...	,, 6	Noon	54 32	24 40	54	12·2	19·44	35·12	28·22	
,, ...	,, 7	,,	53 15	33 15	59	15·0	19·37	34·99	28·12	
,, ...	,, 8	,,	51 05	41 10	56	13·3	19·27	34·81	27·98	
,, ...	,, 9	,,	48 30	48 06	51	10·6	18·37	33·19	26·67	
,, ...	,, 10	,,	45 49	53 40	53	11·7	17·86	32·27	25·93	
,, ...	,, 11	,,	43 16	59 40	62	16·7	17·80	32·16	25·84	
,, ...	,, 12	,,	41 00	65 55	65	18·3	18·77	33·91	27·25	
,, ...	,, 18	,,	40 52	68 20	57	13·9	18·16	32·81	26·36	
,, ...	,, 19	,,	42 29	62 25	61	16·1	17·96	32·45	26·07	
,, ...	,, 20	,,	44 42	56 30	65	18·3	17·54	31·69	25·46	
,, ...	,, 21	,,	47 18	50 30	54	12·2	18·01	32·54	26·14	
,, ...	,, 22	,,	49 51	44 18	56	13·3	19·15	34·60	27·80	
,, ...	,, 23	,,	52 10	37 17	53	11·7	19·31	34·88	28·03	
,, ...	,, 24	,,	54 00	30 07	54	12·2	19·42	35·08	28·19	
,, ...	,, 25	,,	55 05	21 35	53	11·7	19·59	35·39	28·44	
,, ...	,, 26	11.0 a.m.	55 24	13 35	57	13·9	19·57	35·35	28·41	
,, ...	,, 26	7.30 p.m.	55 27	10 35	57	13·9	19·62	35·44	28·48	
,, ...	,, 27	2.48 a.m.	55 30	7 40	56	13·3	19·57	35·35	28·41	
Astoria	,, 6	Noon	40 40	67 50	63	17·2	18·20	32·88	26·42	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		°N. ′	°W. ′						
Astoria	Aug. 7	Noon	42 30	61 30	62	16·7	17·81	32·18	25·85	
,, ...	,, 8	,,	45 14	55 27	59	15·0	17·63	31·85	25·59	
,, ...	,, 9	,,	48 07	49 12	50	10·0	17·93	32·39	26·03	
,, ...	,, 10	,,	50 44	42 00	57	13·9	19·07	34·45	27·68	Current S.E. 12 miles in 24 hours.
,, ...	,, 11	,,	52 45	34 30	56	13·3	19·23	34·74	27·92	No current observed.
,, ...	,, 11	8.0 p.m.	53 22	31 40	53	11·7	19·26	34·79	27·96	
,, ...	,, 12	4.0 a.m.	53 54	28 45	55	12·8	19·38	35·01	28·14	
,, ...	,, 12	Noon	54 25	25 50	56	13·3	19·49	35·21	28·30	Current N.E. 12 miles in 24 miles.
,, ...	,, 12	8.0 p.m.	54 35	22 44	59	15·0	19·48	35·19	28·28	
,, ...	,, 13	4.0 a.m.	54 50	19 35	60	15·6	19·50	35·23	28·31	
,, ...	,, 13	Noon	55 00	16 30	60	15·6	19·56	35·34	28·40	
,, ...	,, 14	10.15 a.m.	55 18	8 15	61	16·1	19·44	35·12	28·22	
,, ...	,, 14	1.0 p.m.	55 24	7 16	60	15·6	19·46	35·16	28·25	
,, ...	,, 14	5.30 p.m.	55 18	6 00	—	—	18·98	34·29	27·55	
,, ...	,, 20	1.0 a.m.	55 27	8 22	60	15·6	19·64	35·48	28·51	
,, ...	,, 20	8.0 a.m.	55 20	11 10	59	15·0	19·60	35·41	28·46	
,, ...	,, 20	4.0 p.m.	55 15	14 05	59	15·0	19·67	35·53	28·56	
,, ...	,, 20	Midnight	55 05	17 00	57	13·9	19·63	35·46	28·50	
,, ...	,, 21	8.0 a.m.	54 50	19 46	58	14·4	19·64	35·48	28·51	
,, ...	,, 21	4.0 p.m.	54 27	22 39	57	13·9	19·61	35·43	28·47	No current observed
,, ...	,, 21	Midnight	54 06	25 38	56	13·3	19·58	35·37	28·43	
,, ...	,, 22	8.0 a.m.	53 50	28 27	54	12·2	19·35	34·96	28·09	
,, ...	,, 22	4.0 p.m.	53 17	31 00	56	13·3	19·24	34·76	27·93	
,, ...	,, 22	Midnight	52 53	33 00	55	12·8	19·39	35·03	28·15	
,, ...	,, 23	8.0 a.m.	52 24	35 10	54	12·2	19·25	34·78	27·95	No current observed.
,, ...	,, 23	Midnight	51 10	40 00	56	13·3	19·25	34·78	27·95	
,, ...	,, 24	Noon	50 06	44 00	58	14·4	19·05	34·42	27·65	
,, ...	,, 25	,,	46 50	51 20	58	14·4	17·93	32·39	26·03	Current S.W. 24 miles in 48 hours
,, ...	,, 26	,,	44 00	57 50	66	18·9	17·28	31·22	25·08	Current S.W. 12 miles in 24 hours.
,, ...	,, 27	,,	41 30	65 00	68	20·0	18·59	33·58	26·99	Current S.W. 12 miles in 24 hours
,, ...	,, 28	,,	40 31	72 00	66	18·9	18·02	32·56	26·16	Current W.S.W. 15 miles in 24 hours.
Minneapolis ...	,, 21	11.0 p.m.	50 10	9 05	61	16·1	19·76	35·70	28·69	
,, ...	,, 22	5.0 a.m.	49 48	11 37	54	14·4	19·67	35·53	28·56	
,, ...	,, 22	1.0 p.m.	50 25	14 07	60	15·6	19·67	35·53	28·56	
,, ...	,, 23	Noon	50 29	23 28	57	13·9	19·44	35·12	28·22	
,, ...	,, 24	,,	49 45	32 29	57	13·9	19·73	35·64	28·64	
,, ...	,, 25	,,	47 58	41 39	65	18·3	19·83	35·82	28·79	
,, ...	,, 26	,,	45 34	50 03	58	14·4	17·89	32·32	25·97	Long. 50° 34′ W.?
,, ...	,, 27	,,	43 22	58 30	66	18·9	17·58	31·76	25·52	
,, ...	,, 28	,,	41 08	67 08	57	13·9	17·99	32·50	26·11	
Port Kingston ...	,, 1	,,	42 52	31 00	68	20·0	19·88	35·91	28·86	
,, ...	,, 2	,,	40 05	38 45	75	23·9	20·15	36·40	29·26	
,, ...	,, 3	,,	36 21	45 48	78	25·6	20·12	36·35	29·21	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_t.	Remarks.
	1905.		° N. ′	° W. ′						
Port Kingston ...	Aug. 4	Noon	32 38	52 30	79	26·1	20·38	36·82	29·59	
„ ...	„ 5	„	29 00	59 06	80	26·7	20·32	36·71	29·50	
„ ...	„ 6	„	25 09	65 16	84	28·9	20·23	36·55	29·37	
„ ...	„ 18	„	21 19	73 29	85	29·4	20·21	36·51	29·34	
„ ...	„ 19	„	26 09	68 45	83	28·3	20·19	36·47	29·31	
„ ...	„ 20	„	30 33	63 22	81	27·2	20·19	36·47	29·31	
„ ...	„ 21	„	34 43	57 58	81	27·2	20·14	36·38	29·24	
„ ...	„ 22	„	39 04	51 35	80	26·7	19·98	36·09	29·01	
„ ...	„ 23	„	42 51	44 18	79	26·1	19·79	35·75	28·73	
„ ...	„ 24	„	45 54	36 24	64	17·8	19·59	35·39	28·44	
„ ...	„ 25	„	48 19	27 16	59	15·0	19·62	35·44	28·48	
„ ...	„ 26	„	50 22	18 08	59	15·0	19·65	35·50	28·53	
„ ...	„ 27	3.0 a.m.	51 10	11 50	—	—	19·64	35·48	28·51	
„ ...	„ 27	9.30 a.m.	51 20	8 53	59	15·0	19·37	34·99	28·12	
„ ...	„ 27	—	51 13	6 16	59	15·0	19·57	35·35	28·41	
Port Antonio ...	„ 1	Noon	50 52	13 36	60	15·6	20·08	36·27	29·15	
„ ...	„ 1	6.0 p.m.	51 12	11 40	60	15·6	19·98	36·09	29·01	
„ ...	„ 2	2.0 a.m.	51 10	9 00	60	15·6	19·48	35·19	28·28	
„ ...	„ 2	8.0 a.m.	51 20	7 40	61	16·1	19·86	35·88	28·83	Position approximate.
„ ...	„ 2	Noon	51 10	6 15	63	17·2	19·63	35·46	28·50	
„ ...	„ 12	5.0 p.m.	50 43	6 20	62	16·7	19·91	35·97	28·91	Positions approximate.
„ ...	„ 12	Midnight	50 00	9 00	62	16·7	20·20	36·49	29·33	
„ ...	„ 13	8.15 a.m.	49 26	11 18	62	16·7	20·10	36·31	29·18	
„ ...	„ 13	Noon	49 06	12 40	62	16·7	19·78	35·73	28·72	
„ ...	„ 14	„	47 00	19 43	61	16·1	19·81	35·79	28·76	
„ ...	„ 15	„	44 36	26 40	65	18·3	19·73	35·64	28·64	
„ ...	„ 16	„	41 57	32 30	68	20·0	19·55	35·32	28·38	
„ ...	„ 17	„	39 12	38 31	75	23·9	20·49	37·01	29·75	
„ ...	„ 18	„	36 24	44 10	79	26·1	20·27	36·62	29·43	
„ ...	„ 19	„	33 27	49 56	80	26·7	20·48	37·00	29·74	
„ ...	„ 20	„	30 37	55 06	81	27·5	20·81	37·59	30·22	
„ ...	„ 21	„	27 49	60 18	82	27·8	20·42	36·89	29·65	
„ ...	„ 22	„	24 58	65 05	83	28·3	20·14	36·38	29·24	
„ ...	„ 23	„	22 07	69 54	82·5	28·1	20·17	36·44	29·29	
Atrato	„ 1	„	23 19	50 31	80	26·7	20·77	37·52	30·16	
„	„ 2	„	27 31	46 25	79	26·1	20·69	37·38	30·04	
„	„ 3	„	31 32	41 53	78	25·6	20·45	36·94	29·69	
„	„ 4	„	35 27	37 06	79	26·1	20·50	37·03	29·77	
„	„ 5	„	38 54	31 51	76	24·4	20·05	36·22	29·11	
„	„ 6	„	41 36	25 33	69	20·6	19·93	36·00	28·94	
„	„ 7	„	44 08	18 59	64	17·8	19·81	35·79	28·76	
„	„ 8	„	46 48	12 07	63	17·2	19·72	35·62	28·63	...
„	„ 8	6.30 p.m.	47 30	10 00	62·5	16·9	19·76	35·70	28·69	...

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° N. ′	° W.						
Atrato	Aug. 9	1.0 a.m.	48 43	8 15	61·5	16·4	19·69	35·57	28·59	
„	„ 10	9.0 a.m.	Between Ushant and Scilly.		62	16·7	19·53	35·28	28·35	
Braemar Castle ...	„ 1	4.0 p.m.	Las Palmas Anchorage.		70	21·1	20·65	37·30	29·98	
„ ...	„ 2	8.0 a.m.	30 14	14 40	70	21·1	20·90	37·75	30·35	
„ ...	„ 2	8.0 p.m.	32 28	13 57	71	21·7	21·04	38·01	30·55	
„ ...	„ 3	8.0 a.m.	34 40	13 08	70	21.1	20·51	37·05	29·78	
„ ...	„ 3	8.0 p.m.	37 05	12 13	68	20·0	20·31	36·69	29·49	
„ ...	„ 4	Noon	39 47	11 04	68	20·0	20·08	36·27	29·15	
„ ...	„ 5	7.0 a.m.	Off Cape Finisterre.		66	18·9	20·12	36·35	29·21	
„ ...	„ 5	?	45 07	8 06	63	17·2	20·31	36·69	29·49	
„ ...	„ 6	?	47 03	6 40	60	15·6	19·89	35·93	28·88	
„ ...	„ 6	4.0 p.m.	Off Ushant.		58	14·4	19·65	35·50	28·53	
Morning	Sept. 3	Noon	Erik Point, Eglinton.		34·5	1·4	15·15	27·38	21·99	
„	„ 6	4.0 p.m.	Eglinton Harbour.		32·5	0·3	6·16	11·15	8·94	
„	„ 10	6.0 p.m.	Eglinton Harbour.		34·5	1·4	15·73	28·42	22·83	
„	„ 15	1.0 p.m.	Clyde River.		33	0·6	16·41	29·65	23·82	
„	„ 24	Noon	Kater Harbour.		32	0·0	16·36	29·56	23·75	
„	„ 27	1.0 p.m.	Cape Bison.		31	−0·6	16·44	29·70	23·86	
Numidian ...	„ 1	2.13 p.m.	55 24	7 40	59	15·0	19·54	35·30	28·37	
„ ...	„ 1	11.30 p.m.	55 22	10 35	58	14·4	19·52	35·26	28·34	
„ ...	„ 2	11.30 a.m.	55 16	13 35	57	13·9	19·54	35·30	28·37	
„ ...	„ 3	Noon	54 51	20 37	57	13·9	19·54	35·30	28·37	
„ ...	„ 5	„	53 38	28 30	54	12·2	19·48	35·19	28·28	
„ ...	„ 6	„	52 27	35 22	52	11·1	19·22	34·72	27·90	
„ ...	„ 7	„	50 48	42 30	53	11·7	19·20	34·69	27·87	
„ ...	„ 8	„	48 05	49 18	51	10·6	17·87	32·29	25·94	
„ ...	„ 9	„	44 57	55 30	53	11·7	17·38	31·40	25·23	
„ ...	„ 10	„	42 31	62 15	62	16·7	18·03	32·57	26·17	
„ ...	„ 11	„	40 43	69 05	60	15·6	18·16	32·81	26·36	
„ ...	„ 16	„	40 54	67 57	56	13·3	18·72	33·82	27·18	
„ ...	„ 17	„	42 40	61 45	61	16·1	17·87	32·29	25·94	
„ ...	„ 18	„	44 55	55 54	56	13·3	17·93	32·39	26·03	
„ ...	„ 19	„	47 50	49 45	52	11·1	17·87	32·29	25·94	
„ ...	„ 20	„	50 30	43 10	55	12·8	19·41	35·07	28·18	
„ ...	„ 21	„	52 34	36 00	51	10·6	19·30	34·87	28·02	
„ ...	„ 22	„	54 04	28 18	53	11·7	19·39	35·03	28·15	
„ ...	„ 23	„	54 55	19 58	55	12·8	19·57	35·35	28·41	
„ ...	„ 44	5.35 a.m.	55 19	13 35	53	11·7	19·59	35·39	28·44	
„ ...	„ 24	3.0 p.m.	55 27	10 35	55	12·8	19·59	35·39	28·44	
„ ...	„ 24	11.05 p.m.	55 24	7 40	55	12·8	19·55	35·32	28·38	
Astoria	„ 3	Noon	40 50	68 00	64	17·8	18·09	32·68	26·26	
„	„ 4	„	42 36	61 30	65	18·3	18·26	32·99	26·51	Current W. 12 miles in 24 hours.
„	„ 5	„	45 10	54 50	56	13·3	17·89	32·32	25·97	Current W.S.W. 12 miles in 24 hours.

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° ′ N.	° ′ W.						
Astoria	Sept. 6	Noon	48 15	48 40	47	8·3	18·20	32·88	26·42	Current S.W. 12 miles in 24 hours.
„	„ 7	„	50 50	41 30	58	14·4	19·32	34·90	28·05	Current S.E. 12 miles in 24 hours.
„	„ 8	„	52 50	33 40	54	12·2	19·30	34·87	28·02	No current observed.
„	„ 8	Midnight	53 34	29 30	54	12·2	19·30	34·87	28·02	
„	„ 9	Noon	54 15	25 30	57	13·9	19·41	35·07	28·18	Current W.S.W. 16 miles in 24 hours.
„	„ 9	Midnight	54 40	21 00	56	13·3	19·46	35·16	28·25	
„	„ 10	Noon	55 08	16 28	58	14·4	19·54	35·30	28·37	Current W. 12 miles in 24 hours.
„	„ 10	8.0 p.m.	55 10	13 18	58	14·4	19·58	35·37	28·43	
„	„ 10	Midnight	55 12	13 00	58	14·4	19·55	35·32	28·38	
„	„ 11	8.0 a.m.	55 17	8 50	58	14·4	19·58	35·37	28·43	Current W. 12 miles in 24 hours.
„	„ 17	1.0 a.m.	55 23	8 21	58	14·4	19·54	35·30	28·37	
„	„ 17	4.0 a.m.	55 22	9 25	58	14·4	19·63	35·46	28·50	
„	„ 17	8.0 a.m.	55 20	10 45	58	14·4	19·56	35·34	28·40	
„	„ 17	Noon	55 18	11 43	59	15·0	19·58	35·37	28·43	Current W. 8 miles since midnight.
„	„ 17	8.0 p.m.	55 09	15 43	56	13·3	19·56	35·34	28·40	
„	„ 18	4.0 a.m.	55 00	18 33	55	12·8	19·54	35·30	28·37	
„	„ 18	Noon	54 45	21 33	56	13·3	19·53	35·28	28·35	No current observed.
„	„ 18	8.0 p.m.	54 25	24 14	56	13·3	19·56	35·34	28·40	
„	„ 19	Noon	53 46	28 30	54	12·2	Lost			No current observed.
„	„ 19	Midnight	53 06	32 20	54	12·2	19·41	35·07	28·18	
„	„ 20	Noon	52 18	36 14	54	12·2	19·34	34·94	28·08	No current observed.
„	„ 20	Midnight	51 25	39 50	54	12·2	19·41	35·07	28·18	
„	„ 21	Noon	50 12	43 40	55	12·8	19·52	35·26	28·34	No current observed.
„	„ 22	„	47 26	50 59	56	13·3	17·85	32·25	25·91	
„	„ 23	„	44 19	57 10	58	14·4	17·41	31·46	25·27	No current observed.
„	„ 24	„	41 43	64 10	70	21·1	19·24	34·76	27·93	Current S.W. 24 miles in 48 hours.
„	„ 25	„	40 34	71 19	68	20·0	18·24	32·95	26·48	Current S.W. 12 miles in 24 hours.
Minneapolis ...	„ 3	„	41 05	65 55	65	18·3	18·65	33·69	27·07	
„ ...	„ 4	„	42 48	58 15	62	16·7	18·62	33·64	27·03	
„ ...	„ 5	„	44 49	50 35	58	14·4	17·85	32·25	25·91	
„ ...	„ 6	„	46 59	42 36	53	11·7	18·64	33·68	27·06	
„ ...	„ 7	„	48 46	34 28	57	13·9	19·50	35·23	28·31	
„ ...	„ 8	„	49 35	25 34	57	13·9	19·70	35·59	28·60	
„ ...	„ 9	„	49 49	16 13	59	15·0	19·68	35·55	28·57	
„ ...	„ 10	„	49 49	11 50	58	14·4	19·59	35·39	28·44	
Port Antonio ...	„ 1	„	20 23	74 01	83	28·3	20·17	36·44	29·29	
„ ...	„ 2	„	24 10	70 20	84·5	29·2	20·24	36·56	29·39	
„ ...	„ 3	„	28 11	66 33	83	28·3	20·05	36·22	29·11	
„ ...	„ 4	„	31 50	62 16	82·5	28·1	20·14	36·38	29·24	
„ ...	„ 5	„	35 09	59 48	79	26·1	20·07	36·26	29·14	
„ ...	„ 6	„	38 25	52 48	78	25·6	20·03	36·18	29·08	
„ ...	„ 7	„	41 19	46 53	67·5	19·7	18·34	33·13	26·62	
„ ...	„ 8	„	44 10	40 26	67·5	19·7	19·44	35·12	28·22	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Port Antonio ...	Sept. 9	Noon	46 39	33 46	60	15·6	19·62	35·44	28·48	
,, ...	,, 10	,,	48 49	26 45	58	14·4	19·66	35·52	28·54	
,, ...	,, 11	,,	50 11	19 25	56	13·3	19·69	35·57	28·59	
,, ...	,, 12	,,	51 21	11 25	59	15·0	19·70	35·59	28·60	
,, ...	,, 12	6.30 p.m.	51 21	8 57	56	13·3	19·33	34·92	28·06	
,, ...	,, 13	3.10 a.m.	51 15	6 20	57	13·9	19·44	35·12	28·22	
,, ...	,, 23	6.0 p.m.	50 42	6 21	57	13·9	19·56	35·34	28·40	
,, ...	,, 24	4.0 a.m.	49 45	9 20	59	15·0	19·64	35·48	28·51	
,, ...	,, 24	Noon	48 59	11 38	60	15·6	19·78	35·73	28·72	
,, ...	,, 25	,,	46 30	18 48	60	15·6	19·73	35·64	28·64	
,, ...	,, 26	,,	43 52	25 17	64	17·8	19·85	35·86	28·82	
,, ...	,, 27	,,	41 13	31 37	70	21·1	19·94	36·02	28·95	
,, ...	,, 28	,,	38 44	37 18	71	21·7	19·91	35·97	28·91	
,, ...	,, 29	,,	36 03	43 15	75	23·9	20·06	36·24	29·12	
,, ...	,, 30	,,	33 19	48 47	77	25·0	20·07	36·26	29·14	
Port Kingston ...	,, 10	0.30 a.m.	51 09	6 15	59	15·0	19·45	35·14	28·24	
,, ...	,, 10	7.0 a.m.	50 51	9 03	60	15·6	19·57	35·35	28·41	Position doubtful.
,, ...	,, 10	Noon	49 35	9 47	60	15·6	19·63	35·46	28·50	
,, ...	,, 10	6.0 p.m.	48 40	11 40	60	15·6	19·69	35·57	28·59	
,, ...	,, 11	Noon	46 28	17 52	61	16·1	19·72	35·62	28·63	
,, ...	,, 12	,,	43 08	26 09	64	17·8	19·81	35·79	28·76	
,, ...	,, 13	,,	40 02	33 50	74	23·3	20·17	36·44	29·29	
,, ...	,, 14	,,	38 15	41 58	76	24·4	19·96	36·06	28·98	
,, ...	,, 15	,,	36 22	49 44	78	25·6	19·76	35·70	28·69	
,, ...	,, 16	,,	34 57	57 54	79	26·1	20·05	36·22	29·11	
,, ...	,, 18	,,	27 02	68 03	83	28·3	20·23	36·55	29·37	
,, ...	,, 19	,,	21 08	71 21	84	28·9	20·32	36·71	29·50	
,, ...	,, 29	,,	21 12	73 37	84	28·9	20·40	36·85	29·62	
,, ...	,, 30	,,	25 51	69 00	81	27·2	20·54	37·10	29·82	
Kildonan Castle ...	,, 3	,,	22 16	17 37	70	21·1	20·11	36·33	29·20	
,, ...	,, 4	,,	27 49	17 02	74	23·3	20·27	36·62	29·43	
,, ...	,, 5	,,	Funchal Anchorage.		74	23·3	20·16	36·42	29·27	
,, ...	,, 6	,,	37 47	13 19	72	22·2	20·15	36·40	29·26	
,, ...	,, 7	,,	43 14	9 19	58	14·4	19·77	35·71	28·70	
,, ...	,, 7	3.20 p.m.	44 03	8 44	57	13·9	19·74	35·66	28·66	
,, ...	,, 7	10.05 p.m.	45 35	7 37	64	17·8	19·77	35·71	28·70	
,, ...	,, 8	4.50 a.m.	47 05	6 28	62	16·7	19·72	35·62	28·63	
,, ...	,, 8	Noon	Five miles off Ushant.		59	15·0	19·54	35·30	28·37	
,, ...	,, 24	7.50 a.m.	48 24	5 21	57	13·9	19·62	35·44	28·48	
,, ...	,, 24	1.30 p.m.	47 07	6 50	59	15·0	19·67	35·53	28·56	
,, ...	,, 24	7.0 p.m.	45 35	8 03	61	16·1	19·83	35·82	28·79	
,, ...	,, 25	0.30 a.m.	44 04	9 19	61	16·1	19·83	35·82	28·79	
,, ...	,, 25	Noon	42 05	10 38	63	17·2	19·83	35·82	28·79	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Kildonan Castle ...	Sept. 26	Noon	36 37	14 17	68	20·0	20·20	36·49	29·33	
„ ...	„ 27	„	32 38	16 54	73	22·8	20·46	36·96	29·71	
„ ...	„ 28	„	26 28	17 31	75	23·9	20·43	36·91	29·66	
„ ...	„ 29	„	20 06	17 46	78	25·6	19·93	36·00	28·94	
Egypt	„ 20	Midnight	37 30	9 09	62	16·7	19·94	36·02	28·95	
„	„ 21	Noon	40 23	9 36	65	18·3	19·94	36·02	28·95	
„	„ 21	Midnight	43 14	9 26	57	13·9	19·76	35·70	28·69	
„	„ 22	Noon	45 52	7 26	62	16·7	19·75	35·68	28·67	
„	„ 22	Midnight	Off Ushant.		61	16·1	19·56	35·34	28·40	
Macedonia ...	„ 27	8.0 p.m.	36 30	7 34	69	20·6	20·39	36·83	29·61	
„ ...	„ 28	4.0 a.m.	37 31	9 11	61	16·1	19·94	36·02	28·95	
„ ...	„ 28	Noon	39 30	9 27	61	16·1	19·95	36·04	28·96	
„ ...	„ 28	8.0 p.m.	41 24	9 26	59	15·0	19·78	35·73	28·72	
„ ...	„ 29	4.0 a.m.	43 14	9 26	61	16·1	19·74	35·66	28·66	
„ ...	„ 29	Noon	45 02	8 20	62·8	17·1	19·84	35·84	28·80	
„ ...	„ 29	4.0 p.m.	45 56	7 40	61	16·1	19·81	35·79	28·76	
„ ...	„ 29	8.0 p.m.	46 50	6 50	60	15·6	19·77	35·71	28·70	
„ ...	„ 29	Midnight	47 48	6 15	58·8	14·9	Lost			
„ ...	„ 30	4.0 a.m.	48 34	5 26	56	13·3	19·56	35·34	28·40	
„ ...	„ 30	8.0 a.m.	49 45	4 45	56·7	13·7	19·57	35·35	28·41	
Morning	Oct. 4	8.0 p.m.	Cape Dier.		30	—1·1	17·09	30·88	24·81	Much ice to S.E. and along the land.
„	„ 7	1.0 p.m.	62 14	56 30	39·5	4·2	18·95	34·23	27·51	
„	„ 14	4.0 p.m.	56 45	46 00	43·7	6·5	19·15	34·60	27·80	
„	„ 16	Noon	57 29	40 00	45·5	7·5	19·18	34·65	27·84	
„	„ 18	„	58 10	37 50	47·2	8·4	19·20	34·69	27·87	
„	„ 19	„	58 52	35 50	46	7·8	19·19	34·67	27·86	
„	„ 21	„	59 53	33 47	46·3	7·9	19·26	34·79	27·96	
„	„ 22	„	60 08	32 37	46·5	8·1	19·23	34·74	27·92	
„	„ 24	„	61 28	26 22	48·5	9·2	19·43	35·10	28·21	
„	„ 27	4.0 p.m.	60 12	13 05	49·5	9·7	19·54	35·30	28·37	
Astoria	„ 1	Noon	41 00	67 00	59	15·0	18·11	32·72	26·29	
„	„ 2	„	43 17	60 05	60	15·6	19·63	35·46	28·50	Current W.S.W. 12 miles in 24 hours.
„	„ 3	„	45 45	54 23	54	12·2	19·73	35·64	28·64	Current W.S.W. 24 miles in 24 hours.
„	„ 4	„	48 30	48 20	54	12·2	18·64	33·68	27·06	Current W.S.W. 12 miles in 24 hours.
„	„ 5	„	50 56	41 00	62	16·7	19·00	34·33	27·58	
„	„ 6	„	53 40	29 48	56	13·3	19·37	34·99	28·12	No current observed.
„	„ 7	„	54 14	24 42	57	13·9	19·42	35·08	28·19	
„	„ 7	Midnight	54 44	20 12	56	13·3	19·58	35·37	28·43	
„	„ 8	Noon	55 14	15 46	58	14·4	19·56	35·34	28·40	
„	„ 8	8.0 p.m.	55 16	12 46	55	12·8	19·56	35·34	28·40	
„	„ 8	Midnight	55 17	11 27	57	13·9	19·55	35·32	28·38	
„	„ 9	4.0 a.m.	55 18	10 18	56	13·3	19·56	35·34	28·40	
Numidian ...	„ 2	Noon	53 15	33 02	54	12·2	19·21	34·70	27·89	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
Numidian ...	Oct. 3	Noon	51 15	40 22	54	12·2	19·13	34·56	27·77	
,, ...	,, 4	,,	48 33	47 00	49	9·4	18·53	33·48	26·90	
,, ...	,, 5	,,	45 55	53 20	54	12·2	17·65	31·89	25·62	
,, ...	,, 6	,,	43 19	59 25	56	13·3	17·59	31·78	25·53	
,, ...	,, 7	,,	41 23	64 45	54	12·2	18·29	33·04	26·55	
,, ...	,, 8	,,	40 28	72 50	63	17·2	17·67	31·92	25·65	
,, ...	,, 15	,,	42 07	68 30	57	13·9	18·09	32·68	26·26	
,, ...	,, 16	,,	44 01	57 45	54	12·2	17·94	32·41	26·04	
,, ...	,, 17	,,	46 28	52 23	54	12·2	17·76	32·09	25·78	
,, ...	,, 18	,,	48 55	46 47	47	8·3	19·00	34·33	27·58	
,, ...	,, 19	,,	50 56	41 50	57	13·9	19·05	34·42	27·65	
,, ...	,, 20	,,	53 11	35 20	52	11·1	19·21	34·70	27·89	
,, ...	,, 21	,,	54 29	28 10	53	11·7	19·41	35·07	28·18	
,, ...	,, 22	,,	55 04	21 46	54	12·2	19·61	35·43	28·47	
,, ...	,, 23	4.0 p.m.	55 26	13 35	54	12·2	19·62	35·44	28·48	
,, ...	,, 24	9.30 a.m.	Off Fanad Point.		53	11·7	19·67	35·53	28·56	
Port Antonio ...	,, 1	Noon	30 31	54 20	80	26·7	20·38	36·82	29·59	
,, ...	,, 2	,,	27 36	59 36	80	26·7	20·29	36·65	29·46	
,, ...	,, 3	,,	24 52	64 56	81	27·2	20·40	36·85	29·62	
,, ...	,, 4	,,	22 06	70 11	82	27·8	20·22	36·53	29·36	
,, ...	,, 13	,,	20 17	74 04	84	28·9	19·76	35·70	28·69	
,, ...	,, 14	,,	24 11	70 30	82	27·8	20·25	36·58	29·40	
,, ...	,, 15	,,	27 49	66 41	79	26·1	20·21	36·51	29·34	
,, ...	,, 16	,,	30 30	62 34	76	24·4	20·29	36·65	29·46	
,, ...	,, 17	,,	34 53	58 08	73½	23·1	20·10	36·31	29·18	
,, ...	,, 18	,,	38 09	53 00	72	22·2	20·22	36·53	29·36	
,, ...	,, 19	,,	40 50	47 28	63	17·2	18·96	34·25	27·52	
,, ...	,, 20	,,	43 36	41 36	65	18·3	20·00	36·13	29·04	
,, ...	,, 21	,,	45 55	35 10	60	15·6	19·72	35·62	28·63	
,, ...	,, 22	,,	47 46	28 54	60	15·6	19·77	35·71	28·70	
,, ...	,, 23	,,	49 35	22 22	59	15·0	19·97	36·08	28·99	
,, ...	,, 24	,,	50 42	15 26	56	13·3	19·71	35·61	28·62	
,, ...	,, 24	11.0 p.m.	51 07	11 42	54	12·2	Lost			
,, ...	,, 25	8.0 a.m.	51 22	9 00	52	11·1	19·44	35·12	28·22	
,, ...	,, 25	4.0 p.m.	51 02	6 21	53	11·7	20·00	36·13	29·04	
Port Kingston ...	,, 1	Noon	30 15	63 40	80	26·7	20·21	36·51	29·34	
,, ...	,, 4	,,	42 10	44 56	68	20·0	20·00	36·13	29·04	
,, ...	,, 5	,,	45 20	36 08	68	20·0	19·87	35·90	28·85	
,, ...	,, 6	,,	47 53	28 15	61	16·1	19·92	35·99	28·92	
,, ...	,, 7	,,	50 00	19 00	56	13·3	19·72	35·62	28·63	
,, ...	,, 8	5.0 a.m.	51 20	11 20	56	13·3	19·41	35·07	28·18	
,, ...	,, 8	Noon	51 25	9 05	56	13·3	19·43	35·10	28·21	
,, ...	,, 8	7.45 p.m.	51 13	6 17	56	13·3	19·62	35·44	28·48	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* ‰	*S.* ‰	σ_0	Remarks.
	1905.		° N. ′	° W. ′						
Port Kingston ...	Oct. 21	10.30 p.m.	50 37	6 16	55	12·8	19·68	35·55	28·57	
„ ...	„ 22	5.30 a.m.	49 53	8 52	56	13·3	19·65	35·50	28·53	
„ ...	„ 22	Noon	48 08	11 44	56	13·3	19·70	35·59	28·60	
„ ...	„ 23	„	46 36	20 38	61	16·1	19·78	35·73	28·72	
„ ...	„ 24	„	44 16	29 02	64	17·8	19·80	35·77	28·75	
„ ...	„ 25	„	41 36	37 10	68	20·0	19·91	35·97	28·91	
„ ...	„ 26	„	38 52	44 26	66	18·9	19·82	35·81	28·78	
„ ...	„ 27	„	36 14	52 14	72	22·2	20·53	37·09	29·81	
„ ...	„ 28	„	33 55	59 51	76	24·4	20·12	36·35	29·21	
„ ...	„ 30	„	27 05	67 42	80	26·7	20·08	36·27	29·15	
„ ...	„ 31	„	21 06	71 22	83	28·3	20·27	36·62	29·43	
Atrato	„ 15	10.50 a.m.	Off Ushant.		55¼	12·9	19·62	35·44	28·48	48° 30′ N. 5° 15′ W.?
„	„ 15	4.0 p.m.	47 30	7 20	56¾	13·7	19·72	35·62	28·63	
„	„ 15	11.0 p.m.	46 10	8 35	56½	13·6	19·75	35·68	28·67	
„	„ 16	Noon	45 20	11 56	59½	15·3	19·83	35·82	28·79	
„	„ 17	„	41 58	18 04	67	19·4	20·02	36·17	29·07	
„	„ 18	„	38 33	23 41	69	20·6	20·18	36·45	29·30	
„	„ 19	„	35 12	29 04	71¼	21·8	20·17	36·44	29·29	
„	„ 20	„	31 49	34 07	74	23·3	20·44	36·92	29·68	
„	„ 21	„	28 26	38 57	77	25·0	20·82	37·61	30·23	
„	„ 22	„	25 08	43 44	79	26·1	20·83	37·63	30·25	
„	„ 23	„	21 43	48 26	79½	26·4	20·62	37·25	29·94	
„	„ 24	„	18 37	52 41	80½	26·9	20·17	36·44	29·29	
„	„ 25	„	15 07	56 45	79	26·1	19·72	35·62	28·63	
„	„ 28	„	10 56	62 35	81	27·2	18·57	33·55	26·96	
„	„ 30	„	12 38	72 21	79¾	26·5	20·37	36·80	29·58	
„	„ 31	„	11 00	75 02	81½	27·5	19·78	35·73	28·72	
La Plata	„ 29	„	48 36	5 48	53·3	11·8	19·66	35·52	28·54	
„	„ 30	„	45 48	10 35	57·8	14·3	19·85	35·86	28·82	
„	„ 31	„	42 48	15 46	60·5	15·8	19·94	36·02	28·95	
Moravian	„ 25	„	23 14	17 01	73	22·8	20·16	36·42	29·27	
„	„ 25	Midnight	25 02	16 40	72	22·2	20·37	36·80	29·58	
„	„ 26	8.0 a.m.	26 41	16 19	72	22·2	20·42	36·89	29·65	
„	„ 26	Noon	27 15	16 19	71	21·7	20·40	36·85	29·62	
„	„ 27	8.0 p.m.	29 10	15 50	70	21·1	20·39	36·83	29·61	
„	„ 28	4.0 a.m.	30 20	15 25	68	20·0	20·51	37·05	29·78	
„	„ 28	Noon	31 45	14 55	70	21·1	20·39	36·83	29·61	
„	„ 28	8.0 p.m.	33 14	14 20	68	20·0	20·39	36·83	29·61	
„	„ 29	4.0 a.m.	34 24	13 45	68	20·0	20·34	36·74	29·53	
„	„ 29	Noon	35 46	13 18	67	19·4	20·26	36·60	29·42	
„	„ 29	8.0 p.m.	37 04	12 42	65	18·3	20·25	36·58	29·40	
„	„ 30	4.0 a.m.	38 31	12 03	64	17·8	20·03	36·18	29·08	
„	„ 30	Noon	40 01	11 35	63	17·2	19·90	35·95	28·89	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Moravian	Oct. 30	8.0 p.m.	41 24	10 50	59	15·0	19·88	35·91	28·86	
„	„ 31	4.0 a.m.	42 32	10 24	60	15·6	19·88	35·91	28·86	
„	„ 31	Noon	43 59	9 16	58	14·4	19·81	35·79	28·76	
„	„ 31	8.0 p.m.	45 09	8 15	55	12·8	19·52	35·26	28·34	
Macedonia ...	„ 14	4.0 p.m.	48 37	5 10	55	12·8	19·64	35·48	28·51	
„ ...	„ 14	8.0 p.m.	47 46	5 52	56	13·3	19·93	36·00	28·94	
„ ...	„ 14	Midnight	46 56	6 35	57·5	14·2	19·98	36·09	29·01	
„ ...	„ 15	4.0 a.m.	46 03	7 16	58	14·4	19·86	35·88	28·83	
„ ...	„ 15	8.0 a.m.	45 15	8 00	59·5	15·3	19·86	35·88	28·83	
„ ...	„ 15	Noon	44 20	8 45	59	15·0	19·87	35·90	28·85	
„ ...	„ 15	4.0 p.m.	43 25	9 23	57	13·9	19·82	35·81	28·78	
„ ...	„ 15	8.0 p.m.	42 28	9 25	60·5	15·8	19·90	35·95	28·89	
„ ...	„ 15	Midnight	41 30	9 25	61·8	16·6	19·94	36·02	28·95	
„ ...	„ 16	4.0 a.m.	40 29	9 25	63	17·2	19·93	36·00	28·94	
„ ...	„ 16	8.0 a.m.	39 30	9 35	60	15·6	19·88	35·91	28·86	
„ ...	„ 16	Noon	38 29	9 29	60·5	15·8	19·95	36·04	28·96	
„ ...	„ 16	4.0 p.m.	37 32	9 08	64	17·8	20·04	36·20	29·10	
„ ...	„ 16	8.0 p.m.	36 51	8 30	64·7	18·2	20·13	36·36	29·23	
„ ...	„ 16	Midnight	36 29	7 25	67·5	19·7	20·26	36·60	29·42	
„ ...	„ 17	4.0 a.m.	Trafalgar Light, N. 73° E. 12 miles.		66	18·9	20·21	36·51	29·34	
Egypt	„ 21	4.0 p.m.	49 00	5 25	53	11·7	19·57	35·35	28·41	
„	„ 21	8.0 p.m.	48 13	6 00	54	12·2	19·63	35·46	28·50	
„	„ 21	Midnight	47 13	6 45	55	12·8	19·64	35·48	28·51	
„	„ 22	4.0 a.m.	46 21	7 25	55	12·8	19·85	35·86	28·82	
„	„ 22	8.0 a.m.	45 33	7 59	59	15·0	19·83	35·82	28·79	
„	„ 22	Noon	44 39	8 37	60	15·6	19·78	35·73	28·72	
„	„ 22	4.0 p.m.	43 44	9 09	57	13·9	19·77	35·71	28·70	
„	„ 22	8.0 p.m.	42 53	9 30	56·5	13·6	19·80	35·77	28·75	
„	„ 22	Midnight	41 57	9 34	61	16·1	19·88	35·91	28·86	
„	„ 23	4.0 a.m.	41 00	9 40	61	16·1	19·92	35·99	28·92	
„	„ 23	8.0 a.m.	40 05	9 38	61	16·1	19·93	36·00	28·94	
„	„ 23	Noon	38 29	9 37	60	15·6	19·87	35·90	28·85	
„	„ 23	4.0 p.m.	38 47	9 34	60	15·6	19·94	36·02	28·95	
„	„ 23	8.0 p.m.	37 32	9 15	61	16·1	20·21	36·51	29·34	
„	„ 23	Midnight	36 52	8 43	65	18·3	20·06	36·24	29·12	
„	„ 24	4.0 a.m	36 30	7 36	65	18·3	20·21	36·51	29·34	
„	„ 24	8.0 a.m.	36 06	6 32	65	18·3	20·21	36·51	29·34	
Numidian ...	Nov. 3	8.20 a.m.	Off Fanad Point.		52	11·1	19·70	35·59	28·60	
„ ...	„ 3	4.30 p.m.	55 52	10 35	52	11·1	19·55	35·32	28·38	
„ ...	„ 4	1.0 a.m.	56 13	13 35	52	11·1	19·45	35·14	28·24	
„ ...	„ 4	Noon	56 20	17 31	50	10·0	19·56	35·24	28·40	
„ ...	„ 5	„	56 22	26 00	52	11·1	19·56	35·24	28·40	
„ ...	„ 6	„	55 58	34 25	47	8·3	19·26	34·79	27·96	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		°N. ′	°W. ′						
Numidian ...	Nov. 7	Noon	54 31	43 00	45	7·2	19·19	34·67	27·86	
„ ...	„ 8	„	52 53	50 50	46	7·8	19·14	34·58	27·79	
„ ...	„ 9	„	50 36	58 06	39	3·9	17·49	31·60	25·39	
„ ...	„ 10	„	49 18	65 19	37	2·8	17·00	30·72	24·68	
„ ...	„ 27	„	46 43	52 05	46	7·8	17·67	31·92	25·65	
„ ...	„ 28	„	49 32	46 25	44	6·7	18·99	34·31	27·57	
„ ...	„ 29	„	50 26	40 41	54	12·2	19·70	35·59	28·60	
„ ...	„ 30	„	51 25	34 52	53	11·7	19·63	35·46	28·50	
Astoria	„ 12	1.0 p.m.	55 25	7 15	52	11·1	19·56	35·34	28·40	
„	„ 12	8.0 p.m.	55 22	9 55	54	12·2	19·56	35·34	28·40	
„	„ 13	4.0 a.m.	55 18	14 05	53	11·7	19·58	35·37	28·43	
„	„ 13	Noon	55 18	15 47	52	11·1	19·57	35·35	28·41	
„	„ 13	8.0 p.m.	55 07	17 55	54	12·2	19·55	35·32	28·38	
„	„ 14	4.0 a.m.	54 50	20 40	52	11·1	19·64	35·48	28·51	
„	„ 14	Noon	54 50	23 00	52	11·1	19·30	34·87	28·02	
„	„ 14	8.0 p.m.	54 15	26 00	53	11·7	19·63	35·46	28·50	
„	„ 15	4.0 a.m.	53 30	28 35	52	11·1	19·56	35·34	28·40	
„	„ 15	Noon	53 30	31 29	50	10·0	19·33	34·92	28·06	
„	„ 15	Midnight	52 20	35 40	51	10·6	19·36	34·97	28·11	
„	„ 16	Noon	51 27	40 06	51	10·6	19·35	34·96	28·09	
„	„ 16	Midnight	50 35	42 40	55	12·8	19·59	35·39	28·44	10.0 p.m. 60° F. (= 15·6 C.).
„	„ 17	Noon	49 35	45 07	52	11·1	18·85	34·05	27·36	
„	„ 18	„	47 04	51 54	44	6·7	17·88	32·30	25·95	
„	„ 19	„	45 16	55 00	44	6·7	18·01	32·54	26·14	Sample muddy.
„	„ 20	„	43 30	59 35	45	7·2	17·76	32·09	25·78	
„	„ 21	„	41 15	66 35	50	10·0	18·34	33·13	26·62	Current S.W. 12 miles in 24 hours.
„	„ 27	„	41 20	66 16	49	9·4	18·16	32·81	26·36	
„	„ 28	„	43 33	60 00	48	8·9	17·73	32·03	25·74	
„	„ 29	„	46 00	53 30	42	5·6	17·73	32·03	25·74	Current S.W. 12 miles in 24 hours.
„	„ 30	„	49 00	47 45	46	7·8	19·03	34·38	27·63	
Minneapolis ...	„ 17	4.0 p.m.	49 51	6 45	52	11·1	19·63	35·46	28·50	
„ ...	„ 17	8.0 p.m.	49 59	7 59	49	9·4	19·72	35·62	28·63	
„ ...	„ 17	Midnight	50 06	9 32	51	10·6	19·50	35·23	28·31	
„ ...	„ 18	4.0 a.m.	50 13	11 21	51	10·6	19·73	35·64	28·64	
„ ...	„ 18	Noon	50 15	15 13	52	11·1	19·74	35·66	28·66	
„ ...	„ 19	„	50 10	25 11	53	11·7	19·49	35·21	28·30	
„ ...	„ 20	„	49 20	33 57	51	10·6	19·54	35·30	28·37	
„ ...	„ 21	„	48 00	40 48	55	12·8	19·52	35·26	28·34	
„ ...	„ 22	„	46 08	48 42	40	4·4	18·02	32·56	26·16	
„ ...	„ 23	„	43 59	56 20	46	7·8	18·40	33·24	26 71	
„ ...	„ 24	„	42 08	63 18	52	11·1	18·15	32·79	26·35	
„ ...	„ 25	„	40 45	69 14	54	12·2	18·06	32·63	26·22	
Port Antonio ..	„ 4	8.0 p.m.	50 30	6 20	54	12·2	19·59	35·39	28·44	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
	1905.		° N. ′	° W. ′						
Port Antonio ...	Nov. 5	4.0 a.m.	50 00	9 20	53	11·7	19·69	35·57	28·59	...
,, ...	,, 5	Noon	48 54	11 18	55	12·8	19·84	35·84	28·80	...
,, ...	,, 6	,,	46 16	18 10	57	13·9	19·94	36·02	28·95	...
,, ...	,, 6	8.0 p.m.	45 30	20 30	57	13·9	19·89	35·93	28·88	...
,, ...	,, 7	Noon	43 40	24 45	59	15·0	19·97	36·08	28·99	...
,, ...	,, 8	,,	40 58	30 47	66	18·9	20·08	36·27	29·15	...
,, ...	,, 9	,,	38 23	36 30	70	21·1	20·27	36·62	29·43	...
,, ...	,, 10	,,	35 48	41 55	71	21·7	20·20	36·49	29·33	...
,, ...	,, 11	,,	33 11	47 18	75	23·9	20·31	36·69	29·49	...
,, ...	,, 13	,,	28 10	57 50	76	24·4	19·08	34·47	27·70	...
,, ...	,, 14	,,	25 38	63 04	79	26·1	20·14	36·39	29·25	...
,, ...	,, 15	,,	22 55	68 12	80	26·7	20·47	36·98	29·72	...
,, ...	,, 16	,,	20 15	72 42	81	27·2	20·32	36·71	29·50	...
,, ...	,, 24	,,	20 25	74 00	82	27·8	20·18	36·45	29·30	...
,, ...	,, 25	,,	24 00	70 28	79	26·1	20·08	36·27	29·15	...
,, ...	,, 26	,,	27 41	66 48	76½	24·7	20·37	36·80	29·58	...
,, ...	,, 27	,,	30 25	62 22	73	22·8	20·15	36·40	29·26	...
,, ...	,, 28	,,	34 42	57 54	71	21·7	20·44	36·92	29·68	...
,, ...	,, 29	,,	38 00	53 26	—	—	20·21	36·51	29·34	...
,, ...	,, 30	,,	41 00	47 15	49	9·4	18·50	33·42	26·86	...
Port Kingston ...	,, 10	,,	21 11	73 37	83	28·3	20·20	36·49	29·33	...
,, ...	,, 11	,,	25 55	68 54	81	27·2	20·09	36·29	29·17	...
,, ...	,, 12	,,	30 27	63 41	76	24·4	20·20	36·49	29·33	...
,, ...	,, 13	,,	34 48	58 00	72	22·2	20·13	36·36	29·23	...
,, ...	,, 14	,,	38 52	51 28	72	22·2	20·25	36·58	29·40	...
,, ...	,, 15	,,	42 29	44 00	68	20·0	19·93	36·00	28·94	...
,, ...	,, 16	,,	45 19	37 09	61	16·1	19·93	36·00	28·94	...
,, ...	,, 17	,,	48 06	28 40	56	13·3	19·86	35·88	28·83	...
,, ...	,, 18	,,	49 59	18 58	54	12·2	19·81	35·79	28·76	...
,, ...	,, 19	,,	51 09	8 47	51	10·6	19·57	35·53	28·41	...
La Plata	,, 1	,,	39 18	20 00	64	17·8	20·13	36·36	29·23	...
,, ...	,, 2	,,	35 41	25 05	68·5	20·3	20·10	36·31	29·18	...
,, ...	,, 3	,,	32 07	30 38	74	23·3	20·50	37·03	29·77	...
,, ...	,, 4	,,	28 40	36 05	75	23·9	20·82	37·61	30·23	...
,, ...	,, 5	,,	25 17	41 13	77	25·0	20·95	37·84	30·42	...
,, ...	,, 6	,,	21 57	46 23	78	25·6	20·61	37·23	29·93	...
,, ...	,, 7	,,	18 42	51 20	80·7	27·1	20·16	36·42	29·27	...
,, ...	,, 8	,,	15 27	56 29	82	27·8	19·71	35·61	28·62	...
,, ...	,, 11	,,	11 07	62 49	80·7	27·1	19·49	35·21	28·30	...
,, ...	,, 13	,,	12 37	71 28	82	27·8	20·34	36·74	29·53	...
,, ...	,, 15	,,	10 48	75 52	82·5	28·1	19·89	35·93	28·88	...
,, ...	,, 18	,,	14 20	77 36	82	27·8	19·90	35·95	28·89	...
,, ...	,, 21	,,	25 31	74 21	78·5	25·8	20·26	36·60	29·42	...

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
La Plata	Nov. 22	Noon	30 23	73 55	73·5	23·1	20·42	36·89	29·65	
„	„ 23	„	35 21	74 23	75	23·9	20·18	36·45	29·30	
„	„ 27	„	35 10	74 22	77	25·0	20·13	36·36	29·23	
„	„ 28	„	29 42	74 19	73·7	23·2	20·37	36·80	29·58	
„	„ 29	„	24 32	74 01	80	26·7	20·31	36·69	29·49	
„	„ 30	„	19 30	74 36	82	27·8	19·93	36·00	28·94	
Atrato	„ 3	„	13 44	77 58	81	27·2	19·75	35·68	28·67	
„	„ 5	„	20 23	74 06	81½	27·5	20·13	36·36	29·23	
„	„ 6	„	26 07	74 15	78	25·6	20·26	36·60	29·42	
„	„ 7	„	31 55	73 56	76	24·4	20·14	36·38	29·24	
„	„ 8	4.0 a.m.	36 13	74 00	65½	18·6	19·55	35·32	28·38	
„	„ 8	Noon	37 34	73 29	62½	16·9	19·91	35·97	28·91	
„	„ 12	„	36 17	74 00	61	16·1	18·50	33·42	26·86	
„	„ 13	„	30 46	74 15	73	22·8	20·27	36·62	29·43	
„	„ 14	„	25 11	74 20	79½	26·4	20·20	36·49	29·33	
„	„ 15	„	19 48	74 25	82	27·8	19·92	35·99	28·92	
„	„ 17	„	14 08	77 57	83	28·3	19·75	35·68	28·67	
„	„ 22	„	12 13	73 06	82	27·8	20·02	36·17	29·07	
„	„ 23	„	11 13	68 01	80	26·7	20·17	36·44	29·29	
„	„ 24	„	10 41	66 50	79	26·1	20·30	36·67	29·47	
„	„ 25	„	10 51	62 00	79	26·1	20·22	36·53	29·36	
„	„ 28	„	17 01	56 48	79·8	26·6	19·81	35·79	28·76	
„	„ 29	„	12 13	53 13	78	25·6	20·08	36·27	29·15	
„	„ 30	„	21 17	49 53	78	25·6	20·67	37·34	30·01	
Moravian	„ 1	4.0 a.m.	46 34	7 19	51	10·6	19·80	35·77	28·75	
„	„ 1	8.0 a.m.	47 12	6 30	53	11·7	19·70	35·59	28·60	
„	„ 1	Noon	47 35	6 16	55	12·8	19·71	35·61	28·62	
„	„ 1	8.0 p.m.?	48 52	5 14	—	—	19·60	35·41	28·46	
„	„ 30	Noon	47 57	6 15	54	12·2	19·60	35·41	28·46	
„	„ 30	Midnight	45 43	8 02	65	12·8	19·78	35·73	28·72	
Kildonan Castle ...	„ 5	Noon	21 54	17 45	67	19·4	20·03	36·18	29·08	
„ ...	„ 6	„	27 54	17 54	72	22·2	20·46	36·96	29·71	
„ ...	„ 7	„	Anchorage, Madeira.		69	20·6	20·34	36·74	29·53	
„ ...	„ 8	„	37 49	13 19½	63	17·2	20·06	36·24	29·12	
„ ...	„ 9	„	43 16	9 24	58	14·4	19·88	35·91	28·86	
„ ...	„ 9	3.50 p.m.	44 07	8 45	56	13·3	19·80	35·77	28·75	
„ ...	„ 9	10.15 p.m.	45 33	7 41	57	13·9	19·80	35·77	28·75	
„ ...	„ 10	4.30 a.m.	47 00	5 28	57	13·9	19·75	35·68	28·67	
„ ...	„ 10	11.40 a.m.	48 26	5 12	55	12·8	19·58	35·37	28·43	
„ ...	„ 26	10.0 a.m.	48 20	5 35	53	11·7	20·43	36·91	29·66	Sample contained much sediment.
„ ...	„ 26	5.45 p.m.	47 07	6 51	53	11·7	19·66	35·52	28·54	
„ ...	„ 27	1.30 a.m.	45 40	8 03	55	12·8	19·74	35·66	28·66	
„ ...	„ 27	9.15 a.m.	44 13	9 17	55	12·8	19·77	35·71	28·70	Current E (true) 9 miles in 24 hours.

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_0.	Remarks.
					Fahr.	C.				
	1905.		°N. ′	°W. ′						
Kildonan Castle ...	Nov. 27	Noon	43 21	9 15	56	13·3	19·78	35·73	28·72	
,, ...	,, 28	,,	37 55	13 18	62	16·7	20·02	36·17	29·07	
,, ...	,, 29	,,	Funchal Bay.		67	19·4	20·21	36·51	29·34	
,, ...	,, 30	,,	27 37	17 05	69	20·6	20·41	36·87	29·63	
Numidian ...	Dec. 1	,,	53 36	29 22	51	10·6	19·28	34·83	27·99	
,, ...	,, 2	,,	54 58	21 55	51	10·6	19·53	35·28	28·35	
,, ...	,, 3	,,	55 23	13 39	51	10·6	19·53	35·28	28·35	
,, ...	,, 3	8.0 p.m.	55 23	10 35	50	10·0	19·53	35·28	28·35	
,, ...	,, 4	10.0 a.m.	Off Fanad Point.		49	9·4	19·44	35·12	28·22	
Astoria	,, 1	Noon	51 10	41 20	52	11·1	19·44	35·12	28·22	
,, ...	,, 2	,,	53 08	33 00	48	8·9	19·29	34·85	28·00	
,, ...	,, 3	,,	54 49	24 03	52	11·1	19·55	35·32	28·38	
,, ...	,, 3	Midnight	55 10	18 40	52	11·1	19·60	35·41	28·46	Current N.E. 12 miles in 24 hours.
,, ...	,, 4	Noon	55 22	15 07	52	11·1	19·70	35·59	28·60	
,, ...	,, 4	Midnight	55 26	10 40	52	11·1	19·59	35·39	28·44	Current S.W. 12 miles in 24 hours.
,, ...	,, 5	10.0 a.m.	55 28	7 15	52	11·1	19·53	35·28	28·35	
,, ...	,, 5	1.0 p.m.	55 17	5 48	52	11·1	18·95	34·23	27·51	
,, ...	,, 10	4.0 a.m.	55 24	8 50	51	10·6	19·70	35·59	28·60	
,, ...	,, 10	10.0 a.m.	55 22	10 50	51	10·6	19·65	35·50	28·53	
,, ...	,, 10	8.0 p.m.	55 16	13 05	51	10·6	19·69	35·57	28·59	
,, ...	,, 11	Noon	55 05	16 30	51	10·6	Lost			
,, ...	,, 11	Midnight	54 50	20 30	51	10·6	19·69	35·57	28·59	
,, ...	,, 12	Noon	54 23	25 14	51	10·6	19·53	35·28	28·35	
,, ...	,, 12	Midnight	53 40	29 20	52	11·1	19·56	35·34	28·40	
,, ...	,, 13	Noon	52 55	33 21	49	9·4	19·18	34·65	27·84	
,, ...	,, 14	,,	51 01	41 03	54	12·2	19·43	35·10	28·21	
,, ...	,, 15	,,	48 45	48 30	39	3·9	19·18	34·65	27·84	Current W.S.W. 12 miles in 24 hours.
,, ...	,, 16	,,	45 45	54 30	35	1·7	17·93	32·39	26·03	Current S.W. 12 miles in 24 hours.
,, ...	,, 17	,,	42 50	61 00	44	6·7	17·90	32·34	25·98	Current W.S.W. 18 miles in 24 hours.
,, ...	,, 18	,,	40 45	67 50	48	8·9	18·16	32·81	26·36	
,, ...	,, 24	,,	40 42	68 54	46	7·8	18·21	32·90	26·43	
,, ...	,, 25	,,	42 32	62 35	48	8·9	18·27	33·01	26·52	
,, ...	,, 26	,,	44 50	56 20	39	3·9	18·03	32·57	26·17	
,, ...	,, 27	,,	47 15	50 30	32	0·0	18·04	32·59	26·19	Passed three icebergs.
,, ...	,, 28	,,	48 34	44 32	42	5·6	19·08	34·47	27·70	
,, ...	,, 29	,,	50 50	39 00	54	12·2	19·69	35·57	28·59	
,, ...	,, 29	Midnight	52 15	34 25	46	7·8	19·27	34·81	27·98	
,, ...	,, 30	Noon	53 00	30 44	48	8·9	19·22	34·72	27·90	
,, ...	,, 30	Midnight	53 50	26 50	52	11·1	19·54	35·30	28·37	
,, ...	,, 31	Noon	54 25	22 50	50	10·0	19·49	35·21	28·30	Current N.E. 12 miles in 24 hours.
,, ...	,, 31	Midnight	54 45	19 15	53	11·7	19·58	35·37	28·43	
Minneapolis ...	,, 3	Noon	41 06	66 39	46	7·8	18·27	33·01	26·52	
,, ...	,, 4	,,	42 22	59 15	46	7·8	18·19	32·86	26·40	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		° N. ′	° W. ′						
Minneapolis ...	Dec. 5	Noon	44 35	51 44	41	5·0	17·98	32·48	26·10	
,, ...	,, 6	,,	46 24	44 16	40	4·4	18·71	33·80	27·16	
,, ...	,, 7	,,	48 18	36 10	54	12·2	19·88	35·91	28·86	
,, ...	,, 8	,,	49 28	27 37	52	11·1	19·72	35·62	28·63	
,, ...	,, 9	,,	49 42	18 40	52	11·1	19·76	35·70	28·69	
,, ...	,, 10	4.0 a.m.	49 46	12 58	48	8·9	19·77	35·71	28·70	
,, ...	,, 10	8.0 a.m.	49 47	11 36	50	10·0	19·75	35·68	28·67	
,, ...	,, 10	Noon	49 53	9 52	48	8·9	19·68	35·55	28·57	
,, ...	,, 10	4.0 p.m.	49 51	8 28	49	9·4	19·70	35·59	28·60	
,, ...	,, 10	8.0 p.m.	49 49	7 00	48	8·9	19·68	35·55	28·57	
,, ...	,, 22	Midnight	50 04	8 03	49	9·4	19·85	35·86	28·82	
,, ...	,, 23	4.0 a.m.	50 10	9 24	48	8·9	19·66	35·52	28·54	
,, ...	,, 23	8.0 a.m.	50 14	10 53	52	11·1	19·90	35·95	28·89	
,, ...	,, 23	Noon	50 19	12 21	50	10·0	19·67	35·53	28·56	
,, ...	,, 24	,,	50 28	21 10	52	11·1	19·79	35·75	28·73	
,, ...	,, 25	,,	50 00	30 33	48	8·9	19·46	36·16	28·25	
,, ...	,, 26	,,	48 51	36 43	52	11·1	19·83	35·82	28·79	
,, ...	,, 27	,,	48 21	39 08	53	11·7	19·89	35·93	28·88	
,, ...	,, 28	,,	47 40	42 20	53	11·7	19·79	35·75	28·73	
,, ...	,, 29	,,	46 08	48 32	34	1·1	19·21	34·70	27·89	
,, ...	,, 30	,,	44 11	55 41	44	6·7	18·34	33·13	26·62	
,, ...	,, 31	,,	42 51	60 24	37	2·8	18·06	52·63	26·22	
Port Antonio ...	,, 1	,,	43 53	41 00	62	16·7	19·76	35·70	28·69	
,, ...	,, 2	,,	46 17	34 14	52	11·1	19·79	35·75	28·73	
,, ...	,, 3	,,	48 30	27 05	54	12·2	19·93	36·00	28·94	
,, ...	,, 4	,,	50 09	19 20	52	11·1	19·81	35·79	28·76	
,, ...	,, 5	10.30 a.m.	51 21	11 35	52	11·1	19·67	35·53	28·56	
,, ...	,, 6	6.30 p.m.	51 24	9 04	49	9·4	19·48	35·19	28·28	
,, ...	,, 6	?	51 15	6 20	49	9·4	19·62	35·44	28·48	
,, ...	,, 16	?	50 33	6 20	—	—	19·66	35·52	28·54	
,, ...	,, 17	4.0 a.m.	49 48	8 44	51	10·6	19·77	35·71	28·70	
,, ...	,, 17	Noon	48 50	11 30	53	11·7	19·78	35·73	28·72	
,, ...	,, 18	,,	45 50	16 43	55	12·8	19·89	35·93	28·88	
,, ...	,, 19	,,	43 24	22 47	58	14·4	19·98	36·09	29·01	
,, ...	,, 20	,,	41 09	29 00	60	15·6	20·02	36·17	29·07	
,, ...	,, 21	,,	39 10	33 58	59	15·0	20·12	36·35	29·21	
,, ...	,, 22	,,	36 39	39 28	65	18·3	20·40	36·85	29·62	
,, ...	,, 23	,,	34 26	44 33	68	20·0	20·34	36·74	29·53	
,, ...	,, 24	,,	32 05	48 06	72	22·2	20·67	37·34	30·01	
,, ...	,, 25	,,	29 37	54 12	73	22·8	20·61	37·23	29·93	
,, ...	,, 26	,,	27 05	59 20	76	24·4	20·78	37·54	30·17	
,, ...	,, 27	,,	24 31	64 29	77	25·0	20·38	36·82	29·59	
,, ...	,, 28	,,	22 12	69 42	78	25·6	20·45	36·94	29·69	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp. Fahr.	Temp. C.	*Cl.* °/₀₀.	*S.* °/₀₀.	σ_0.	Remarks.
	1905.		° N. ′	° W. ′						
La Plata	Dec. 2	Noon	16 52	77 04	81	27·2	19·47	35·17	28·27	
,, ...	,, ?	,,	10 30	76 44	82·5	28·1	19·94	36·02	28·95	
,, ...	,, 8	,,	12 07	72 36	77	25·0	20·25	36·58	29·40	
,, ...	,, ?	,,	11 24	68 05	79	26·1	20·30	36·67	29·47	
,, ...	,, ?	,,	11 33	61 47	80	26·7	19·92	35·99	28·92	
,, ...	,, ?15	,,	16 35	53 33	79	26·1	20·05	36·22	29·11	
,, ...	,, ?16	,,	19 54	51 16	77·7	25·4	20·36	36·78	29·56	
,, ...	,, ?17	,,	23 17	46 47	76	24·4	20·73	37·45	30·10	
,, ...	,, 18	,,	26 42	41 55	72·5	22·5	20·70	37·39	30·06	
,, ...	,, 19	,,	30 14	37 09	70·5	21·4	20·42	36·89	29·65	
,, ...	,, 20	,,	33 54	32 14	64·7	18·2	20·65	37·30	29·98	
,, ...	,, 21	,,	37 17	26 55	63	17·2	20·05	36·22	29·11	
,, ...	,, 22	,,	40 35	20 59	60·2	15·7	20·03	36·18	29·08	
,, ...	,, 23	,,	43 52	14 50	56	13·3	19·82	35·81	28·78	
,, ...	,, 24	,,	47 09	8 40	53·2	11·8	19·72	35·62	28·63	
,, ...	,, 24	4.0 p.m.	47 47	7 27	53	11·7	19·74	35·66	28·66	
,, ...	,, 24	8.0 p.m.	48 27	7 00	52·7	11·5	19·70	35·59	28·60	
,, ...	,, 25	?	49 09	5 26	51½	10·8	19·60	35·41	28·46	
,, ...	,, 25	4.0 a.m.	49 49	4 24	51·5	10·8	19·59	35·39	28·44	
Atrato	,, 1	Noon	29 15	45 13	76	24·4	20·65	37·30	29·98	
,, ...	,, 2	,,	32 10	41 07	69	20·6	20·40	36·85	29·62	
,, ...	,, 3	,,	35 35	37 09	61	16·1	20·18	36·45	29·30	
,, ...	,, 4	,,	36 20	31 47	63	17·2	20·46	36·96	29·71	
,, ...	,, 5	,,	37 41	25 59	65	18·3	20·13	36·36	29·23	
,, ...	,, 6	,,	40 09	21 30	62	16·7	20·06	36·24	29·12	
,, ...	,, 7	,,	43 49	15 41	57	13·9	19·82	35·81	28·78	
,, ...	,, 8	,,	47 36	9 51	54	12·2	19·80	35·77	28·75	
,, ...	,, 8	6.0 p.m.	48 28	7 53	53	11·7	19·69	35·57	28·59	
,, ...	,, 9	1.0 a.m.	49 30	5 55	52	11·1	19·56	35·34	28·40	
,, ...	,, 24	9.15 a.m.	48 30	5 15	51	10·6	19·65	35·50	28·53	
,, ...	,, 24	4.0 p.m.	47 39	7 23	53	11·7	19·72	35·62	28·63	
,, ...	,, 24	11·0 p.m.	46 34	9 22	53	11·7	19·73	35·64	28·64	
,, ...	,, 25	Noon	45 28	12 16	54	12·2	19·77	35·71	28·70	
,, ...	,, 26	,,	42 51	17 21	55	12·8	19·83	35·82	28·79	
,, ...	,, 27	,,	40 00	21 42	60	15·6	20·01	36·15	29·05	
,, ...	,, 28	,,	37 42	26 06	61	16·1	20·02	36·17	29·07	
,, ...	,, 29	,,	34 23	31 15	66	18·9	20·16	36·42	29·27	
,, ...	,, 30	,,	30 52	35 22	68	20·0	20·55	37·12	29·84	
,, ...	,, 31	,,	27 17	39 03	71½	21·9	20·81	37·59	30·22	
Moravian	,, 1	,,	43 16	10 01	59	15·0	19·83	35·82	28·79	
,, ...	,, 1	Midnight	40 43	11 10	58	14·4	19·99	36·11	29·02	
,, ...	,, 2	Noon	38 31	11 59	60	15·6	19·95	36·04	28·96	

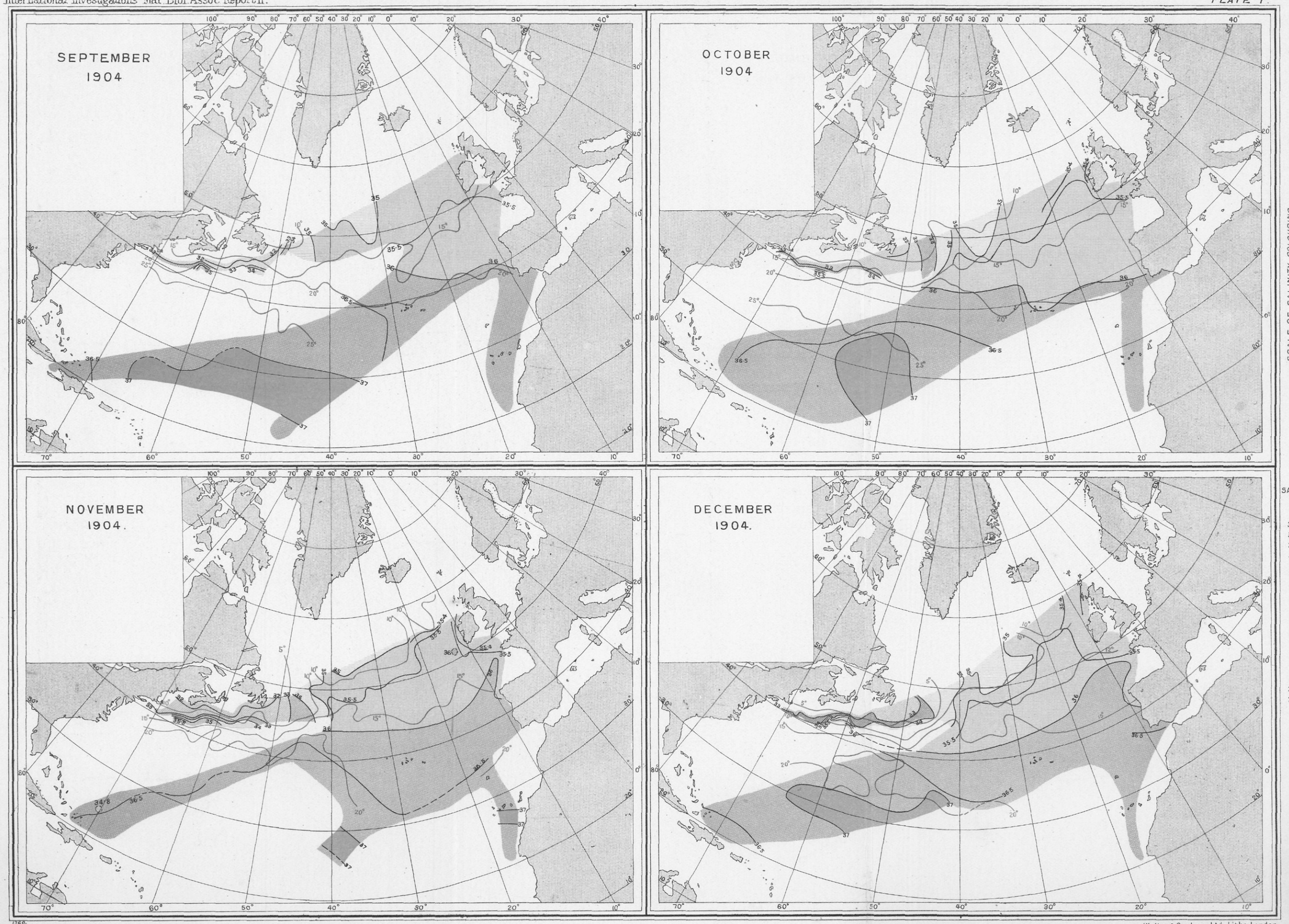
TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		°N. ′	°W. ′						
Moravian	Dec. 2	Midnight	35 47	13 29	63	17·2	20·16	36·42	29·27	
,, ...	,, 3	Noon	33 40	13 58	65	18·3	20·24	36·56	29·39	
,, ...	,, 3	Midnight	30 48	15 18	65	18·3	20·21	36·51	29·34	
,, ...	,, 4	Noon	28 51	15 55	69	20·6	20·38	36·82	29·59	
,, ...	,, 4	Midnight	27 09	16 29	68	20·0	20·36	36·78	29·56	
,, ...	,, 5	Noon	24 51	16 50	68	20·0	20·29	36·65	29·46	
,, ...	,, 5	Midnight	21 45	17 22	65	18·3	20·00	36·13	29·04	
,, ...	,, 6	Noon	19 56	17 38	66	18·9	19·82	35·81	28·78	
Kildonan Castle ...	,, 1	,,	21 09	17 43	65	18·3	19·94	36·02	28·95	
Egypt	,, 11	Midnight	36 19	6 56	62	16·7	20·16	36·42	29·27	
,, ...	,, 12	3.30 a.m.	36 37	7 52	60·5	15·8	20·12	36·35	29·21	
,, ...	,, 12	8.0 a.m.	37 07	9 01	59	15·0	20·05	36·22	29·11	
,, ...	,, 12	Noon	38 00	9 21	59	15·0	20·01	36·15	29·05	
,, ...	,, 12	3.30 p.m.	38 44	9 39	59	15·0	19·96	36·06	28·98	
,, ...	,, 12	8.0 p.m.	39 39	9 39	58·2	14·6	19·91	35·97	28·91	
,, ...	,, 12	Midnight	40 28	9 39	58	14·4	19·93	36·00	28·94	
,, ...	,, 13	3.30 a.m.	41 09	9 38	57	13·9	19·91	35·97	28·91	
,, ...	,, 13	8.0 a.m.	42 10	9 35	56	13·3	19·74	35·66	28·66	
,, ...	,, 13	Noon	42 56	9 30	55	12·8	19·83	35·82	28·79	
,, ...	,, 13	3.30 p.m.	43 36	9 07	55	12·8	19·73	35·64	28·64	
,, ...	,, 13	6.0 p.m.	44 06	8 46	53·8	12·1	19·92	35·99	28·92	
,, ...	,, 13	8.0 p.m.	44 21	8 29	54	12·2	19·84	35·84	28·80	
,, ...	,, 13	10.0 p.m.	44 52	8 13	54·5	12·5	19·77	35·71	28·70	Samples in corked bottles.
,, ...	,, 13	Midnight	45 15	7 56	54·5	12·5	19·77	35·71	28·70	
,, ...	,, 14	2.0 a.m.	45 38	7 39	53·2	11·8	19·73	35·64	28·64	
,, ...	,, 14	4.0 a.m.	46 01	7 02	53·5	11·9	19·73	35·64	28·64	
,, ...	,, 14	6.0 a.m.	46 24	7 04	52·5	11·4	19·88	35·91	28·86	
,, ...	,, 14	8.0 a.m.	46 55	6 41	53	11·7	19·75	35·68	28·67	
,, ...	,, 14	10.0 a.m.	47 09	6 26	53	11·7	19·72	35·62	28·63	
,, ...	,, 14	Noon	47 28	6 11	47	8·3	19·64	35·48	28·51	
,, ...	,, 14	2.0 p.m.	47 43	6 06	52·2	11·2	19·67	35·53	28·56	
,, ...	,, 14	4.0 p.m.	48 05	5 45	52·2	11·2	19·63	35·46	28·50	
,, ...	,, 14	8 0 p.m.	48 54	5 10	51·2	10·7	19·58	35·37	28·43	
,, ...	,, 14	Midnight	49 32	4 44	52	11·1	19·54	35·30	28·37	
,, ...	,, 30	Noon	49 24	4 06	52	11·1	19·53	35·28	28·35	
,, ...	,, 30	3.30 p.m.	48 50	5 18	51·2	10·7	19·58	35·37	28·43	
,, ...	,, 30	8.0 p.m.	47 57	6 06	52	11·1	19·62	35·44	28·48	
,, ...	,, 30	10.0 p.m.	47 32	6 28	52½	11·4	19·63	35·46	28·50	
,, ...	,, 30	Midnight	47 08	6 47	53	11·7	19·69	35·57	28·59	
,, ...	,, 31	2.0 a.m.	46 43	7 08	52·5	11·4	19·69	35·57	28·59	
,, ...	,, 31	4.0 a.m.	46 17	7 30	52·5	11·4	19·70	35·59	28·60	
,, ...	,, 31	6.0 a.m.	45 50	7 50	52	11·1	19·69	35·57	28·59	

TABLE II.—*continued.*

Ship.	Date.	Time.	Lat.	Long.	Temp.		*Cl.* ‰.	*S.* ‰.	σ_o.	Remarks.
					Fahr.	C.				
	1905.		°N. ′	°W. ′						
Egypt	Dec. 31	8.0 a.m.	45 22	8 15	53·8	12·1	19·72	35·62	28·63	
,, ...	,, 31	Noon	45 02	8 37	54	12·2	19·73	35·64	28·64	
,, ...	,, 31	2.0 p.m.	44 40	8 54	54·2	12·3	19·74	35·66	28·66	
,, ...	,, 31	4.0 p.m.	44 15	9 08	55	12·8	19·78	35·73	28·72	
,, ...	,, 31	6.0 p.m.	44 04	9 05	55·2	12·9	19·74	35·66	28·66	
,, ...	,, 31	8.0 p.m.	43 40	9 00	55	12·8	19·79	35·75	28·73	
,, ...	,, 31	10.0 p.m.	43 19	9 30	56	13·3	19·84	35·84	28·80	

SALINITY AND TEMPERATURE OF THE NORTH ATLANTIC SURFACE WATERS DURING 1904.



SALINITY ‰	SP. GR. 0°/4°
31	1·02941
32	1·02571
33	1·02651
34	1·02732
35	1·02813
36	1·02894
37	1·02974
38	1·03054

C.	FAHR.
0°	32°
5°	41°
10°	50°
15°	59°
20°	68°
25°	77°

Matthews. North Atlantic.

Weller & Graham, Ltd Litho London.