VIII.—THE PELAGIC FAUNA OF THE BAY OF ST ANDREWS. By Prof. M'Intosh, M.D., LL.D., F.R.S.

The pelagic fauna of the bay, while presenting certain common features in the monthly returns from year to year, yet often shows considerable variations. Thus, for instance, the beautiful and conspicuous pteropod Clione, which appeared in April 1887, was not again met with till the spring of this year (1893). The abundant ctenophore, Pleurobrachia, which had been one of the most constant and most plentiful of the pelagic medusæ, completely vanished for the first nine months of 1891-to the disappointment of Mr Riches who, on the faith of its well-known frequency in our nets, had specially come from Plymouth to study its development and life-history. No sooner had he returned southward than it again appeared, and has been constantly met with since. It would be difficult to explain the cause of so sudden and so complete a disappearance. During no season have the myriads of larval and post-larval herrings so filled the bay as in the spring of 1889, when it became necessary to cease to use the bottom trawl-like tow-net, which captured them in immense multitudes. These larval herrings had probably been carried into the bay by currents from the mouth of the Forth, since, so far as known, no deposition of ova takes place in the bay itself. It is, indeed, many years since the eggs of the herring have been noticed at the Old Hake, off the east of Fife (near the Carr Lightship), where Lord Playfair and Prof. Allman carefully investigated them. At any rate, whether eggs are deposited within or near the bay, there is no lack of larval herrings under ordinary circumstances, and the same may be said of sprats.

The young of certain fishes not usually encountered in the pelagic fauna occur at certain definite seasons. Thus the young great pipe-fishes are common in the bottom-nets off the estuary of the Eden. On the other hand, the young eels bury, themselves in the sand. The larval fish E (Seventh Annual Report, III., pp. 263 and 309, Plate III. figs. 5, 6, and 7) has again been encountered off Tents Moor, but no further light has be en thrown on its relationship, though in some respects it approaches

Cottus.

If the weather in the first part of May be warm, the young Pleuronectids (such as plaice, dabs, and flounders) of the season often disport themselves at the surface of the water, and can be caught with a hand-net in considerable numbers. This feature was formerly noticed chiefly in the turbot and brill later in the season, e.g., in July and August. On the other hand, the scanty numbers of post-larval gadoids afforded a contrast to the waters of Smith Bank in the Moray Firth, where the post-larval gadoids, ranging from 4 to 16 mm., disport themselves, at the end of April and beginning of May, in multitudes, chiefly near the bottom, though also at the surface.

It is generally supposed that the transparent eggs of the food-fishes, which form one of the most important elements of the pelagic fauna, escape many dangers from their invisibility. It has to be remembered, however, that the embryos in these eggs are sometimes conspicuously coloured with black and yellow-just as the supposed inconspicuous medusæ are with blue, orange, brown, red, and black, though of course the full development of the pigment in the fish only occurs a short time before hatching. Some embryos remain almost devoid of pigment before extrusion—as the sprat, and an unknown form sent to Mr Holt from the west coast of Ireland. An important fact in this connection has also been observed, viz., that in the stomach of a single herring taken from the midst of

PERSONAL TRANSPORTED BAT TO AVERAGE BAT THE BEST THE BEST TO BE THE

shocking at this wall, to say that they glassical good and has been ago o explain the came of so suiting and an analytic a disappearance Danier on easter here he mystedy of larval and post-larval horriege so the eggs tolkened and the say has been eggs as होत्रस बहुस्सी वर्त स्ट्रास्ट के प्रदेश का वर्त वरवात पूरा है वर्ती प्रत्येस के सी तीन The strang of cortain fide not readly throughout in guarde time court according defects seasons. Thus the voting gree procedules are common in the bostom-acts of the extrang of the Part . On the the heat too going also buy themselves in the area. In the all the 2 (Serverio Annual Report, III., op. 235 and 500, Plate II - from 5, C. are a second of the second of palacongs. I simple to the medical spice with a sile to rate in most and altragances. If good and account at your more you can be realized out to (and is plaint dish to it is said to be seen that dish to the said the said of the said we. tale condens. This haves we demand united cheeffs in the furner and bein in grant the greater was in duty and any use. On the them, and the state of t constitute and the second contract of the sec thousands caught off Shetland, and which was distended with the usual crustacean food, no less than thirty entire pelagic eggs of various species of fishes were found. It is true that these had in all probability been swallowed as the fish gulped the swarms of swimming crustaceans, yet the loss from this cause alone must be serious. It is rare, however, to find pelagic ova in the stomachs of marine animals, yet on one occasion ducks and other birds were feeding on these and perhaps the larval fishes in the Moray Firth; and Captain Dannevig has observed sprats snapping at the pelagic eggs as they escaped from a breeding pond at Arendal. At no period, indeed, during the life-history of the food-fish is it free from attack.

The enormous quantity of pelagic fish-food poured by the neighbouring mussel-beds into the inshore waters has often been referred to in communications from the St Andrews Marine Laboratory. It is one of the most constant factors in the annual supply-first, as minute ciliated spheres, then almost as minute swimming mussels in June, which crowd the waters both at the surface and the bottom, and afterwards settle down like grains of millet-seed on zoophytes, sea-weeds, stones, shells, and indeed on every available site, such as the ropes, buoys, and other parts of the salmon stake-nets.* But while the foregoing mollusks are perhaps the most conspicuous forms in their season, they are not by any means the only ones, for both bivalve and univalve shell-fishes in their early stages are common in the nets throughout the greater part of the year, some of them, e.g., the peculiar flattened spiral shell of the young Lamellaria, being so unlike the adult (a more or less sedentary form amongst the rocks) as to have misled zoologists as to its actual position, which was, however, clearly defined, amongst others, by Prof. A. Giard of Paris, † a distinguished naturalist, who has largely extended our knowledge of marine animals. The foregoing forms, with occasional additions of Spirialis and Clione, take the place of the abundant and varied Pteropods, the curious Glaucus, and the brightly-coloured Ianthina of the warmer seas.

The remarks made some years ago concerning the distribution of the Appendicularians have been borne out by further experience, the immense multitudes of Oikopleura cophocerca, Gegenbaur, and their houses, being characteristic of April and May. The specimens are remarkably fine—according to Prof. Herdman, quite as large as those procured during the voyage of the 'Challenger.' The influence of such forms upon marine life of all kinds must be considerable. The profusion of Actinotrocha, the larval form of Phoronis, is one of the most diagnostic features of August, though early specimens appear in June, and many in July and September.

No group of pelagic marine animals is more generally distributed throughout the water than the Crustaceans, especially the countless swarms of the Copepods, though certain Amphipods and Thysanopods also occur in great numbers, and form rich feeding-grounds for many fishes, the nets in such areas being rapidly filled with a semi-solid mass of their bodies. The vast numbers of the larval sea-acorns, again, in spring is a noteworthy feature in the inshore waters, where rocks, wood—both stationary and floating—and every available surface, is coated by a densely grouped series as they become sessile. Some fishes, e.g., Gobius, in the estuary of the Eden, feed largely in May on the Cypris-stage of these sea-acorns. No Amphipod, again, appears to be a more conspicuous feature in the pelagic fauna than Parathemisto, which characterises the

winter months, especially January and February.

^{*} The salmon fishermen observe that the ropes have been submerged a month (viz., from May till the middle of June) before a deposit of the minute mussels is noticed.

† Comptes Rendus de l'Acad. des Sc., 22 Mars 1875.

Few groups of invertebrates are more generally distributed in their pelagic larval condition than the Annelids, which are seldom absent from the tow-nets, especially the trawl-like bottom-net. They have been elsewhere referred to,* so that on the present occasion it is only necessary to observe that from January to December they are present at one stage or another, and afford a constant source of food for the smaller fishes. Perhaps the most conspicuous family is that of the Spionidæ, in which is the wellknown borer in rocks and shells, viz., Polydora ciliata. The curious larva of Polygordius is not uncommon in July and August, and Tornaria and Mitraria also occur.

In our waters the characteristic pelagic Alciopidæ of the southern seas are absent, their place being taken by the ubiquitous Tomopteris, and in inshore waters by the active sexual forms of Autolytus, the majority

bearing ova; and by an occasional Heteronereis-form in spring.

The absence of accurate knowledge concerning the development and life-history of the common cross-fish (Uraster rubens) has for many years been a conspicuous blank, and it was well known that no adult had ever been seen bearing eggs externally. It thus appeared to differ wholly from the abundant tidal form Cribrella oculata and the somewhat rarer Asterias Mulleri, t which is not uncommon at St Andrews under stones in rockpools, both of which carry the eggs and larvæ over the mouth. The recent researches of Mr Field on Asterias rubens t clears up the difficulty, for it is found that the larvæ are pelagic, and form in St Andrews Bay part of the teeming multitudes of larval Echinoderms, which in the form of Bipinnarians, Brachiolarians, Auricularians, and Plutei, characterise the warmer months. The vast myriads of the minute eggs of the common

cross-fish are given off in May and June.

The irregularity in the appearance of the larger medusæ, e.g., Aurelia and Cyanea, in multitudes, has again been illustrated during the last season, when comparatively few entered the bay, whereas in 1891 both were common. A knowledge of the effects of currents and other facts connected with their distribution is not yet sufficiently accurate to enable us to make an explanation of the causes of such variations. The hydromedusæ, on the other hand, seems to be more regular, the majority occurring in June, July, and August, while Tima and Aglantha are characteristic of the winter months. In April the medusoid Hybocodon generally makes its appearance, and continues to the end of summer. They are conspicuous by their four carmine ocelli, and their two tentacles have batteries of thread-cells. Large buds spring in some from the neighbourhood of an ocellus near the two tentacles, and the conspicuous faintly-pinkish manubrium (of a trumpet-shape) occasionally encloses a Copepod. Professor Alex. Agassiz & connects it with a tubularian growing singly.; it might also have been supposed to be related to Corymorpha, which occurs off the Budda Rock. Another interesting addition to the pelagic fauna is the beautiful garnet-tinted Halistemma, several examples of which were procured in the bottom-net, and described by the Rev. A. D. Sloan, B.Sc.||

The larval forms of Peachia and allied species occur with great regularity in spring and summer—the earlier stages during the former period,

the older during the latter.

Very few Radiolarians have been obtained in the surface-nets. other hand, the various species of Ceratium are abundant almost through-

^{*} Ann. Nat. Hist., ser. 6, vol. 6, p. 174. † I am indebted to Professor Jeffrey Bell for the identification of this form.

[‡] Quart. Jour. Micr. Sci., vol. 34, p. 105, Nov. 1892.

[§] N. Amer. Acalephæ, p. 193, 1865. || Ann. Nat. Hist., 1891, 6 ser. vol. 7, p. 413.

out the year, and, as formerly mentioned, are the cause of phosphorescence in the water on certain occasions. This genus (Ceratium) has been considered by various authors as algoid, e.g., by Dr John Murray in the Report of the 'Challenger,' and by F. Schütt in the recent Plankton Expedition of the German Government.* On the other hand, Gourret † and Pouchet ‡ maintain more or less their relationship with the cilio-flagellate Infusoria.

The abundance of plant-life in the inshore waters of this area is a prominent feature. Diatoms, algæ in multitudes, and resembling those named, Antelminellia, Chætoceras, Pyxilla, Bacteriastrum, and the various forms of Rhizosolenia, occur constantly in the nets. The abundance of the latter form occasionally causes a greenish discoloration of

the water. §

+ Ann. du Musée Hist. Nat. Marseille, 1883. Mém. No. 8.

^{*} Reisebeschreibung der Plankton-Expedition, von Dr Otto Krümmel, &c. Kiel u. Leipzig, p. 266, &c., 1892.

[‡] Jour. de l'Anat. et Physiol., 1883, p. 399. § I am indebted for much assistance in the preparation of the following tables to Mr J. Pentland Smith, M.A., B.Sc., now of the Horticultural College, Swanley, Kent, who conducted the examination of the contents of the tow-nets with great ability and punctuality.

	Course of	Total Depth of Water		Time d(2) en up.			distance of	
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net)	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size. Coloration, etc.	Hydromedusæ,	Medusæ,
99th November 1887. Pier head	Towards Kinkell Ness 3 fathoms	All Sand	Pleurobrachia, many, and ova of Pleurobrachia		97		on to gall	Pleurobrachic large and small Lesueuria, a few adult
13th January 1888. North of Pier	Towards Bell Rock 4 fathoms	All Sand		1 hour		1 young Syngnathus acus, 21 inch		
14th January 1888, Off Pier head	North- wards 4 fathoms	All Sand		1 hour		- 2 S-40		Pleurobrachia numerous, large and small some larval)
16th January 1888. 2½ miles N. of Pier	To near E. Rocks 4 fathoms	All Sand						Lesueuria, a
19th January 1888. 100 yards from Pier head	By salmon nets to Castle and thence to about 300 yards off Eden, keeping en route about 3 mile from low water mark 3 fathoms							
20th January 1888. (1) Baths, forenoon	To Eden 3 fathoms	All Sand	•					Pleurobrachia large and small
(2) Swilcan Burn, after- noon	To Baths 6 feet to 1 fathom	All Sand				Sprats, flounders		Tima bairdii. Johnst., with reproductive organs al- most fully developed, 1½ inches across, colourless, transparent.

	71/4	r: at	DY-4						
7	141	lid-water	Mer.					Dia-	Other Forms Greenish
	Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	toms.	Bodies, Remarks, etc.
		Many	Trochosphere of Polynoi and older stages with scales Larvæ of Nerine		Thysanopods Swarm of Copepods			-	Ceratium tripos a bottom
	April 1				Schistomysis ornata				Infusoria
					Crangon vul- garis, several Parathemisto oblivia, many adult and young				
		A few good			Parathemisto oblivia, in swarms				
					Swarms of Parathemisto oblivia	Appendicu- laria (?)			
			Adult Scale bregma in flatum	-	Idotea linearis Parathemisto, a few Schistomysis ornata Amathilla sabini Q with ova, pale brownish				

	1	-	1					
Net put	Course of Boat	Total Depth of Water	Surface Fauna	f Time and (2) ken up.		26	firefave-5	M.
down, where, and time.	thereafter and Depth.	and Nature of Bottom.	(Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
21st January 1889. (3) Off West Rocks		All Sand	Parathemisto oblivia, many large and small Acartia longiremis Sagitta, a few, about by inch			Flounder, 3 inch Sprats, many 13 to 2 inches	Aglantha digi- talis (Girce rosea), very few	Pleurobrachia, very few, minute
22nd January 1889. † mile N.E. of Pier p.m.	N. On Eden 3 fathoms	6 fathoms Sandy	Parathemisto oblivia Aglantha digitalis (Circe rosea)	1½ hour 3,15 p.m.			Tima bairdii, about 1½ inch and under Aglantha digi- talis (Circe), large	inches, and one smaller
23rd January 1888. Close inshore at E. Sands	Along E. Rocks keeping about 50 yards from outer Rocks I fathom	All Sand						
24th January 1888. (1) About 1 mile N.E. of Pier head	4 fathoms.	All Sand		1 hour			Aglantha digitalis (Circe rosea), and frag- ments of other Medusæ	
24th January 1889, (2) ½ mile Castle	N. To point opposite outer target 3 fathoms	5 fathoms Sandy	Parathemisto oblivia, many	3 hour			Aglantha digitalis • (Circe rosea) Tima bairdii, a few 1 inch	Pleurobrachia, large and small
							Aglantha digitalis (Circe rosea)	

IV.	Iid-water 1	Tet.		983		Total T		
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Other Forms, Greenish Bodies, Remarks, etc.
	Bottom	Tow-net. Very few, abou ½ inch		Parathemisto oblivia, very few Some very small		constable shorts		Rhizosolenia, very few in bottom tow- net
•	Swarms	Young Nerine		Parathemisto oblivia, in swarms				
	Bottom A few ½ inch	Tow-net.		Parathemisto oblivia, a few				Ceratium tripos Diatoms
				Parathemisto oblivia, large and small in swarms, most small Amathilla sabini, a few small Sessile-eyed forms (?)	No. of the last	augustavitai Turantii		Control of the Contro
	A considerable numbe —reproductive organs, comparatively small, but with ova in them. Curious parasitle Diatoms, near anus	Adult Tomopteris, numerous, mall		Parathemisto oblivia, a few				120
	In swarms, some with Trematode larvæ; male elements largely de- veloped in some			Parathemisto oblivia, many Calanus fin- marchicus, etc., many				and the latest
	Bottom Numerous, 1 inch and upwards	Tow-net.		Calanus fin- marchicus, many Pseudocal- anus elon- gatus, numerous				

Not made	Course of	Total Depth		of Time and (2) kenu p		.18	A retew-bil	
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when takenup	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size,	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ,
26th January 1889. Abreast of College, in mile N.	N. 2 fathoms	4fathoms Sandy		Marco A.		Non-not.	Stomo- brachium octocostatum	
						anima V remains		
28th January 1889. Pole Rock off W. Rocks	To Pier head, about 1 fathom		onine		Ovum of green cod ?)	Jen-we/E	mottod.	Pleurobrachia, Lesueuria, 3 inches
30th January 1888, N. from Castle	Towards opposite shore 4 fathoms	6fathoms Sandy	Parathemisto oblivia, a few					
3rd February 1888, Off Union Club	Outwards n line be- tween Red Head and Bell Rock	1 fathom to 5 fathoms		01200 403			Aglantha digitalis (Circe rosea) in considerable numbers, one with peculiar parasite (?)	Pleurobrachia, many large
6th February 1888, Beyond Beacon at end of Pier	Towards Bell Rock to point opposite Kinkell Ness	Sandy						
7th February 1888. From Pipe	E. To opposite Kinkell Ness 2 fathoms	Sandy	Parathemisto oblivia, a few					

Ì	Lid-water I	Tet.						Other Forms
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults,	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms,	Greenish Bodies, Remarks, etc.
	In swarms Bottom	Adult Tomopteris, a few Tow-net.		Calanus fin- marchicus Diastylis rathkii, young		Young Spirtalis		Ceratium furca Tintinnus denticulatus Ceratium tripos, numerous Spores of alg. Peculiar algoid body Diatoms
Larval star- fish like Cribrella	In swarms, few 1 inch, and swarms of less	Adult Tomopteris		Parathemisto oblivia (as before), in swarms Calanus fin- marchicus	A few veligers and bivalves			Spores of algæ and fragments
and the last				Parathemisto oblivia, in swarms, males show- ing sperma- tozoa, most young, one containing ova of Ascaris and another. Two Ascidians			ming Librario Local Col	2 Ascaridin Parathemisto, and in another several large ova of Ascaris
	Considerable number	Tomopteris, numerous, small		Amathilla sabini 1 Eurydice pulchra Parathemisto oblivia, con- siderable number				20.73
	2 about 1½ inch			1 Amathilla sabini Parathemisto oblivia, numerous, males de- veloping spermatozoa				
				Parathemisto oblivia, numerous				

	down	Total Depth		Time nd (2) en up.				
Net put down, where, and time.	Course of Boat thereafter and Depth.	of Water and	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
9th February 1888. Off bar of Eden.	Almost N.	Sandy				cite constant Transcrete	in equipment of the contract o	Tima bairdi small
11th February 1888. Off Pier head 2 miles	To 4 miles from W. Sands. 3 fathoms.	Sandy						Pleurobrachio
12th February 1888, ½ mile from Beacon	Towards Bell Rock at surface	Sandy					combra di cidral combra fai condition	Thaumantias a few
12th February 1889. ½ mile N.E. of Pier	S.	5 fathoms Sandy	Te					Ova of Pleuro- brachia
13th February 1888. 2 miles be- yond Pier	2 miles towards Bell Rock		April 2017 chan chan chan					
1889. 2 Miles N.E. of Pier 9.30 a.m.	4 fathoms	7 fathoms Sandy	1 Idotea linearis, Pseudocalanus elongatus Sagitta, very few, to § inch Aglantha digitalis (Circe rosea), very few, small, immature	1 hour 10.30 a,m.		Constitution of the consti	Aglantha digitalis (Circe rosea), a few	Pleurobrachia a few large and small, ‡ to ½ inch Number of Beroë and Lesueuria
							ti loca	
							Aglantha digitalis (Circe rosea). very few, small, im- mature	,

11/	Iid-water I	Net.		The Bridge				Other forms,
Larval Echinoderms.	Sagittæ, Size, &c.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	greenish bodies, Remarks, etc.
		Adult Autolytus prolifer, with eggs in pouch, Larval form of Nereis		Parathemisto oblivia, a few			A few	
				Parathemisto oblivia, numerous				
	A few			Parathemisto oblivia				
	Bottom A few large	Tow-net.		Many Cope- poda	191 - 204 - 252 9 - 523 - 252 1 - 123 - 252 1 -	Young Spirialis		
	Myriad, a to a inch Parasitic Ne- matode in some	Nereis as before Larval Nerine 8 segments and Trochosphere stage, adult Tomopteris, many, \$\frac{1}{2}\$ to \$\frac{1}{2}\$ Nereis Autolytus, with ovisae		Parathemisto oblivia, in swarms Boreophausia raschii, many Schistomysis ornata, very few Mysis vulgaris, very few 1 Atylus swammer-damist Parathemisto oblivia, swarms, 1 Eurydice pulchra Galanus finmarchious, a few Pseudocalanus elongatus		Minute bivalves		
т 2	Bottom A few mature	Tow-net.		Exuviæ of Balanus Calanus finmarchicus, a few Pseudocalanus elongatus, many				

				me (2) up.		7.4	M makeup-fili	N.E.
Net put down, where, and time.	Course of Boat thereafter and Depth.	Total Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of time Net down and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
14th February 1889. N. of inner Pier, 1 mile 9.45 a.m.	N. 3 fathoms	5 fathoms Sandy	Pseudocalanus elon- gatus, many Autolytus prolifer, Q bearing ova Sagitta, very few Aglantha digitalis (Circe rosea) very few	10.20 a.m.			Aglantha digi- talis (Circe rosea) many	1 Pleuro- brachia, 2 inch
							Aglantha digi- talis (Circe rosea) a few large	
		1		- Clarini - Clarini			- 3A	
17th February 1888.	7		Reticulated larvæ of Nerine Cyphonautes Copepoda Young Appendicu- larta			Tow-net.	Bottom A few lang	
19th February 1889. 30 yards N.E. of Pier head 1.30 p.m.	N.E.	Sandy	Parathemisto oblivia very few Pseudocalanus elon- gatus, numerous 1 Tomopteris, very small Sagitta, many (as before) Aglantha digitalis (Circe rosea) many as in other net	hours 3.30 p.m.	Ova of Plaice; Haddock; Long rough dab; Dab; Green cod?	At mouth of Forth many young wolf- fishes, 21 mm.		
21st February 1889. 3 miles N.E. of Pier head 2,30 p.m.	s.w.	6 fathoms	Acartia longiremis, many Calamus finmar- chicus, very few	hour			Aglantha digi talis (Circe rosea) a few	
			1 Sagitta Aglantha digitalis (Circe rosea) a few					Minute Ple robrachia Ephryæ Aurelia

ı	Mid-water 1	Net.						Other forms,
Larval Echinoderms,	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms,	greenish bodies, Remarks, etc.
	Myriad Bottom	Tow-net.		Atylus swam- merdamii, very few Parathemisto oblivia, numerous Calanus fin- marchicus, many				
	Many, mature, one with parasitic Nematode			Schistomysis ornata, very few 2 Atylus swammer- damii Calanus fin- marchicus and Pseudo- calanus elon- gatus, numerous				
17 ova of Echinoderms (Luidia ? Cucumaria?)			Nauplii, a few		Cyphonautes			Ceratium tripos and algæ
Access of the control	Bottom Many, as be- fore	Tow-net. Adult Tomopteris, a few. about ½ inch	Nauplii, many (chiefly off rocks)	Schistomysis ornata, very few, small Parathemisto oblivia, many Calanus fin- marchicus, many Pseudocalanus elongatus, numerous				
	Many			Parathemisto oblivia, numerous Calanus fin- marchicus, many				
	Bottom A few	Tow-net. Larval Nerine	***	Parathemisto oblivia, many Calanus fin- marchicus, numerous Copepoda in considerable numbers				

-		1							
	Net put down, where, and time.	Course of Boat thereafter and Depth.	Total Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of time Net down and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration,	Hydromedusæ.	Medusæ.
	26th February				D E		etc.		
	Midway be- tween Bell Rock and Carr Rock			Parathemisto oblivia Calanus finmar- chicus, very few Sagitta, very few Larval Nerine? Larval Appendi- cularia		Ciliated minute ovum in morula stage Larva E. Clupeoids Sand-eels		Aglantha digitalis (Circe rosea), a few	Ephyræ of Aurelia
	2nd March 1888. Off Beacon	To Tent's Muir 3 fathoms			1½ hour	Ova of plaice and gurnard	Larval sand-	Aglantha digitalis (Circe rosea)	Pleurobrachia
	6th March 1888, 100 yards off E. Rocks	To mouth of Eden 13 mile 3 fathoms				Ova of Had- dock Ova of cod ,, long rough dab Ova of dab ,, rock- ling (3 bearded)		Aglantha digitalis (Circe rosea)	
	7th March 1889. 4 mile E. of Kinkell Ness, and 1 mile N. of Kinkell Ness 11.30 a.m.	To Eden	8 to 6 fathoms Sandy	Eggs of haddock, long rough dab, cod, plaice and rockling	hour 12.15 p.m.	2 eggs of Plaice em- bryo about to issue from egg Egg of dab Larval sand eels	1 of Cottus(?)7 mm. With no appearance of fin rays Montagus sucker 5.2 mm.	Aglantha digitalis (Circe rosea) many	Cyanea, a few minute Two Aurelia: minute Eggs and larvæ of Peachia
	8th March 1889. 1½ mile N.E. of Kinkell Ness 2.30 p.m.	Towards Harbour 4½ fathoms	8 to 7 fathoms Sandy	Parathemisto oblivia Halitemora longi- cornis, many Pseudocalanus elon- gatus, very few Nauplius, a few Pluteus		Crustacean (?) in morula stage Same els 5 mm. Mont- agus sucker 4·5 mm. Cœlenterate ova		Aglantha digitalis (Circe rosea) Myriad 1 Tima bairdii 2½ inches	1 Pleuro- brachia 3 inch Cyanea minute, very few 1 Pleuro- brachia § inch

Mi	id-water N	et.				Lie Tell		Other forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans,	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	greenish bodies, Remarks, etc.
	Bottom In swarms, chiefly small	Tow-net. Adult Autolytus & Tomopteris, small Bristles of Harmithöe		Thysanoessa, Calanus fin- marchicus, a few	Cyphonautes	Spirialis Clione, a few		Ceratium tripos, a few Ceratium furca, a few Rhitzoolenia, a few Many spores of algæ Diatoms, many
	Numerous Some fine	Multitudes of the Larvæ of Nerine Adult Auto- lytus prolifer		Parathemisto, very few Thysanopods (Nyctiphanes and Thysan- oessa) Calanus (?)		Young Om- mastrephes 1 inch long		
	Large and small			A few small crabs				
	Bottom	Trawl-net						
Minute brittle-stars	Myriad	Tomopteris, a few small Autolytus & several 2 small bearing ova	Nauplii abundant for a fort- night	Parathemisto oblivia, very few Calanus fin- marchicus		A few young mussels, 1: imm., and other minut bivalves A few veliger of Littorina	ie rs	Ceratium tripos, very few. Diatoms many
	Myriad	Autolytus prolifer pearing ova (2)		Crangon vul- garis, a few large and small Schistomysis ornata a few Calanus fin- marchicus numerous Acartia long iremis, i few Calanus fin marchicus,				
	Many	Nerine, adul Autolytus prolifer one othe form	Nauplius	marchicus, a few Pseudocala- nus elonga tus myriad Halitemora longicornis very few	-	Spirialis, few	a	Diatoms in bottom and surface tow nets

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Net put down, where and time.	Course of Boat thereafter and Depth.	Total Depth of Water and Nature of Bottom,	Surface Fauna (Tow-net).	(1) Length of time Net down and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes Nature, Size.	Post-Larval Fishes, Nature, Size,	Hydromedusæ	. Medusæ.
11th March 1889 500 yards N.E. of Pier head 9 a.m.	Towards Targets 3½ fathoms	5 fathoms Sandy	Halilemora longi- cornis, very few Pseudocalanus elon- gatus, very few Nauplil, very few Sagitta, very few		2 eggs of rockling	3 clupeoids, 8'5 mm. 10 mm. A few Gobies Pipe fish (Syngnathus acus) 2½ inches 1 herring (?)	controll states	
12th March 1889. Targets 8.30 a.m.	N.E. 3½ fathoms	5 fathoms Sandy	8.	hour 9 a.m.	1 of plaice Sand eels	Sprats 11 to 2 inches		
Targets 9.30 a.m.	N.E. 3½ fathoms	5 fathoms Sandy	7.	hour 10 a.m.	1 of Cod	2 Cotti Agonus cata- phractus, many her- rings	Aglantha digitalis (Circe rosea) 1 Bougain- villia britan- nica, minute	Cyanea minute, very few
15th March 1899. 1 mile abreast of Kinkell Ness 10 a.m.	To Harbour 4½ fathoms	S fathoms Sandy and rocky	Calanus finmarchi- cus, very few Pseudocalanus elon- gatus, very few Nauplii in swarms	14 hour 11.15 a.m.	1 of plaice Egg of Motella	6 clupeoids, 8·10 mm. Permanent raystappear- ing in tail Herrings many as be- fore 1 clupeoid, 9·5 mm., no appearance of perman- ent rays	Aglantha digitalis (Circe rosea) very few Aglantha digitalis (Circe rosea)	Fragments of Lesueuria
22nd March 1889. 400 yards off Pier 1.40 p.m.	To Targets	5 fathoms Sandy	Halitemora longi- cornis, very few Zoëa Larval Lesueuriæ, minute Aglantha digitalis (Circe rosea), many		Eggs of plaice, embryo far advanced Larval sand eels (many)	1 Agonus cat- aphractus, sand eels, a few	Aglantha	Cyanea, minute, many Fragment of Lesueuria 3 Pleuro- brachia, inch

IM	lid-water N	Tet.					Course of	Other forms
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	greenish bodies, Remarks, etc.
ALTERIA SULTA	Myriad as before		Haddeds, gold, and	Schistomysis ornata, many Mysis vul- garis, very few Mysis griffith-				Diatoms in surface net
	Bottom Very few	Tow-net.	Nauplii, very few Zoëæ	siæ Diastylis rathkii, one Caligus Parathemisto oblivia	boo la vesti collèg	Steds		Park And 1981 1981 at
			Zceae	Pseudocalanus elongatus, very few		Study		most estima
	Bottom	Trawl-net	anlicin	Schistomysis ornata, very few Parathemisto oblivia, very few Calanus fin- marchicus,		Ayeng		Li edin Connis de Connis de Consiste Louis de Louis de la consiste Louis de la consiste de la consiste de la consiste de la consiste de Louis de la consiste de Louis de la consiste de la co
Some years Plants pechie	Numerous as before	Adult Autolytus prolifer 3 Q bearing ova	Nauplii Zoëæ, many of Carcinus and Crangon	a few Schistomysis ornata, very few Parathemisto oblivia, a few Calanus fin- marchicus, many		Spirialis, very few	endict b	Diatoms, many
	Bottom	Adult 1 Tomopteris, 1 Inch Tow-net.	Nauplii	Schistomysis ornata, very few Parathemisto oblivia, many Calanus fin- marchicus, many Calanus fin-	to upp yould loss know or the down that the continued	Spens	Carrell Self Self Self Self	inga sala 2551 Leaf nes
Securit 1 Alle Section According		- Company	myriad.	marchicus, very few Pseudocala- nus elon- gatus, very few Halitemora longicornis, very few			.Z	1000 and 100
	A few (as before)	Adult Tomopteris	Zoëæ, very few	1 Mysis? Atylus swam- merdamii, very few Parathemisto oblivia, a few Eurydice pulchra, 3 Idotea linearis (3), very small	Heal As some a time they be there are a time and they a time are a time			Carlo Agent To all agent All Agent Ag Agent Agent Agent Agent Agent Agent Agent Agent Agent Agent Ag Agent Ag Agent Agent Agent Ag Agent Ag Agent Ag Agent Ag Ag Agent Agent Ag Ag Ag Agent Ag Ag Agent Ag Ag Ag Agent Ag Ag Ag Ag Ag Ag Ag Ag Ag Ag Ag Ag Ag

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Net put down, where, and time.	Course of Boat thereafter and Depth.	Total Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of time Net down and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, &c.	Hydromedusæ.	Medusæ.
5th April 1888. In line with Kinkell Ness	To Maiden Rock 4 fathoms				Haddock, plaice, cod and rock- ling, a few (Also in bot- tom-net)	c		Young forms, Hybocodon
6th April 1888. 7 miles E. of Bell Rock		Sandy	Eggs of cod and plaice			_im-in-E	menes	
9th April 1888. 4 miles from Pier and 2 miles N.E. of Kinkell Ness		Sandy			Eggs of plaice and rockling			
7 miles E, of Bell Rock		Sandy	Eggs of dab and rockling Many Crustaceans, Daphnia-like					
12th April 1888. 2 miles off Kinkell Ness, and 2 miles from Pier head	4 fathoms	Sandy			Eggs of cod, haddock, plaice, dab, flounder, rockling and weever (Trachinus vipera)	Sprat, 2 inches		Some young Pleuro- brachia
14th April 1888. Pier head	Towards Tay lightship for 1½ miles	Sandy	Many eggs of had- dock, cod, long rough dab, plaice, dab, flounder and rockling		Many eggs of plaice, haddock, cod, dab, sprat, rock-ling Clupeoids, 6'4 to 7'5 mm.	Sand cels 5-8 mm. Agoni 5-5-7-5 rockling 4-5 mm. Plaice, 7-5 mm. Cotti, 5-2 mm.	Some	
18th April 1888. Kinkell Ness	N. 3 fathoms			Aboth	A few eggs of plaice and long rough dab Sand eels in swarms Montagu's sucker Agonus cataphractus	Gunnels, 17 mm.		Pleuro- brachia, numerous, small
19th April 1888. 20 miles S.E. of N. Carr Rock			Eggs of haddock, cod, long rough dab, sprat, plaice, dab, turbot (one) and rockling, many Zoëæ		24th April Eggs of gurnard, sprat and long rough dab, many sand eels	Clupeoids 7.5 mm, to 9.2 mm,	•	

I	Mid-water	Net.		120		LineT Hapells	la sejori	Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults,	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
		A COM LINE OF THE COMMENT OF THE COM	Zoeæ					objective some
	housestance from extraores corp articles	Adult Auto- lytus pro- lifer	Tolk belong to the control of the co	and a second	apr Autoritation of the control of t	what is	nollta	Cond of a
	A few	, the first section of	2000 00 00 00 00 00 00 00 00 00 00 00 00	Talitrus-like		Lamedto (187 -		
- bours			Apr Gran	form, Daphnia	A Transferon		redux's	
3	Many	Many Adult Nereis dumerilii (Epitocous form)	Many	Hyperia (?) Eurydice, Idotea lin- earis and tricuspidata		d and delight and	ESCE Stop of Stode (mates) of HOI covering of rolls (mates) a	
				W. 2.				
a march I	Swarms, chiefly about 1 inch	A about to the state of the sta		Idotea, and many stalk-eyed transparent shrimp-like forms (Mysis)	A few young forms	Clione, many	ESL of Street, and the street,	
	Charles of the control of the contro			cond to				and the second
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		- I	T. T. T.	-				
	Course of	Total Depth		Time and (2) ken up.			did-water 2	
Net put	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	Leng t do	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size,	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
10.30 a.m.	N.E. 500 yards just in line with Pier head 3 fathoms	61 fathoms Sandy	Numerous Copepoda, Centropages hama- tus and Calanus fin- marchicus	½ hour 11 a.m.	Few of plaice, cod, and whiting, one of flounder and poor cod, 25th April 1887 Cottus, 7 mm.	1 goby, 1s inch Young flounders, To to Po inch, and one 1 r inch Dab, 27 mm.	Pelagic Medusoid eggs	
30th April 1888. 3 miles E. of Pier head, and 3 miles from Kin- kell Ness 1 p.m.	To Maiden Rock 4 fathoms	7 to 9 fathoms Sandy	A few eggs of rock- ling Numerous Copepoda Centropages hamatus Calanus finmarchicus and Halitemora longicornis	3	A large number of ova, viz.:— of plaice, gurnard, long rough dab and rockling	5 gadoids, ½ to ½ inch 8 sand-eels, ¾ inch	Few. Thau- mantias and Lizzia punc- tata	Pleurobrac many
4th May 1888. 100 yards off Pier in line with middle of Pier and Scoonie Hill 7 a.m.	To point about half-way between Eden and Pier 3 fathoms	Sandy	S Young Decaped Cuma Centropages hamatis, J and Q Halitemora longi- cornis and Acartia longiremis nume- rous Nauplii	i	Not nearly as numerous as last day Eggs of plaice, gur- nard and haddock	inch sand-eels, sinch	Numerous. Sarsia tubu- losa and pulchella and Thau- mantias	Cyanea, great n bers Pleurobra in g number
9th May								
1888. (1) Abreast of Castle 10,15 a.m.	E.N.E. To point where Scoonie Hill in line with Pier head 3 fathoms	Sandy	A few Appendicu- lariæ, Larval Mollusca (?) Calanus finmarchicu Halitemora longicor nis Nauplii	11.15 a.m.	1000	8 gadoids, § inch 3 gadoids, 15e inch 1 gadoid, ½ inch, 1 sand-eel, ½ inch	losa, a few 2 Sarsia pul- chella, 1 Phialidium variabile,	1 Ple brachio
(2) Near mouth of Eden 12 noon	S.	nt n n	Langer Well at The same out of the	½ hour 12.30 p.m.		4 gadoids, 4 to $ ilde{\chi_{\overline{e}}}$ inch	Sarsia tubu- losa and Thauman- tias, a few	
10th May 1888. Half-way be- tween Kin- kell Ness and Budda Rock 11 a.m.	s 4 fathom	Sandy	ns 1 Copepod, Hali mora longicornis 3 Sagittæ, ½ to ½ inc	te- 3 hour 11.45		7 gadoids, γ^{5} inch 2 flounders γ^{7} is in inch 1 clupeoid, inch	variabile, var. globosa,	a few
Harbour, 2 p.m			2476/1000	2 hour 4 p.m.		2 flounders ½ inch	1 Thauman- tias 1 Stauridium productum	
		A CONTRACT	CONTRACT OF THE PARTY OF THE PA					

	Iid-water I	Vet.		Milko Milko		Design 1	L septem	Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
		A few adult Nematodes	Pelagic ova	1 Crangon vulgaris, Mysis vul- garis, Schistomysis ornata, Diastylis rathkii, a few	ming pages Charge auto March and March and	months is	W Z Legs podisty	e transport
(Elizabeth and American	Numerous, g inch	Adult Tomopteris	Zoeæ numer- ous	Parathemisto oblivia, Eurydice, a few Calanus fin- marchicus	Appendicu- laria, 3	ALICE AND ALICE	39720 SEOLU (SEOLu (SEOLU (SEOLu (SEO	elth: 041 [2] 14
	Numerous, \(\frac{1}{2}\) to 1 inch, one or two with parasitic Nematode	Adult. 2 Nereis and Syllis, latter bearing blue mass of eggs	2 Zoeæ	2 Parathe- misto oblivia	Appendicu- laria, many	ik to An at 1972 Thinks	Numer- ous spicular forms	1986 doct 1984 20 Z. aditio b 2015 by 1986 by
	1, 1 inch			Parathemisto oblivia, 3 Amphithoe 1 Eurydice 1 Copepod, Calanus fin- marchicus	Appendicu- laria, in swarms.		Rhizoso- lenia amongst 'houses' of Ap- pendi- cularia	Infusorians amongst 'houses,' of Appendicu- laria
	Maria Transfer Maria	Fig. amore, 3 Local III cars Local didic contident of the		4011 1012 1013 1013	Appendicu- laria, in swarms			
			Zoeæ, a few	2 Parathe- misto obtivia 1 Copepod, Calanus fin- marchicus Schistomysis ornata, a few 3 Amphithoe littorina 2 Gammarus locusta,	Appendicu- laria, in swarms		Rhizoso- lenia in abund- ance in surface net	2 larval insects

					and the second second			
	Course of	Total Depth		f Time and (2) ken up.		let	Capture (4)	W.
Net put down, where, and time.	Boat thereafter and Depth,	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(I) Length o Net down, a Time when tal	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
11th May 1888. (1) Opposite Spindle Rock 12.15 p.m.	N.W. for 500 yards 4 fathoms	6 fathoms Rocky	2 Copepods, unrecognisable, and Hatitemora longicornis (?) Ova of Holothurian (?), a very few	½ hour 12.45 p.m.	co el min s	2 sand-eels, 3 to ½ inch	1 Sarsia tubu- losa	
(2) 500 yards N.W. of Spindle Rock 1 p.m.	N.W. along shore keeping 150 yards off low water rocks, 2 fathoms	6 to 5 fathoms Rocky	Eggs of gurnard, haddock, poor cod, sprat, dab, lemon dab, and rockling, Ova of Holothu- rian (?), a few	2 p.m.	*100346 *1.00 \$2 4555	2 sand-eels, ½ to γ _π inch 2 Gadus vir- ens (?), ½ to ½ inch 2 flounders, γ'π inch	Laodice cruciata, (Thaumantias pilosella), a few Thaumantias melanops, a few Sarsia pul- chella and tubulosa, a very few 1 Stauridium productum	Pleurobrachia a few
15th May 1888. 2 miles N.E. of Pier 4 a.m.	N.W. 3 fathoms	6½ to 4½ fathoms Sandy	Eggs of topknot and others as above	1½ hour 5,30 a.m.		E STATE TO STAT	Sarsia tubu- losa, many Laodice cru- ciata (Thaumantias pilosella) Thaumantias melanops, a few	Cyanea, man Halistemma (bottom-net
	matrial armatrial culti- culting		at the same and th				productum, a few Margelis ramosa	
16th May 1888. 13 mile E. of Pier, and 2 miles N.E. of Kinkell Ness 8 a.m.	W. 3å fathoms	7 fathoms Sandy	strikeningh. ut schule unt utdig	½ hour 8,30 a.m.		4 Gadus vir- ens, II inch, with para- sitic Caligus	Sarsia tubu- losa, a very few	1 Cyanea of pinkish hue
			ar property	uhan uhan	1.3× 1.01			
17th May 1888. 1 mile E. of Pier 4.30 p.m. E. of Maiden Rock	N.W.		A few Appendiculariæ 2 Sagittæ, § and ½ inch	4.50 p.m. 1 hour 5,25				
	11th May 1888. (1) Opposite Spindle Rock 12.15 p.m. (2) 500 yards N.W. of Spindle Rock 1 p.m. 15th May 1888. 2 miles N.E. of Pier 4 a.m. 17th May 1888. 1 mile E. of Fier, and 2 miles N.E. of Kinkell Ness 8 a.m.	Net put down, where, and time. 11th May 1888. (1) Opposite Spindle Rock 12:15 p.m. (2) 500 yards N.W. for 500 yards 4 fathoms N.W. of Spindle Rock 1 p.m. 15th May 1888. 2 miles N.E. of Pier, and 2 miles N.E. of Pier 4 a.m. 17th May 1888. 1 mile E. of Pier, and 2 miles N.E. of Kinkell Ness 8 a.m. 17th May 1888. 1 mile E. of Pier 4.30 p.m. 1.5th May 1888. 1 mile E. of Pier 4.30 p.m. 1.5th May 1888. 1 mile E. of Pier 4.30 p.m.	Net put down, where, and time. Course of Boat thereafter and 1888. (1) Opposite Spindle Rock 12.15 p.m. (2) 500 yards N.W. of Spindle Rock 1 p.m. Spindle Rock 1 p.m. 15th May 1888. 2 miles N.E. of Pier 4.3 miles N.E. of Pier 4.3 miles N.E. of Pier 4.30 p.m. 17th May 1888. 1 mile E. of Pier 4.30 p.m. 17th May 1888. 1 mile E. of Pier 4.30 p.m. 1.5 of Maiden Rock N.W. of Pier 4.30 p.m. 1.5 th May 1888. 1 mile E. of Pier 4.30 p.m. 1.5 th May 1888. 1 mile E. of Pier 4.30 p.m. 1.5 th May 1888. 1 mile E. of Pier 4.30 p.m.	Net put down, where, and time. Course of Boat thereafter and ther	Net put down, where, and time. Depth of Water and Ime.	11th May 1888. 1	11th May 1888, (1) Opposite Spindle Rock 12.15 p.m.	11th May 1888, 2 miles N. E. and the E. of Pier 4.30 p.m.

1	Iid-water N	Tet.		191		intell		Other Forms,
Larval chinoderms,	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Kemarks, etc.
		Allowing to		Parathemisto oblivia, a few Gammarus marinus (?) and locusta 1 Amphithoe littorina	Appendicu- laria, in swarms		Rhizo-solenia in abundance in midwater and surface nets	
	A SECOND CONTROL OF THE PROPERTY OF THE PROPER			Parathemisto oblivia, a few 2 Amphithoe littorina, Eurydice pulchra, a few	Appendicu- laria, in swarms		Rhizo- solenia in abund- ance in mid- water and surface nets	
Cap for 191 Original of the Cap for the Ca	1, 16 inch, with para- stic Nema- tode	A COMMENT OF THE PARTY OF THE P		1 Amphithoe littorina 1 Atylus swam- merdami 1 Eurydice	Appendicu- laria, in swarms	Note: 0 action - alones	Rhizo- solenia in abund- ance in sur- face net	validad kaj kaj kaj kaj kaj
		t and the s			A Lastic E C			Wall held a
		Auto- Carolina Caroli		1 Atylus bi- spinosus 1 Caprella	Appendicu- laria, in swarms		Rhizo- solenia in abund- ance in 'houses' of Ap- pendi- cularia, and sur- face net	1 larval insect
Marine Ma Marine Marine Marine Marine Marine Marine Marine Marine Marine Ma Marine Marine Marine Marine Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma				and () (a) (evali, le med		Rhizo- solenia in abund- ance	

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eman Pancill	Course of	Total Depth		of Time and (2) ken up.		als B	fates bij	•
Net put down, where, and time.	Boat thereafter and Depth,	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size,	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ,
18th May 1888. (1) 55 miles S.E. of Bell Rock	SANS SANSON DESIGN SANSON SANSON		1 Idotea Copepoda, many Calanus finmarchicus Acartia longiremis and Longipedia coronata					
(2) ¾ mile E. of Pier 8.40 a.m.	W. by Baths to Roman Catholic Church 2 fathoms	6½ to 3½ fathoms		1; hour 9.50 a.m.	Eggs of rock- ling	6 gadoids, § to 11 inch	Laodice cru- ciata (Thaumantias pilosella), very few 1 Thaumantias metanops Sarsia tubu- losa, very few 1 Sarsia pul- chella	2 Beroë
(3) $\frac{s}{4}$ mile E. of Pier 4.30 p.m.	N.		Appendicularia, a very few 2 Sagittæ, ¼ and ½ inch 1 Beroë	4 hour 4.45 p.m.				
19th May 1888. N. of Eden 9,26 a.m.	To 100 yards E. of Pier 3 fathoms	5½ to 4½ fathoms Sandy	Appendicularia, a very few Calanus finmarchicus Longipedia coronată 2 Sagittæ, 16 and 1 inch	11 hour 10.30 a.m.		31 gadoids, ½, ½ and ½ inch, smallest with embryonic, median fin: post-larval caudal fin appearing	Sarsia tubu- losa, a few	Pleurobrachi numerous, pinkish coloration Lesueuria vitrea, numerous 4 to 1½ inch
22nd May 1888. (1) 2½ miles of Boarhills, and 4 miles E. of St Andrews 10.30 a.m.	N. 5½ fathoms	9½ to 9 fathoms Sandy	1 Copepod, Halite- mora longicornis	1 hour 11.30 a.m.		2 gadoids, § and # inch, former with post-larval caudal fin appearing, embryonic median fin	Laodice cru- ciata (Thaumantias pilosella)	
(2) Point where net drawn up at 11.30 a.m.	W. 3½ fathoms	9 fathoms Sandy		# hour 12.30 p.m.		1 gadoid, §	Sarsia tubu- losa, a few Laodice cru- ciata (Thaumantias pilosella) ova (?)	Lesueuria vitrea, numerous Pleurobrachi many
23rd May 1888. Midway be- tween Pier head and Kinkell Ness, 2 miles from shore 11.30 a.m.	S. 3 fathoms	7½ fathoms Sandy	Ovum of Holothurian	1 hour 12.30 p.m,			Sarsia tubu- losa, many Laodice cruci- ata (Thaumantias pilosella), a very few	Lesueuria vitrea, numerous Pleurobrachi numerous

IM	id-water	Net.					Surgert 2	Othor Felifina
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Other Forms, Greenish Bodiës, Remarks, etc.
							Rhizo- solenia, very few	
 to the same of the					Appendicu- laria, a very few		W 8.77	
	ender term		AMERICANIA PARTIES AND PERSONAL AND PARTIES AND				Rhizo- solenia in abund-	
Plant St.			Balani in Cypris-stage			But 8	Rhizo-solenia abundant in surface net	2325
				1 Copepod Halitemora longicornis	Appendicu- laria, numerous		Rhizo- solenia abund- ant in both nets	
				THE STATE OF THE S			Rhizo- solehia in sur- face net	
							Rhizoso lenia, in sur- face net	

Net put	Course of	Total Depth		of Time and (2) tken up.		-20	W rotew-bi	76
down, where, and time.	Boat thereafter and Depth,	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ,	Medusæ.
24th May 1888. 2½ miles E. of Pier, 3 miles N. of Kinkell Ness, 11.15 a.m.	W. 3 fathoms	9 fathoms Sandy	Eggs of rockling 13 Copepoda, Halite- mora longicornis Exuviæ of Balani	3 hour 12 noon			Sarsia tubu- losa, a few 1 Sarsia pulchella	Lesueuria vitrea, many Pleurobrachia, many
26th May 1888. 3 miles from shore Midway be- tween Kin- kell Ness and Pier 11.50 a.m.	W.S.W. 3 fathoms	6½ fathoms Sandy	Copepoda, Halite- mora longicornis, a few Exuviæ of Balani	i hour 12.30 p.m.	Many of gurnard, all showing embryo with pigmented yolk and lens fully formed A few ova of brill (?)	3 gadoids, 11, 19 and 24 mm.	Thaumantias lucida (?), brick red marginal ocelli, numerous and rather thick tentacles Sarsia tubulosa	Lesucuria vitrea, very few
28th May 1888. 4 miles E. of Pier, 3 miles from Kinkell 1,30 p.m.	W.S.W. 4 fathoms	8½ to 6½ fathoms Sandy	1 Copepod, Centro- pages hamatus Exuviæ of Balani	11 hour 2.50 p.m.	Many ova of gurnard, sprat, dab, cod, had- dock, whit- ing, brill (a few)	1 Cottus, 9 mm., per- manent caudal rays scarcely apparent 8 gadoids, 2·5 mm. to 20 mm., smal- lest exhibit- ing perma- nent rays in caudal fin 5 sand-eels, 18 mm to 20 mm., one partially digested by Pleurobrachta 3 flounders, 9 mm. to 15 mm.	2 Thaumantias melanops Sarsta tubu- losa, a few	Lesueuria vitrea, a few Pleurobrachia, many
1st June 1888, Near Pier, in line with Scoonie Hill and end of Pier 10.30 a.m.	N.E. 2½ fathoms	5 fathoms Sandy		3 hour 11·15 a.m.		18 gadoids, 7.5 mm. to 24 mm., smallest with mere trace of permanent rays in caudal fin 6 flounders, 9 mm. to 12 mm., with eye on each side of head, and perma- nent rays present in smallest	Thaumantias pileata, a few Thaumantias melanops, many Laodice cruciata (Thaumantias pilosella), numerous Thaumantias, (?), a few 1 Margelis ramosa (Bougainvillia britannica)	Lesueuria vitrea, in swarms Pleurobrachia, very few

	-	•					1	1
M	id-water 1	Tet.		in .		Late/U		Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms,	Greenish Bodies, Remarks, etc.
	niosini ii niosini ii	Classes, Secondary, and Date,		ile strug girl	Appendicu- laria, a few		Rhizoso- lenia, a few	AND LOSS
		* Indiana C	Line delication of the second		Appendicu- laria, in swarms		Rhizo- solenia, a few in both nets	20 (4 %) 202 at 15 - 15
ana R	Month and Continues	1 adult Tomopteris	Megalops, a few Zoeæ, a few	Young Hyperia	Appendicu- luria, in swarms	ar8 associati years2	As before	And other is
	Control of the contro		In way A transport of the party	and 1 9 3	Claim to man Carlot and Carlot an	n Sandy.	Rhizo- solenia numer- ous	
	Manyaka Panana Laberaniaka Salem Laka octo-							

1				-			COLUMN TO SECURE A SE		
Net put down, where, and time.	Course of Boat thereafter	Total Depth of Water and	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Palagia Ova Post-Larval				
and time:	and Depth.	and Nature of Bottom.	(1011-100)	(1) Leng Net dow Time whe	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.	
7th June 1888. Scoonie Hill in line with Coast Guard Flagstaff, 3 miles from shore 10.40 a.m.	S	Sandy		27 ₂ hours 1.15 p.m.	10 Agonus cataphractus 28 Gobius minutus Pleuronectes limanda and platessa, many large and small, 3 clupeoids, 5 gurnards	Gadus virens (?), 33 mm. Gadoid, 27 mm. 9 flounders, 4·5 mm. to 9 mm. 3 Agonus cat- aphractus 10·5 mm.	Hydroid Zoophytes		
1 mile N.E. off Kinkell Ness 11.40 a.m.	Towards Harbour	8.6 fathoms Sandy	THE STATE OF THE S	11 hour 12:50 p.m.	7 Trigla gurnardus Gobius minutus, very many, 1 whiting 7 Agonus cataphractus Pleuronectes Limanda, 6 saleable, 3 unsaleable Pleuronectes platessa, 3 saleable, 16 unsaleable	5 flounders, 6, 7, 7'3, 13 mm. 1 clupcoid 1 Agonus cataphractus, 11 mm.	Hydroid Zoophytes	2 Pleuro- brachiæ, small	
11th June 1888.									
2 miles from Pier, 1 mile off Kinkell Ness. 12.15 p.m.	Towards Pier	Sandy	Eggs of rockling (3 bearded?) A few Ostracoda	4 hour 1.30 p.m.	A few of gurnard Larval Cyclopterus lumpus, 5 mm.		Sarsia tubu- losa, many Thaumantias melanops Laodice cruciata (Thaumantias pilosella), very few, Thaumantias lucida numerous, Margelis ramosa (Bougainvillia britannica), a few Lizzia octo- punctata,and 2 other forms:		

G	round Trav	vl.		4 Description		Inter digg	ki enggel	Other Forms,	
Larval chinoderms.			Larval Crustaceans.			Larval Mollusca, etc.	Dia- toms.	Greenish Bodies; Remarks, etc.	
	Adult Echino- deims Two sand- stars	2 adult	and to made name of the control of t	Schistomysis ornata, numerous 1 Crangon vulgaris 1 Cancer (Corystes) cassivelaunus Cuma trispinosa Diastylis rathkii, numerous 1 Atylus swammerdami Allorchestes nilssomii, very few 7 Idotea linearis		31998 21793 2373		200 t 1121 201 t 1121 201 t 1121 201 t 1121 201 t 1121 201 t 1121 201 t 1121	
	A few sand- stars 1 heart- urchin	2 adult Autolytus		Schistomysis ornata, numerous 1 Crangon vulgaris 1 small hermit-crab 1 Cancer cassivelaunus holsatus, myriad 3 Diastylis rathkii, nümerous Atylus swammerdami, a few Nisea lubbockiana. a few			This of	Hall Hall In Language Act all hall	
	Mid- Many, 15 mm.	water Net. 1 adult Tomopterts	Megalops, a few Zoeæ, many with long spines	annulicornis 1 Hippolyte (?	Appendicularia,			Exuviæ of Balani, a few A few Infusoria in mid - water net	

1				200						
engell melle	Course of	Total Depth				Sweet bases 0				
down, where, and time.	thereafter and Depth.	of Water and Nature of Bottom.			(1) Length of Net down, a	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.	
12th June 1888. Midway be- tween Pier and Kinkell Ness 1.10 p.m.	To about 200 yards from Pier keeping ½ mile off shore	Sandy and partly rocky		ortical of catherine of catherine or catheri	§ hour 2 p.m.	Many of gurnard, some with blastoderm multicelled, and others with embryo far advanced Larval Cyclopterus lumpus, 5 mm,	2 gadoids, 10 and 17 mm., former with secondary rays apparent only in caudal region	Swarms:— Thaumantias inconspicua, lucida, hemisphærica, and melanops, Laodice cruciata (Thaumantias pilosella), Phialidium variabile (Var. globosa) Margelis ramosa (Bougainvillia britannica), Fragment of Stauridium, Sarsia tubu- losa	Lesueuria vitrea In swarms, young and adult Pleurotrachia, very few	
					endicate special special special special		olejade authoral	day got A		
13th June 1888. Abreast of Maiden Rock 1.10 p.m.	To middle of west sands 44 fathoms	6 fathoms Sandy	-Names and Association of the Control of the Contro	-162 -162 -163 -163 -163 -163 -163 -163 -163 -163	17tz hour 2.15 p.m.	Gurnards, numerous, some with blastoderm multicelled, and others with pig- mentation on embryo and yolk-sac, Larval Cyclopterus lumpus, 6 mm.	rays in tail of smallest	inconspicua, melanops, octona (?), and gibbosa, (pinkish), Laodice cruciata (Thaumantias pilosella), Epenthesis maculata Margelis ramosa Bougainvillia britannica),	Beroë, very few Lesueuria vitrea, In swarms— young and adult, leurotrachia, numerous, large and small	
	12th June 1888. Midway between Pier and Kinkell Ness 1.10 p.m.	Net put down, where, and time. 12th June 1888. To about 200 yarks and Kinkell Ness 1.10 p.m. To middle of west and Shreast of Maiden Rock To middle of west and shreast of Maiden Rock To middle of west and shreast of Maiden Rock To middle of west and shreast of Maiden Rock To middle of west and shreast of Maiden Rock To middle of west and shreast of Maiden Rock To middle of west and shreast of Maiden Rock To middle of west and shreast of maiden Rock To middle of west and shreast	Net put down, where, and time. 12th June 1888. Midway between Pier and Kinkell Ness 1.10 p.m. To middle of Maiden Rock 1.10 p.m. To middle Name of Rock 1.10 p.m. To middle Nam	Net put down, where, and time, lass. 12th June 1888. Midway between Pier and Kinkell Ness 1.10 p.m. Midway between Pier and Kinkell Ness 1.10 p.m. To middle off west sands 4½ fathoms To middle fathors	Net put down, where, and time. 12th June 1888. To about tween Pier and Kinkell Ness Li0 p.m. To middle off shore	12th June 1888. Midway be- tween Pier and Kinkell Ness 1.10 p.m. 13th June 1888. To about 200 yards from Pier keeping ½ mile off shore To middle off west 1.10 p.m. 6 fathoms Sandy and partly rocky 1 mile for west sands 4½ fathoms 6 fathoms Sandy 1/½ hour 2.15 p.m.	Course of Boat thereafter and time. Depth Boat thereafter and Depth Depth Boat thereafter and Depth Boat thereafter and Depth Depth Boat thereafter and Depth Boat t	12th June 1888, Midway between Pier and Kinkell Ness 1.10 p.m. To about keeping ½ mile off shore Sandy 2 p.m. Many of gurand from Pier keeping ½ mile off shore Many of gurand from Pier keeping ½ mile off shore Many of gurand partly rocky 2 p.m. Many of gurand from Pier with the last-derm multicelled, and others with embryof are advanced Lavval \(\frac{Optioners}{Optioners} \) Many of gurand from Pier with secondary multicelled, and others with membryof are advanced Lavval \(\frac{Optioners}{Optioners} \) Many of gurand from Pier with secondary multicelled, and others with pier many in the properties of the field of the secondary multicelled, and others with pier multicelled, and the pier multicelled, and the pier m	12th June Mitway Pere and Kinkell Ness 1.10 p.m. 13th June 1888. Abreas of Midden Rock 1.10 p.m. 17to middle 1.10 p.m. 18th June 1888. Abreas of Midden Rock 1.10 p.m. 12th June 1888. Abreas of Midden Rock 1.10 p.m. 12th June 1888. Abreas of of west 1.10 p.m. 12th June 1888. Abreas of of west 1.10 p.m. 12th June 1888. Abreas of of west 1.10 p.m. 12th June 1888. Abreas of of west 1.10 p.m. 12th June 1888. Abreas of of west 1.10 p.m. 12th June 1888. Abreas of of west 1.10 p.m. 12th June 1888. Abreas of of west 1.10 p.m. 12th June 1888. Abreas of of west 1.10 p.m. 12th June 1888. Abreas of of west 1.10 p.m. 12th June 1888. Abreas of of west 1.10 p.m. 18th June 1888. Abreas of of west 1.10 p.m. 18th June 1888. Abreas of of west 1.10 p.m. 19th June 1888. Abreas of of west 1.10 p.m. 19th June 1888. Abreas of of west 1.10 p.m. 19th June 1888. Abreas of of west 1.10 p.m. 19th June 1888. Abreas of of west 1.10 p.m. 19th June 1888. Abreas of of west 1.10 p.m. 2 gaadoids, 10 and if mm. 18th June 1888. Abreas of west 1888. Abreas of west 1888. Abreas of of west 1.10 p.m. 2 gaadoids, 10 and if mm. 1888. Abreas of west 1888. Abreas of wes	

M	lid-water	Net.	Course	Other Forms.				
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Other Forms, Greenish Bodies, Remarks, etc.
	Very few	Young Maye- lona Phyllodoce Eulalia, Polydora and Sabellaria	a country due 2:3 montrolled authoritant authoritant authoritant authoritant authoritant authoritant	100.411 - 100.411	Appendi- cularia, very few	dandy dank	a sedint 2	code 1001 prist the control of the
	A CONTROL OF THE CONT	1						
	Let unberge		are led squares	and i		amostrat C	W at the state of	nos amel (2)
	Very few	Adult Tomopteris, a few large and small	1 Contralogue, with again matephores and Cope poda	Hippolyte (?) Caligus, with parasitic Udonella caligorum	Appendicularia, many		matal ()	anokalot
	min tolera		ed as ourse	Simple of the control		amodini (a 'essay	W.S.W.	2003 (101) 2003 (101) 2003 (101) 2003 (101)
and a	profession of particular and particu							
	plinantiu (winnels arolus a planes aring cale		4					

	Course of	Total Depth			Time 1 (2) en up.		Mid-water Ne:			
Net put down, where, and time.	Boat	of Water	Surface Fat (Tow-net)		(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ	. Medusæ,	
15th June 1888. ½ mile from Pier rocks with (1) Scoonie Hill in line with Gas Works chimney 10 a.m.	E. 2 fathoms N. to Eden	4 fathoms Sandy	- Appendix and a part of the p		1 hour 11 a.m.	Gurnard a	1 Gadus morrhua, showing tessellated arrangement of pigment 1 Cyctopterus lumpus, 9 mm.	Sarsia tubu- losa, small, Margelis ramosa		
trawl 12 noon	mouth 2½ fathoms		Austrik.	100	p.m.		land.	numerous	numerous	
1888.			otulia.	after M.	territori Handoli Totalian	1 Cephalopod, with sper- matophores A few Cope- poda	26 shapper o log lotte Hans but			
18th June 1888. 1 mile N.E. of Pier 9.30 a.m.	W.S.W. 3 fathoms	6½ fathoms Sandy			hour 10 a.m.	Same as be- fore		Sarsia tubu- losa gibbosa, hemisphæ- rica, octona, lucida, and melanops, as before, Laodice cruci- ata (Ihaumantias pilosella), as before, Margelis ra- mosa (Bougainvillia britannica), as before 1 Oceania episcopalis	Pleurobrachia, as before Lesueuria vitrea, as be- fore	

M	id-water N	Tet.		1000			Other Forms, Greenish Bodies, Remarks, etc.	
Larval Echinoderms.	Larval Sagittæ, chinoderms. Size, etc.		Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.		Dia- toms.
-contract Anat that Cold a si the topic	TO A SECTION OF THE PARTY OF TH	Young Mitraria	ent en sittle	Caligus, with para- sitic Ud- onella cali- gorum	K for Ospejon Littleway Li	emodia tot	Cowell Pict 112 fact on	CONTRACT CON
	and the second s							
Thought the same of the same o	CONTROL OF THE PROPERTY OF THE		22 WH. 2	# 100 of 2	Index Constitution of the	emodule Çane	The state of the s	11.25 day 1
	FIXA, MADBY							
			alleroise	Allorchestes nilssonii Caligus, 4 & and Q, latter very mature		Sandy		3,000, 1600 500 T
	al ment		ostenos os finited transc) dati		Toney Modellaria with lines of Appendix Appendi			2 13 m 4 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m

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Net put	Course of Boat	Total Depth of Water		of Time and (2) tken up.	Mid-water Nat.				
down, where, and time.	thereafter and Depth.	and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size,	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.	
23rd June 1888, 3½ miles E.N.E. off Pier 10.45 a.m.	Towards Pier 14½ fathoms	10 fathoms Sandy	A few Copepoda:— Halitemora longi- cornts, Centropages hama- tus, and Acartia longiremis, A very few Ostra- coda, Megalops stage of lobster. Diatoms	1½ hour 12.15 p.m.	Same as before	STORY STORY	Thaumantias hemisphorrica, many, mature 1 Margetis ramosa (Bougainvillia britamnica) Epenthesis maculata (Thaumantias maculata), very ripe, Sarsia tubulosa, many small and immature	Pleurobrachi very many, large (very ripe), and small	
25th June 1888. 1 mile N.E. of Pier head 11.45 a.m.	To within 300 yards of Pier head near salmon nets 2½ fathoms	5 fathoms Sandy	Many Copepoda:— Centropages hamatus, Acartia longiremis, Cladocera, Evadne nordmanni, a very few A very few Zoeæ	2 hours 1.45 p.m.	A few as before		Sarsia tubu- losa as be- fore Laodice cru- ciata (Thaumantias pilosella), a few large, not quite ripe, Thaumantias hemisphæ- rica, many as before, Thaumantias (f), large, not quite ripe, Epenthesis maculata (Thaumantias maculata), many, not so ripe as formerly	Very few fragments of Lesueuria one whole, small Pleurobrachia very many as before	
26th June 1888. 13 miles N. of Pier head 12,45 p.m.		Sandy	Young Mollusca '013 inch Cladocera, Evadne nordmanni, Many Infusoria, Ceratium fusus 1 Megalops	1½ hour 2 p.m.	Solenette (Solea lutea), dab		Sarsia tubu- losa, im- mature		

IV.	Iid-water 1	Net.						Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida,	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
	Very few, 12 mm.	Young Poly- gordius Adult Tomop- teris	Megalops, a few Zoeæ, a few	Caligus,many,			In sur- face and mid- water nets	Peculiar spicu- lar bodies. Algoid (see sketch)
	Very few, 6 mm. to 14 mm.			1 Montagua alderi, 9 ripe. Catigus, many, 3 and 9, mature			A few (see sketch) in sur- face net	Algoid forms (as before)
	Bottom	Tow-net.	,	Acartia longiremis		1		
Plutet, many	Bottom	Tow-net.	Nauplii, numerous	Halitemora longicornis Ostracoda, numerous Evadnenord- manni, myriad, Calagus rapax, M Ed.		Post-larval mussels, •012 inch, •007 inch, •008 inch Spirialis, a few	4 kinds in sur- face net, and 5 kinds in bottom net	Tintimus denticulatus Ceratium divergens Spores of algae and algoid as above in surface net. Algoid as before in bottom net

	Course of	Total Depth		f Time nd (2) ken up.		els.	id-water h	MC.
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom,	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
28th June 1888. 300 yards N.E. of Pier 2.20 p.m.	S. 4% fathoms 2 feet from bottom	5 fathoms Sandy	I young lobster Young crabs, very few Ostracoda, very few Cladocera, Eeadne nordmanni, very few Megalops, very few A very few Plutei Infusoria, Ceratium fusus	½ hour 3 p.m.	A regularité	elle Para de la companya de la compa		
2nd July 1888. 400 yards N.E. of Pier head 10 a.m.	N.E.	5 fathoms Sandy	Many eggs of gurnard with advanced embryos Many eggs of sprat with advanced embryos A few eggs of dab with advanced embryos Many eggs of rockling with advanced embryos A few of topknot (?) A few of lemon dab I embryo with yolk-sac I Centropages hamatus Evadne nordmanni, very few Exuía of Balani, very few Ceratium divergens, few Tintinnus denticulatus, very few	1 hour 11 a.m.		5 flounders, 5·5, 7, 11, and 12 mm., smallest ex- hibiting eyes on each side of head, and permanent rays appear- ing in tail 5 gobies, 6, 10, 11 mm, smallest with per- manent rays in tail		Pleurobrachia, very few
	2 feet from bottom	5 fathoms			Vinger Vin	fow-act.	Bottom	Young Pleurobrachia, (see sketch) A few ova of Lesucuria (?) (see sketch)

			A Company				1	
IV	Iid-water I	Net.						Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dis- toms.	Greenish Bodies, Remarks, etc.
Plutei, numerous	Bottom	Tow-net. Larval, Lagis, Mayelona, Spirorbis	1 Megalops Nauplii, numerous	Halitemora longicoruis Acartia longiremis Centropages hamatus, numerous Ostracoda, abundant, Evadne nordmanni, myriad	Appendicu- laria, a few young (see sketch) Cyphonautes, many		4 kinds in sur- face net, numer- ous forms as be- fore in bottom net	Infusoria:— Tintinnus denticulatus Algoid, as before, in surface net Ceratium fusus, tripos, and divergens Algoid as before in bottom net
	Ground	Trawl,	PROTECTION OF THE PROTECTION O			Panadiet (4)	mb w	
Adult Echinoderms 1 Asterias, broken test of Echinus		1 small Neph- thys, young	es produce author of	Mysis flexu- osus, nu- merous Portunus holsatus, numerous Diastylis rathkii, abundant Anonyx edwardsii, very many,			mgi	
no pod a no pod a ugrd		epiferinati z li lisa ir 7 sulla dealla ma suo ditte suo financia li li suomana		large and small, Q carrying young Atylus swam- merdami, very few Another ses- sile-eyed form			brown:	
	Bottom	Tow-net.						
Plutei, a few		1 Wartelia	Nauplii, numerous	Copepoda, in abundance Acartia longiremis, Halilemora longicornis Ostracoda, very few Evadne nordmanni, Lovén, numerous, many specimens with young in broodpouch	Appendicularia, young, very few	Post-larval A few young mussels, on to 0125 incl Spirialis, a few	Many, same kinds as form- erly	Infusoria, numerous Ceratium di- vergens and fusus Tintinnus denticulatus Amphidinium operculatum Algoid (as before)

								1	
Contract of the last		Course of	Total Depth		f Time nd (2) ken up.		del	astow-Ali	W.
	Net put down where, and time.	Boat thereafter and (Depth,	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size, Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
	4th July 1888. 1½ mile N. off Pierhead 8.40 a.m.		41 fathoms Sandy	1 small Anonyx ed- wardsii A very few. larval Annelids, same as smallest in other nets	1½ hour 9.10 a.m.	2 Pleuronectes limanda, 2½ to 2½ inches 1 Syngnathus acus		eastall	Pleurobrachia, very few
		2 feet frombot- tom	4½ fathoms		and the second s	Pleuronectids, 11 mm. Lump- suckers, 9 to 10 mm.	Jwarf	hatport)	PRIDE STATE OF THE
	5th July 1888. 2 miles N.E. of Pier head 10 a.m.	Towards Kinkell Ness	5 fathoms Sandy and muddy		1½ hour 11.30 a.m.	18 Trigla gurnardus, 3½ to 5 inches 2 Trigla gurnardus, 7½ inches 1 sprat, 2½ inches 2 whitings, 5½ to 6½ inches 60 Pleuronectes platessa, 4 to 4½ inches 8 Pteuronectes flesus, saleable 20 Pleuronectes platessa, large, 12 inches 10 Pleuronectes limanda, large, 12 inches 10 Raia clavata, 16½ by 12½ inches		Reflein	Pleurobrachia, a few ova shed

			4				1	1
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans,	Adult Crustaceans,	Molluscoida,	Larval Mollusca, etc.	Dia- toms.	Other Forms Greenish Bodies, Remarks, etc.
	Ground	Trawl. Form as in bottom townet, and a few tubes	Naupiii, a few	Schistomysis ornata, very few, young, one Q bear- ing ova Diastylis rathkii Anonyx ed- wardsii, a few Atylus swam- merdami, a few 1 Calliope lwviuscula 3 Idotea			A few in ground-trawl	*
Plutei, a few	Bottom	Tow-net. Form in tube, Nerine (see sketch), Many small forms	Nauplii, abundant	Copepoda, many Acartia lon- giremis Ostracoda, very few Evadne, in abundance Other forms A few ova	Appendicu- laria, very few Cyphonautes	Post-larval Young mus- sels, '012 inch A few young Pteropods	6 kinds, 4 as form- erly	Infusoria, numerous Tintinnus deuticulatu: Ceratium tripos and divergens divergens operculatum Algoid, as before
Canada organica	Ground	Trawl,		Young shrimps, a few Diastylis rathkti, a few .	Very few, young			
Region Sep.								ALOH (ON THE SECOND

ALCOHOLD VALUE	No Park								
Bo	at	Total Depth of Water	Surface Fauna		th of Time n, and (2) n taken up.		Post Lawrel		
e. ar	nd	Nature of Bottom	(Tow-net).	100	(I) Leng Net dow Time whe	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
		5 fathoms			Shart Colored	Allegar M.		Dimoriù	
									*
Pier Kin	nkell ss	5½ fathoms Sandy	Ostracoda, very i (Cypris stage Cirripede?) w diatoms growi on it	h few of rith ing	1 hour 11 a.m.	A few of gurnard with embryo well advanced, pigmented A few eggs of sole	33 gobies, 3:5 mm. to 11 mm., smallest with per- manentrays in tail	Sarsia tubu- losa, many, small, im- mature 2 Thaumantias melanops Thaumantias maculata A few almost ripe, largest	2 Lesueuria vitrea Pleurobrachia numerous, large, seem- ingly spent, a few small
lace 2 fee bot	t from,	5½ fathoms Sandy	•	COLD TO	1 hour 11 a.m.			nearly 3 men	
					VIII I		,twatt	haupely	
E. 4 far Pier and N.		8 fathoms Sandy	B 5500 G		½ hour 11 a.m.			Thaumantias melanops, many, and hemisphærica a few very ripe, about § inch	3 Aurelia aurita, largest 4 inches in diameter Lesueuria bearing ova 016 inch Pleurobrachie many large and small as before
net Boar up feet	hills, 2 from	8 fathoms Sandy	cornis, a few Evadne nordman Nauplii, numero Plutei, a few Infusoria:—Cerat divergens	nni, ous	½ hour 11,30 a.m.	8 eggs with previtelline space and oil globule- like clu- peoid, but no vesicles in yolk Egg of top- knot (?)			001010
	tere, there are there are the there are there are there are the the there are the the there are the the there are the the there are the there are the there are the there are the there	lace e as bottom 2 feet from bottom 3 fathoms 4 fathoms 2 feet from bottom Towards Kinkell 2 seet from bottom 1 Towards 1 Seet from bottom 1 Towards 1 Seet from bottom 1 Towards 1 Seet from bottom 2 feet from bottom	Course of Boat thereafter and Depth. 2 feet from bottom 2 feet from bottom 2 feet from bottom 3 fathoms 5 fathoms	Course of thereafter and Depth. 2 feet from bottom 2 feet from bottom 2 feet from bottom 2 feet from bottom 3 fathoms 3 fathoms 5 fathoms Sandy Mussels, '013 inc Ostracoda, very (Cypris stage Cirripede?) will diatoms grow on it 1 Zoea, Holoblas ovum 1 Zoea, Holoblas ovum 2 feet from bottom 5 fathoms Sandy 8 fathoms Sandy 10 Feet from bottom 10 Feet from bottom 11 Zoea, Holoblas ovum 12 Feet from bottom 13 fathoms Sandy 14 fathoms Sandy 15 fathoms Sandy 16 Feet from bottom 17 Feet from bottom 18 fathoms Sandy 19 Feet from bottom 10 Feet from bottom 10 Feet from bottom 10 Feet from bottom 11 Zoea, Holoblas ovum 12 Feet from bottom 13 fathoms Sandy 14 fathoms Sandy 15 fathoms Sandy 16 fathoms Sandy 17 Feet from bottom 18 fathoms Sandy Feet from bottom 19 Feet from bottom 10 Feet from fathoms Sandy Feet from fathoms Sandy Feet from fathoms Sandy Feet from fathoms Sandy Feet from fathoms Feet from fathoms Sandy Feet from fathoms Fe	Towards Kinkell Ness 3 fathoms Sandy Sandy Natica (?), a few! Mussels, '013 inch Oxfacoda, very few (Cypris stage of Cirripede?) with diatoms growing on it 1 Zoca, Holoblastic ovum 1 V. Sandy	Course of the cet. Towards from bottom Towards sandy Pier 2 feet from bottom Towards see as Pottom Towards sandy Pier 2 feet from bottom Towards see as Towards sandy Towards Sandy Towards Sandy Towards Sandy Sandy Towards Sandy Towards Sandy Towards Sandy Sandy Towards Sandy T	Towards First Sandy Sandy Mussels, '013 inch Ostracoda, very few (Cypris stage of Chripede?) with diatoms growing on it 1 Zoca, Holoblastic ovum Towards Sandy Sandy Stathoms Sandy I hour lam. I hour lam. Sandy Sandy Sandy Sandy I hour lam. Sandy lam. Sandy I hour lam. Sandy lam.	Towards Kinkell Ness 3 fathoms and Sandy S	Towards Kinkell Sandy Ness (Cypris suge of Cirripede') with Ostracoda, very few of Sandy in tall in man, smallest with pervision in tall in manuture of sold of sole with Ostracoda, very few almost ripe, largest nearly ½ inch in tall in man, with pervision in tall in man,

_			-		14				
	M	id-water I	let.				Name of	0.000	Other Forms,
F	Larval	Sagittæ, Size, etc.	Larval Annelids and 'Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
	Piutei, numerous	Bottom	Tow-net. Nerine, as before Small forms as before	Nauplii, numerous	Acartia lon- giremis Halitemora longicornis, abundant 1 Caligus Ostracoda, very few Evadne, many Brood- pouches filled	Appendicu- laria, very few, young Actinotrocha	Post-larval Spirialis, many Young mus- sels, '013 inch, nu- merous	20 AM	Infusoria: Tintinnus denticulatus and Cera- tium diver gens
	Many Plutei	Bottom	Tow-net. Nerine (post-larval)	Nauplii, numerous	Halitemora longicornis Ostracoda very few Evadne, a few Ova in Gas- trula stage	Appendicularia, very few	Post-Larval Natica ca- tena (?) a few young mussels, '013 inch	2 kinds in sur- face net 4 kinds as before	Tintinnus denticulatus Algoid (as before)
	<i>Plutci</i> , a few	Bottom	Tow-net.	Nauplii, very few Nauplii, abundant	Caligus, a few \$\times\$ bearing ova; one with parasitic Udonella caligorum Halitemora longicornis Centropages		epodel 20 - 40 Carry	A few of 1 kind 5 kinds in bottom, and	Algoid (as before) both tow-nets
The state of the s					hamatus Acartia lon- giremis Ostracoda, very few Evadne, few Ovum in Morula stage			4 kinds in sur- face nets	Two forms (see sketch)

Net put	Course of Boat	Total Depth of Water	C. of a P.	of Time and (2) aken up.			M nataw-hi	M
down, where, and time.	thereafter and Depth.	and Nature of Bottom.	Surface Fauna (Tow-net.)	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
10th July 1888, 200 yards N.E. of Pier 11.40 a.m.	Towards Eden 3½ fathoms	5 fathoms Sandy i		§ hour 12.10 a.m.	Masses of eggs of frog-fish	1 goby, 8 mm., per- manent rays appearing in tail	Thaumantias hemisphærica, many large, a few im- mature, majority ripe Thaumantias maculata, a few ripe	Lesueuria vitrea, in swarms, a few small, largest 2 inches in diameter Pleurobrachia, in swarms, large and small
13th July 1888. 1 mile N. of Pier 2.45 p.m.	To within 200 yards of Pier head 3 fathoms	5 fathoms Sandy		3 hour 3,30 p.m.	Eggs of top-knot	2 gobies, 7 mm. and 12 mm.	Thaumantias hemisphærica, many large, Sarsia tubu- losa, very few 1 Margelis ramosa (Bougainvillia britannica), large, im- mature	1 Aurelia aurita, 4 inches in diameter Lesueuria vitrea, nu- merous (as before) Pleurobrachia (as before)
14th July 1888. 4 mile N. of Kinkell Ness 2.20 p.m.	a mile abreast of Maiden Rock a fathoms	5} fathoms rocky		4 hour 3-5 p.m.	7		Thaumantias hemisphærica, numerous Sarsta tubu- losa, a few A few ova	3 Aurelia aurita, 4 inches in diameter Lesueuria vitrea, a few Pleurobrachia, numerous, Larval Peachia, many
	2 feet from bottom	54 fathoms rocky				Accessors	Thaumantias hemisphærica, many	Pleurobrachia, small, very few, and a few embryo- nic forms Larval Peachia (?)

M	id-water N	et.		205				Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans,	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
11/20/VENUE			e jamen ili no done Aze trans Azerta enera yatan min taran husa anan akan akan	Spring 1, 100,000 (100,000) (100,000 (100,000 (100,000 (100,000 (100,000 (100,000 (100,000) (100,000 (100,000 (100,000 (100,000 (100,000 (100,000 (100,000) (100,000 (100,000 (100,000 (100,000 (100,000 (100,000 (100,000) (100,000 (100,000 (100,00) (100,000 (100,00) (100,000 (100,00) (100,000 (100,00) (100,000 (100,00) (100,00) (100,000 (100,00)		acapathal o	LAN Capacita A 200	VOLUMENT OF THE PARTY OF THE PA
				Ampelisca gaimardii Q bearing ova			3 kinds	A few Cœlenterate (?) Ova '004 to '005 inch Tintinnus denticulatus
44000			olocal oggil	and a last	English and make			
			A very few Zoeæ	1 Hyperia medusarum Caligus, very few Moultings of Cirripedes	Appendicu- laria, a few very small		3 kinds	
	Bottom	Tow-net. As before Young forms m tube (Spio-like)	Nauplii, numerous	1 Hippolyte \[\frac{1}{s} \] inch Acartia lon- giremis Halitemora longicornis, myriad, and many Longipedia coronata Ostracoda, many Evadne, numerous A few ova in Moruta-stage	Cyphonautes	Post - larval Spirialis, a few Natica, and other uni- valves, my- riad Mussels, '011 inch to '014 inch, nu- merous	3 kinds	Tintinnus denticulatus, numerous Form (see sketch) Richest col- lection this summer

Course of	Total Depth		Tim nd (2 lken				
Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Net down, a Time when ta	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
W. 2 feet from bottom	6 fathoms Sandy	Appendicularia, very few, small Acartia longiremis, very few Catigus, very few Larval Nerine Pleurobrachia, very few large 6 Beroë, large and small Laodice cruciata, large, mature Obelia dichotoma Ceratium divergens	½ hour 9,30 a.m.	Montagu's sucker Sand-eel Eggs of rock- ling, gur- nard, sprat, and sole- nette.		Obelia dicho- toma	Pleurobrachia, many Larval Pleu- robrachia ova
De US			(arrela				
W. 4 fathoms.	7 fathoms Sandy	Acartia longiremis, very few Centropages hamatus Halitemora longicornis Evadne nordmanni, very few Nauplii, a few Larval Annelid (see sketch) Plutei, very few 1 Pleurobrachia, medium size Pleurobrachia, very few, small Larval Pleurobrachia	1 hour 11.30 a.m.	Eggs of sole- nette, gur- nard and lemon dab (?)		Laodice cruciata (Thaumantias pilosella), numerous, large, ripe Thaumantias hemisphærica, a few	Aurelia aurila, Lesueuria, many Beroë, numerous Pleurobrachia, myriad, large and small
2 feet from bottom	7 fathoms						
	Boat thereafter and Depth. W. 2 feet from bottom W. 4 fathoms.	Boat thereafter and Nature and Nature of Bottom. W. 2 feet from bottom W. 3 fathoms 4 fathoms. 7 fathoms Sandy 2 feet from bottom 7 fathoms	Boat thereafter and Nature of Bottom. W. 2 feet from bottom W. 3 fathoms Sandy W. 4 fathoms. 4 fathoms. 7 fathoms Sandy W. 5 fathoms Sandy W. 6 fathoms Sandy Appendicularia, very few Larval Nerine Pleurobrachia, very few Larval Nerine Pleurobrachia, very few large 6 Beroë, large and small Laodice cruciata, large, mature Obelia dichotoma Ceratium divergens W. 7 fathoms Sandy W. 8 fathoms Sandy W. 9 few Caligus, very few Larval Amelia divergens Acartia longiremis, very few Centropages hamatus Haltemora longicoirus Evadne nordmanni, very few Nauptii, a few Larval Annelid (see sketch) Plutei, very few Pleurobrachia, medium size Pleurobrachia, very few, small Larval Pleurobrachia	Boat thereafter and Nature of Bottom. W. 2 feet from bottom W. 3 fathoms Sandy W. 4 fathoms. To fathoms Sandy W. 5 fathoms Sandy W. 6 fathoms Sandy W. 6 fathoms Sandy W. 6 fathoms Sandy W. 6 fathoms Sandy Appendicularia, very few Caligus, very few Caligus, very few Larval Nerine Pleurobrachia, very few large 6 Beroë, large and small Laodice cruciata, large, mature Obelia dichotoma Ceratium divergens W. 6 fathoms Sandy W. 7 fathoms Acartia longiremis, very few Candidation Ceratium divergens Acartia longiremis, very few large and small Laodice cruciata, large, mature Obelia dichotoma Ceratium divergens W. 1 fathoms. To fathoms Sandy Pleurobrachia, very few Nauplii, a few Larval Alnelid (see sketch) Plutei, very few 1 Pleurobrachia, medium size Pleurobrachia, very few, small Larval Pleurobrachia Pleet from bottom To fathoms	W. 2 feet from bottom W. 3 fathoms Sandy W. 4 fathoms. Sandy W. 5 fathoms Sandy W. 6 fathoms Sandy W. 7 fathoms Sandy W. 7 fathoms Sandy W. 7 fathoms Sandy W. 8 fathoms Sandy W. 8 fathoms Sandy W. 9,30 a.m.	W. 2 feet from bottom W. 2 feet from bottom W. 3 fathoms Sandy W. 4 fathoms. Sandy W. 4 fathoms. Sandy I fathoms. Sandy W. 5 fathoms Sandy W. 6 Berosi, large and small Laodice cruciata, large, mature Obelia dichotoma Ceratium divergens Acartia longiremis, very few Centropages hamatus Halitemora longicoris Ecadne nordmanni, very few Nauptit, a few Larval Annelid (see sketch) Plutei, very few I Pleurobrachia, medium size Pleurobrachia, very few I Pleurobrachia, wend few small Larval Pleurobrachia Rect from bottom Pathoms Acartia longiremis, 11,000 mette, gurnard, sprat, and solender nette. Legs of solenting mette, gurnard, and and lemon dab (3)	W. 2 feet from bottom 4 fathoms Sandy W. 7 fathoms Sandy W. 8 fathoms Sandy W. 1 fathoms Sandy W. 1 fathoms Sandy W. 2 feet from bottom 4 fathoms Sandy W. 2 feet from bottom 4 fathoms Sandy Appendicularia, very few Calipus, very few Cartina divergens 4 fathoms. 4 fathoms Sandy Appendicularia, very few Larval Nervice, very few Calipus, very few Calipus, very few Certivopages hamatus Indiamora tongitorius, very few Larval Annelid (see sketch) Plutei, very few Larval Annelid (see sketch) Plutei, very few 1 Pleurobrachia, very

M	id-water	Net.		Èail I		Tanal R		
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Other Forms, Greenish Bodies, Remarks, etc.
Plutei, numerous	Bottom	Tow-net. Nerine, many (as before) Spio-like in tube Capitella	Nauplii, numerous Zoeæ, very few	Acartia lon- giremis, myriad Halitemora longicornis, a few Centropages hamatus Longipedia coronata Pleopis poly- phemoides Oithona spi- nifrons, a few Evadne, many Ostracoda, very few	Appendicu- laria, very few, small Cyphonautes, very few Phoronis, and other forms	Veliger of Spirialis (?) Post - larval Mussels '011 inch to '013 inch A few ova	4 kinds	Tintinnus denticulatus Ceratium divergens , tripos, numerous, , fusus, numerous, Algoid as formerly
							Rhizo- solenia very few (see sketch) 3 other kinds in surface net	
Plutei, many	Botton	n Tow-net. Terebella Polynoë, Spic	Nauptii, a few	Halilemora longicornis, and Acartia longiremis, a few Evadne, very few Cyclopina littoralis		Veliger of Spirialis (?) Post-Larval mussels oli3 inch Spirialis, and other univalves		s Tintinnus denticulatus Ceratium fusus

		Total		ime (2) n up.		.ie	M satawe-bil	M.
Net put down, where, and time	Course of Boat thereafter and Depth,	Depth of Water and Nature of Bottom,	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size,	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
20th July 1888, 1 mile E. of Pier head, and 1 mile N.E. of Kin- kell Ness	W. 4 fathoms	7 fathoms Sandy	Young Mollusca,		1 Cyclopterus lumpus, newly hatched	3 gadoids Gadus virens, 19 mm., and 1 Gadus minutus, 15 mm.	Thaumantias metanops, myriad Numerous planulæ	Aurelia auvila, many, 6 inches in diameter Lesueuvia Pleuvobrachia, numerous Larval Peachia, 4 to § inch, cling- ing to Thau- mantias mel- anops, numerous
	2 feet from bottom	7 fathoms					Obelia dicho- toma, very few Ova	Pleurobrachia, a few medium size Pleurobrachia (larval)
21st July 1887. 'Garland' 12.20 p.m.			Young Hyperiæ Calanus finmarchicus Acartia longiremis Minute siphono- phore-like	outro de Propries		Aug-graff	Bolivers.	
21st July 1888.			Acartia longiremis Centropages hamatus Anomalocera pater- sonti Oithona spinifrons					

IVI	id-water	Net.						Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
		A CONTRACTOR OF THE CONTRACTOR	Marina veren - Strategy Marina Mari		JON SHE			
Plutei. very few	Bottom	Tow-net. Nerine Form with enormous bristles (Sabellaria) Terebella Polynoë		Thysanoessa tenera Surface and bottom nets Longipedia coronata, many Acartia longiremis, numerous Halitemora longicornis, numerous Oithona spinifrons, a few Pleopsis polyphemodides Ostracoda, a few Evadne nordmanni,		Post-larval Univalves, very few Mussels, '013 inches, '0145 inch, and other forms	8 kinds and Rhizo- solenia, very few	Tintinnus denticulatus, many Algoid (as before)
	Some 15 mm		Lobster-like	Hyperia medusarum, Q with ova Calanus fin- marchicus Acartia lon- gtremis Pseudocal- anus elon- gatus		A CALL S FOR	Shat s	

	Comment	Total		Time d (2) cen up.		200	W natew-bi	ntew-bill		
Net put down, where and time.	Course of Boat thereafter and Depth.	Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.,		
23rd July 1888. Between Kinkell Ness and Maiden Rock 3 mile from shore and 3 mile from Pier head 11.10 a.m.	Towards Castle 3½ fathoms	5½ fathoms Sandy	22nd July 1887, 'Garland,' surface- net vii Anomalocera pater- sonii Halitemora longicor- nis, a few Acartia longiremis, a few Longipedia coronata Evadne nordmanni, a few Plutei Ceralium fusus and tripos, very few 'Garland,' surface- net viii Calanus finmarchi- cus	§ hour 11.50 a.m.	Many eggs of gurnard Many eggs of spiat Many eggs of rockling A few of dragonet	Pleuronectids, 5·2 mm. Gobies 4 to 5·2 mm. Rockling, 3·8 mm. Pipe-fishes 16 to 22 mm.	Sarsia tubu- losa, a few Thaumantias (?) myriad Thaumantias hemisphæ rica, very few	Lesucuria, a few Beroë, many Pleurobrachia, many, Larval Peachia, on Thaumantias		
	2 feet from bottom	5½ fathoms	Carporage Carpor		Stands marketing	Marie Salaria	Obelia dicho- toma, very few Ova	Pleurobrachia, a few small		
24th July 1888. ½ mile N.E. of Pier 11.10 a.m.	Towards Eden 3½ fathoms	5 to 4½ fathoms Sandy	Mussels, '015 inch, very few Acartia longiremis, a few Evadne nordmanni, a few Nauplii, very few Plutei, many Tintinnus denticulatus, very few	2 hour 11.50 a.m.			Thauman- tias (?) numerous 1 Margelis ramosa (Bougain- villia britan- nica), ripe Sarsia tubu- losa, a few Thaumantias hemisphe- rica, a few	Lesueuria, numerous Beroë, numerous, Pleuro-brachia, myriad Laural Peachia, a few		
	2 feet from bottom	$\frac{5}{\text{fathoms}}$ to $\frac{4\frac{1}{3}}{\text{fathoms}}$					Obelia dicho- toma, very few Ova	Pleuro- brachia, a few small Lavval Pleuro- brachia, a few		

ת	Iid-water N	Tet.						Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
Section And Section Co.				Hyperia medusarum, Q bearing ova 1 Lestrigonus, Kinahani, 3 (?)	Appendicu- laria, small		3 kinds in sur- face net	THE STATE OF THE S
Plutei, a few	Bottom	Tow-net. Nerine, many Form with large bristles as before (Sabellaria) Terebella Polynoë	Zoeæ, very few Nauplii, many	1 Diastylis rathkii Halilemora lonyicoruis Acartia lonyiremis Oithona spi- nifrons	Appendicu- laria, very few Cyphonaules, many	Post-larval Natica, and other uni- valves, many Mussels and other bi- valves ·013 inch and ·0155 inch Young uni- valve Natica cat- ena (?), very few	6 kinds	Tintinnus denticulatus and Ceralium tripos
Plutei, many Bipinnaria Brachlolaria		Tow-net. Nerine, a few Polynoe, very few Form with enormous bristles (Sabellaria), a few	Nauplii,	Acartia lon- giremis Longipedia coronata and Oithona spinifrons, numerous Ostracoda, a few Evadne nord- manni, a few Exuvise of Balani	laria, small, very few Cyphonautes, a few	Post - larval univalves, Natica, etc., a few Mussels '014 inch to '013 inch Young uni- valve Natica catena(?)	solenia	Tintinnus denticulatus Ceratium fusus , tripos, very few Many minute ova

and sept	Course of	Total Depth		f Time nd (2) ken up.			M may wall	m
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-Net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ	Medusæ.
25th July 1888, 3 miles from St Andrews 2 miles N. of Whale Rock 12,55 p.m.	Towards St Andrews 5 fathoms	9 fathoms Sandy	Natica catena (?), 1013 inch, very few Evadne nordmanni, numerous Acartia longiremis, many Halitemora longi- cornis Centropages hamatus Lurval Annelid (young of Polynoë) Plutei, myriad Pleurobrachia, a few, small	11 hour 1.50 p.m.			Thaumantias melanops, myrind Thaumantias (?), a few Margelis ramosa (Bougain-villia britannica), a few ripe Thaumantias hemisphærica, many	Lesueuria, myriad, Beroë, myriad Pleurobrachia, myriad Larval Peachia, many, clinging to Thaumantias melanops
	2 feet from bottom	9 fathoms					Thaumantias melanops, small, unripe 2 Thaumantias hemisphærica Obelia dichotoma, a few Stauridium productum, very few	Pleurobrachia, very few, small
26th July 1888. 1 mile N. of Pier	Towards Baths 3 fathoms	5 fathoms Sandy		½ hour 1.30 p.m	Eggs of rock- ling, sprat, weever and gurnard	12 gbbies, 7 mm. to 13 mm., small- est with permanent rays in caudal region	Thaumantias hemisphærica, many	Lesueuria, a few Beroë, many Pleurobrachia, large, myriad
1 m ile N.E of Pier head 2 p.m.	Towards Pier 2 feet from bottom	6 to 4½ fathoms Sandy	Appendicularia, small, very few Mussels 013 inch, many Longipedia coronata, very few Evadne nordmami, Lovén, numerous Larval Annelid (Wartelia) in tube, very few Plutei, a few Pleurobrachia, young, very few A few Cœlenterate ova Ceratium fusus, very few		-Nikotik	ton wolk	Obelia dicho- toma, very few Podocoryma carnea (?)	Pleurobrachia, a few, small

]	Mid-water	Net.				Tang E		Other Forms,
THE SECTION	Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms,	Greenish Bodies, Remarks, etc.
					2 Amphipods, Hyperia galba, small			4 kinds	
	Plutei, many	Bottom	Tow-net. Terebella, Lagis, Polynoè and Nerine, myriad Form with enormous bristles (Sabellaria), and 2 other forms, many Aricia and Pholoè, Polygordius	Nauplii, numerous	Halitemora longicornis, Acartia longiremis and Oithona spinifrons, many Longipedia coronata, a few, Ostracoda many, Evadne, many	Cyphonautes, a few larger than before	Post-larval Natica catena (?), many, and other uni- valves Mussels, 014 inch, numer- ous Young Natica catena (?) as before	Rhizo- solenia, very few, and 6 other kinds	Tintinnus denticulatus, Ceratium fusus and tripos Algoid form (see sketch)
	Bipinnaria, Auricularia	Bottom	Tow-net. Lagis Form with enormous bristles (Sabellaria), very few Polynoe, very few Spio, Eulalia, Nicolea, Aricia	Zoeæ, very few Nauplii, many	Halitemora longicornis, Acartia longiremis and Longi- pedia coron- ata, numer- ous Ostracoda, a few, Evadne nord- manni, numerous	Appendicularia, very few, small Cyphonautes, numerous	Post-larval Natica and other uni- valves, numerous, Mussels, -015 inch, and other bivalves, numerous Young Natica as before	Rhizo- solenia, very few, and 8 other kinds	Infusoria:— Tintinnus denticulatus Ceratium fusus, many Ceratium tripos, a few Forms in both nets as in yester- day's bottom tow-net

	Course of	Total Depth		Time nd (2) ken up.				
Net put lown, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
31st July 1888. I mile N. of Pier J a.m.	E. towards Redhead, 2 feet from bottom surface net 9 feet from surface	5⅓ fathoms Sandy	Appendiculariae, young, very few Cuphonautes, many Natica catena (2), young, very few Mussels, 013 Inch, 015 inch, and other bivalves Halitemora longi- cornis Acartia longiremis Longipedia coronata, very few Oilhoma spinifrons, very few Bradne nordmanni, many Nauplii, many Plutei, a few Beroè, many Pleurobrachia, young, a few	100 A C	Eggs of Solenette Larval sand- cels, a few	Dragonet, 4 mm. Motella, 4–5 mm., several Gobies, 6–11 mm. many Sand-eels, 7–12 mm.	most et	Pleurobrachic very few Pleurobrachic young, very few
1 August 1888. 12 mile N.E. off Pier opposite Eden 10.20 a.m.	Towards Castle 3½ fathoms	7 fathoms Sandy	Appendiculariæ (larval), a few Cyphonaules, a few Natica catena (?), a few Copepoda, a few Eeadne nordmanni, a few Plutei, a few Beroë, very few	15 hour 10.45 a.m.		Cupeoids, 16-18 mm. several	Thaumantias metanops, many Thaumantias hemis- phærica, a few	Beroż, various size averago 1: inch Pleurobrachi ½ inch ane upwards; many
7th August 1888. Off Boarhills Harbour 5 50 p.m.	E. 7½ fathoms	9½ fathoms Sandy	Cyphonautes, many Actinotrocha Spirialis, numerous Acartia longiremis Haltiemora longicornis Megalops of Portunus (Powartelia in transparent tubes Tomopteris, many Sagitte, many Plutei, many Beroè, a few, medium size Pleurobrachia, numerous, small Thaumantias inconspicua Thaumantias octona Lizzia octopunctata, re inch, and many small Medusa buds	1½ hour 6.45 p.m. (Surface) ₹ hour 6.35 p.m.		Gunnel, 43 mm.	1 Margelis ramosa (Bougain- villia brit- annicu) Thaumantias hemisphæ- rica and inconspicua	Lesueuria, se few Beroë, 1½ to inches Pleurobrachi numerous, se inch to 1 inches Larval Peachia, chiefly at tached to Thaumantias hemis phærica

							1	
IV.	Iid-water 1	Net.						Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
Plutei, many, few young star-fishes	Bottom Tow-net. Form in tube, many Nerine, many Polygordius		Nauplii, many	Diastylis rathkii, a few Acartia longiremis, Oithona spinifrons, and Longi- pedia coronata, numerous Haltiemora longicornis, a few Pleopsis polyphe- moides Cyclopina luttoralis, Pseudo- calanus elongatus Ostracoda, many Evadne nordmanni, Lovén, numerous	Appendicu- laria, young, many Cyphonautes, numerous	Post-larval mussels, '018 inch and '023 inch, and other bivalves Natica, as before	Rhizo- solenia very few, and 9 or 10 other kinds in both nets	Tintinnus denticulatus Ceratium tripos, fusus, and diver- gens Amphidinium operculatum Algoid structure (as before) in nets
Plutei, many, 2 kinds	Bottom	Tow-net. Polygordius		Copepoda, Evadne nordmanni, numerous	Cyphonautes, many	Gastropods, in veliger stage Post-larval mussels '014 inch	Many in sur- face net	Ceratium tripos, a few
			Zoeæ	Young Neph- rops Caligus & and Q a few, other Cope- poda, a few				

Net put down, where, and time.	Course of Boat thereafter and Depth.	Total Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæj
	Minnight						2 Thauman- tias hemis- phærica, globosa, and inconspicua Oceanie tur- rita	Beroë, numerous Pleurobrachia, many
8th August 1888. Fife Ness, S. by W. Bell Rock, E. by N. ½ N. 2 miles from Bell Rock, E. 12.45 p.m. (mid-water and surface nets) 3.30 p.m. 3.35 p.m. (surface net) 12.40 p.m. 3.35 p.m. (bottom nets)		18 fathoms Rocky	Appendiculariæ, a few Natica catena (?) Mussels, '011 inch to '014 inch Acartia longiremis, Centropages hamatus Nerine, a few Plutei, many Larval Peachia, a few Pleurobrachia, a few Ceratium fusus Ceratium furca	1 hour 1.45 p.m. (also surface net) 1 hour 4.30 p.m. ½ hour (surface net) 4.30 p.m. 1½ hour 1.50 p.m. 1½ hour 1.50 p.m. 1½ hour 4.30 p.m. (bottom nets)		1 Montagu's sucker	Thaumantias hemisphæ- rica, incon- spicus, globosa, and melanops Oceania turrita	Larval Peachia Beroč Pleurobrachia Thaumantias hemisphæ- rica Pleurobrachia
							melarops, globesa, and incon- spicea Margelis ramssa (Bougain- vilia brit- annica)	many
8th August 1888. 1½ mile from Bell Rock St Andrews W. by N. Bell Rock N.E. by N., 2.10 p.m. (mid-water net) 2.15 p.m. (surface net 2.10 p.m. (bottom per)	18½ fathoms 9 fathoms	20 fathoms Rocky	Appendiculariæ, a few small Spirialis, a few Mussels young, and other bivalves Acartia longiremis Polynoë pellucida, about 1 mm. Larval Nerine, a few Minute brittle stars Plutei, many	** hour 2.55 p.m. ** hour 2.50 p.m. (surface net) ** hour 2.50 p.m. (surface net) ** hour 2.50 p.m. (hottom		1 Cottus quad ricornis (7), 7 mm., 1 Montagu's sucker, 6 mm. 3 Pleuronec- tids, 6 mm., 7 mm., 10 mm.	hemisphæ rica, mela- nops, and inconspicua	Beroë Pleuro- brachia, Larval Peachia, a few
(bottom net)			Thumantias incon- spicua, hemispha- rica, and globosa Ceratium jusus Radiolarian with long spines	(bottom net)		·	Thaumantias hemisphæ- ricu, and inconspicua	Beroë, a few Pleurobrachia many

IV	Tid-water l	Net.		100				Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
	Bottom	Tow-net.		Acartia long- giremis, Calanus fin- marchicus, Centropages hamatus Evadne nord- manni	Appendicu- laria	Spirialis		200 (24) 200 (25) 200 (25) 200 (25)
			Zoeæ		Appendicu- laria; a few			
Plutei, many	Bottom Many	Tow-net. Magelona, young, a few Castalia, young	Zoeæ of Portunus (?), lobster-like	Acartia longiremis, Centropages hamatus, and typicus				
Plutei, many			Zoeæ Nauplii	Copepoda Ostracoda, a few				
	Bottom A few	Tow-net. Polynoë, young, kinch Terebella (f), young, older than inshore forms	Zoeæ, many	Centropages hamatus, many Ostracoda, a few Evadne, a few	Appendicu- laria, a few, young Actinotrocha, small	Post-larval Spirialis, a few, older than inshore forms		Ceratium tripos

	Course of	Total	Water Steel Co.	Time nd (2) en up.		Jet	Lanter - Price	£
Net put down, where, and time.	Boat thereafter and Depth.	Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(I) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydrom <mark>ed</mark> usæ.	Medusæ.
9th August 1888, (1) 15 miles E.S.E. of Bell Rock	24 fathoms 2 fathoms (surface net)	28 fathoms	3 Motella, 3.5 mm. 5 mm. and 6 mm. Appendiculariæ, small Centropages hamatus, many Megalops, very few Zoeæ, many Evadne nordmanni, very few Plutei, a few Peculiar form (Fora- minifer?)		Eggs of gur- nard, rock- ling and sprat	2 Gadus mer- langus, 16 mm. and 29 mm.	A very few small Medusa buds Sertularia abietina (?) Hydreid stock with Poly-	
9th August 1888. (2) Bell Rock Trawling Ground Bell Rock bearing N.W. and Isle of May, 4 [N.W.		30 fathoms	4 larval Pleuronectids A few eggs, '05 inch to '053 inch Appendiculariæ, Zoeæ, many Acartia longiremis Gentropages hamatus Megalops Plutei, a few A very few small Medusæ buds		1 Pleuronectid,	1 Callionymus, about 4 mm.	Zoon growing on it Hydroid stock of Obelia Lizztz octopunctata Lizztz blondina	Euphysa aurata Pleurobrachia, less than ½ inch
20152300- 201721				100 100 100 100 100 100 100 100 100 100		3 flounders, 10 mm. 1 goby, 5 mm.	mestaff.	

	IM	Iid-water I	Tet.				Hard I	o artes	Other Forms,	
	Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.	
The second secon	Plutei	A very few		Megalops	Young Pan- dalus (?) Centropages hamatus, Anomalocera patersonii Caligus Q, with parasi- tie Udonella caligorum		s Installe as	01114	ACCEPTANT OF THE PROPERTY OF T	
	Plutei, very few Young star- fishes, a few	Bottom A few	Tow-net. Nerine Form with numerous bristles (Sabellaria) Form (see sketch B)	Zoeæ, numerous	Calanus fin- marchicus, a few Halitemora longicornis, many Mysis (?) Evadnenord- manni	Appendicu- laria, many Cyphonautes	Univalve, small Bivalves, very few, small		,	
	Plutei, a few Post-larval 2 Echini and small sand and brittle stars	Bottom Numerous, large and small	Tow-net. Polynöë Norine	Post-larval Pandalus annulicornis(?)	Schistomysis ornata, very few Halilemora longicornis, many Pseudoca- lanus elonga- tus, few Anomalocera patersonii Centropages hamatus Calanus finmarchicus	Appendicu- laria, in swarms Actinotrocha	Spirialis, a few 1 bivalve form and relics of univalves		200 200 A 700	
	Young sand stars	Trawl-net	(in Bag of A few (see sketch B)	Tow-net Zoere, few Megalops, a few	in Trawl.) Mysis flexu- osa, many Gamnarus Campplops (?) very few Anonyx edwardsi, very few Haitemora longicornis				Numerous fish scales	

Net put	Course of Boat	Total Depth of Water		of Time and (2) tken up.			E salova s	6
down, where, and time.	thereafter and Depth.	and Nature of Bottom,	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature; Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
10th August 1888. (2) S.E. of 1sle of May 15 miles	24 fathoms	28 fathoms	(1) Appendiculariæ, very few Calanus finmarchicus, many Halitemora longicertropages hamatus (Lilljeborg) Pseudocalanus elongatus Sagittæ, many Plutej, numerous Obetia gelatinosa (Hydroid stock) A few small Medusa buds		Eggs of gurnard and rockling			
						Gurnards 2 other forms	Small Medusa buds	5.2
Over same ground, W. by N.		28 to 30 fathoms				1 Pleuronectid (Plaice), 13·5 mm. Permanent rays in fins 1 goby (G. minutus), 13 mm.	Sertulariz, very few A few other Hydroid stocks	
(3) Over same ground			(2) Centropages hamatus, a few Calanus, finmarchicus very few Plutei, many		Eggs of sole and rock- ling 1 Cyclopterus lumpus, 6 mm.	1 Gadus mer- langus, 1½ inch, with 4 parasitle Caligi		
					Eggs of rockling			

M	id-water-1	Tet.		121		100	Dia- toms	Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.		Greenish Bodies, Remarks, etc
Adult 4 Ophiocoma nigra		1 adult		1 Hyas coarctatus 1 Crangon vulgaris, Q bearing ova 2 Phoxichili- dium 1 Pyenogonum littorale	1 Ascidian			
Plutei many	Bottom A few	Tow-netI.		Calanus fin- marchicus, Günner, numerous Centropages typicus, a few				Radiolarian: a few
	Ground	Trawl II.						
	Swarms, 17 mm. (aver- age size)	A few Form with circumoral ring of ten- tacles (see sketch)	Megalops, very few	Mysis vul- garis, in swarms Schistomysis ornata, many Pandalus annulicornis (?), young Arcturus gractits		Univalve forms, a few Mussels, a few, 4 mm. 2 Cephalopods (Young Sepiola), 5 mm,		
Ophiuroids and Ophio- thrix Echini, young	Myriad	Polynoë, young, a very few Nerine, small Wartelia, young in tube		1 Crangon vulgaris, large Schistomysis ornata, many, small Mysis vulgaris, very few, small Borcophausia raschii, Young crabs, kinch, very few		Spirialis, a few, and relics of other Mol- lusks.	3.	
	Bottom	Tow-net	II.	45				
Young Spat- angus Ophiuroids, and brittle stars		Terebella, very young	Megalops, very few	Remains of Schizopods, Centropages hamalus, many Calanus finmarchicus, a few			Many kinds	Ceratium tripos, ma Ceratium furca, vei few Radiolarian (as before very few

10 may 1 1 may 1 m	Course of	Total Depth of Water		f Time md (2) ken up.		.30	PI-resew-l	W
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(I) Length of Time When taken up. Net Gown, and (2) I when taken up.		C. I.	Hydromeduse	. Medusæ.
11th August 1888, West of Isle of May		15 feet				2 gurnards, 8 mm., per- manent rays in tail	1 Thaumantias hemispharica 1 Tiara (Oceania) octona 1 Margelis ramosa (Bougainvillia britannica) 1 Thaumantia. (Bougainvillia) nigritella Lizzia octopunctata Lizzia minuta	
			- 102 (6) (7) (8) (8) (7)		- 1016 (2006) 1026 (2006)		2 (2007) 120 22007 120 12007 120	
2nd August 1888. § mile from shore, op- posite mid- dle of W. Sands 10 a.m.	E. 2½ fathoms	4 fathoms Sandy	Appendiculariæ Actinotrocha and Tornaria, many Oyphonautes, many Mussels (minute) Centropages hamatus Acartia longiremis Cyclops (?) Zoeæ Evadne nordmanni Echinus, minute, many Plutei, three kinds Avicularia, with spines	§ hour 10.20 a.m.	Eggs of gurnard, sprat and rockling	A ACTUAL DESCRIPTION OF THE PERSON OF T	Thaumantius, (inconspi- cua?) very few, Thaumantius hemispherica, and melan- ops	Beroë, many Pleurobrachia, small
min Toda min Toda min Toda min Loda min Loda min Loda min Loda						Clupeoids, 5.5 to 8 mm, a		

M	id-water N	let.				(1150) (1150) (1150)	ordents	Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
Plutei, many Echini, very young	Bottom	Tow-net. Nerine, numerous Tomopteris, inch, very small form in tube (Wartelia)	Zoew, very few	Pandalus annulicornis, young Centropages hamatus (Lilljeborg), many Calanus fin- marchicus, many Acartia lon- gicornis (Lilljeborg) Haltiemora longicornis, Müller			Very few	ACCUPATION AND ACCUPATION ACCUPATION AND ACCUPATION
The state of the s				er out of the control	Appendicu- laria, many	mpultti si ophus	Many in surface net	
Plutei, two forms	Bottom	Tow-net. Nerine, a few Polydora, etc Adult Nereis, a few		Copepods (2 kinds)	Appendicu- turia, many	Post-larval univalves, a few Mussels, '012 inch	4 kinds, abundant	Ceratium furca ", fusus, many tripos Radiolarian

		Total		ime (2) n up.			W makes for	
Net put down, where and time.	Course of Boat thereafter and Depth.	Depth of Water	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusa	Medusæ.
3rd August 1888. Midway be- tween Pier and Rock and Spindle, one mile from shore 9,15 a.m.	N.W. 3½ fathoms	6½ to 4 fathoms Sandy	Appendiculariæ, many Natica (?), a few Mussels, '01 inch to '015 inch Ostracoda, many Evadne, many Zoeæ Nereis (larval) Plutci Ceratium fusus , tripos	½ hour 9.45 a.m.			Thaumantias sarnica (?), globosa, inconspicua, melanops, Oceania globulosa (?)	Aurelia aurita, §, 8 inches in diameter Lesueuria, a few, 1 inch to 1½ inches Beroë, a few, ½ inch to 3½ inches Pleurobrachia, very small, 4 mm. to 19 mm.
						Gobies, 3.8 to 14 mm. Pleuronectids, 4.5 to 8 mm.	Thaumantias, inconspicua	
4th August 1888. Off mouth of River Eden (south side) 9 a.m.	N. 2 fathoms	3½ fathoms Sandy	Mussels, '01 inch to '013 inch Evadne, many Ophiuroid (larval) Plutei, many Ceratium fusus	½ hour 9.30 a.m.	Eggs of gur- nard, sprat and rockling	15 gobies, 3·5 mm. to 10 mm. Flounder, 10 mm.	Thaumantias inconspicua, globosa, conversa, melanops, var. sarnica	Lesueuria, a few, ½ inch to 3½ inches Beroë, many, 1 to 3 inches Pleurobrachia, many, 3 mm. to 8 mm. Larval Peachia
							Thaumantias melanops, hemisphærica	
14th August 1888. ½ mile N.E. of Pier	N.E.	Sandy	Appendiculariæ, a few Cyphonautes, a few Natica catena (?), and other univalves, many Mussels, '01 inch to '013 inch Acartia longiremis Centropages hamatus Ostracoda Plutei, a few Avicularia Pleurobrachia, a few, ½ inch to ½ inch A few Medusa buds Ceratium fusus tripos Radiolarians, a few Radiolarians, a few				motical	Pleurobrachia, ½ inch to ½ inch, a few

M	Mid-water Net.									
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.		
			Nephrops (Zoea-stage)	Caligus	Appendicularia, a few, small		A few in both nets			
' <i>Plutei</i> , many	Bottom	Tow-net. Nerine, many Polydora, etc		Evadne nord- manni, many	Appendicu- laria, many	Post-larval mussels, many	Many forms	Ceratium fusus ,, furca ,, tripos		
	1, 12 mm	Polygordius, Adult Tomopteris, a few		Schistomysis ornata Caligus	Appendicu- laria, a few		Many in surface net			
	Bottom	Tow-net. Nerine, a few Polydora, etc. Adult Nereis, many		Evadne nord- manni	Appendicu- laria, many Actinotrocha	Post-larval mussels,very abundant	Very abun- dant	Ceratium tripos		
Plutei, many Young star- fishes, a few	Bottom	Tow-net. Nerine, a few Polydora, etc. Terebella		Centropages typicus, Acartia ton- giremis Ostracoda	Appendicu- laria, a few Actinotrocha, 2	Natica and other univalves, many Mussels (as above), numerous	forms	Ceratium tripos		
	Larval Echinoderms. Plutei, many Young star-	Larval Echinoderms. Sagittæ, Size, etc. Bottom Plutei, many 1, 12 mm Bottom Plutei, many Poung star-	Bottom Tow-net. Nerine, many Polygoralius, Adult Tomopteris, a few Bottom Tow-net. Nerine, any Polygoralius, Adult Tomopteris, a few Plutei, many Polydora, etc Bottom Tow-net. Nerine, a few Polydora, etc Adult Nereis, many Bottom Tow-net. Nerine, a few Polydora, etc	Larval Echinoderms. Sagittæ, Size, etc. Bottom Tow-net. Nephrops (Zoea-stage) 1, 12 mm Polygordius, Adult Tomopteris, a few Polydora, etc. Adult Nereis, many Plutei, many Bottom Tow-net. Nerine, a few Polydora, etc. Adult Nereis, many Plutei, many Polydora, etc. Adult Nereis, many Polydora, etc.	Larval Sagittæ, Echinoderms. Sagittæ, Echinoderms. Bottom Tow-net. Nephrops (Loca-stage) Larval Crustaceans. Nephrops (Loca-stage) Caligus Readne nord-manni, many Polydora, etc 1, 12 mm Polygordius, Adult Tomopleris, a few Polydora, etc. Adult Nereis, many Plutei, many Bottom Tow-net. Nerine, a tew Polydora, etc. Adult Nereis, many Plutei, many Polygordius, Caligus Calig	Larval Echinoderms. Sagittæ, Size, etc. Annelids and Adults. Crustaceans. Crustaceans. Molluscoida. Plutei, many	Larval Echinoderms. Sagittee, Size, etc. Annelids and Adults. Nephrops (Locustaceans.) Nephrops (Locustaceans.) Caligus Appendicularia, a few, small 1, 12 mm Polygordius, Annelids and Adults. Schittomysis ormata Caligus Appendicularia, many many Polygordius, Annelids Caligus Bottom Tow-net. Nerine, new Polygordius, Annelids and Caligus Bottom Tow-net. Nerine, a few Polygordius, a few Polygora, etc. Adult Nereis, many Tow-net. Nerine, a few Polygora, etc. Adult Nereis, many Post-lareal mussels, wery Actinotrocha mannia. Appendicularia, a few Caligus Appendicularia, a few Californa, etc. Adult Nereis, many Appendicularia, a few Californa, etc. Adult Nereis, many Appendicularia, a few Californa, etc. Adult Caligus Appendicularia, a few Californa, etc. Adult Californa, few Californa, etc. Adult Nereis, many Noung star- fishes, a few Polydora, etc. Terebella Tow-net. Norine, a few Polydora, etc. Terebella Caligus Appendicularia, a few Californa, many Actinotrocha Appendicularia, a few Californa, many Actinotrocha Mollusco. Appendicularia, a few Californa, etc. Appendicularia, a few Californa, many Actinotrocha Mollusco. Appendicularia, a few Californa, etc. Centropages Spring, a few Californa, etc. Appendicularia,	Larval Annelids and Adults. Crustaceans. Crustaceans. Crustaceans. Molluscolda. Larval Molluscolda. Molluscolda.		

Y	Course of	Total Depth		f Time ind (2) iken up,		.ts	lë setav-bi	5
Net put down, where, and time,	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ	Medusæ.
17th August 1888. 1 mile N.E. of Pier head 11.45 a.m.	WOALL	5 to 8 fathoms Sandy	Cuphonautes, very few Natica catena (?), young Mussels, '014 inch, many Acartia longiremis, numerous Centropages hamatus, numerous Ostracoda, many Nauptii, a few Larval form (see sketch, 25th July) of Annelid Larval Annelid, with enormous bristles (Nerine) Plutei, many Pleurobrachia, many, small Colenterate ova, a few Ceratium tripos, very few	₹ hour 12.30 p.m.	(togal Emol)	Montagu's sucker, 4 mm. Dragonet, 5-5 mm. Gobies, 4 to 9 mm. Sand-eels, 5 mm.	Obelia dichotoma, a few Ova, many	Pleurobrachia many, small Young forms of Pleuro- brachia, a few
20th August 1888. ½ mile N. of Whale Rock 11.15 a.m.	E. 41 fathoms	9 fathoms Sandy	Appendicularia, very few Cyphonautes, a very few Cyphonautes, a very few Natica catena (?) a few, young Young mussels, '011 inch to '014 inch; other young bivalves cartia longiremis, many Halitemora longi- cornis, many Ceutropages hama- tus, a few Longipedia coronata, a few Ostracoda, very few Nauplii, a few 2 larval Annelids (see sketch, 25th July) Larval Nereis, very few Nematodes, many few (see sketch) Plutei, very few Pleurobrachia, many few (see sketch) Plutei, very few Pleurobrachia, many Thaumantias hemi- sphærica, very few, mature A few Coelenterate ova Radiolarian (as	3 hour 11.35 p.m.		Adult 7 Gadus merlangus, 3 inches	Thaumantias hemisphærica, numerous, mature	Very small fragment of Medusa 1 Beroë, mature Pleurobrachia, myriad

IV.	Lid-water 1	vet.		181		Text		Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida,	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
Young star- fishes, many Plutei, many	Bottom	Tow-net. Polynoè, very few Nerine, very few Spio Polydora Capitella, etc. Nematode	Zoew of Porcellana, long-spined, myriad Nauplii, a few	Diastylis rathkii, very few Acartia longiremis, Oithona spinifrons Longipedia coronata, numerous Pseudocalanus elongatus Centropages hamatus Cyclopina	Appendicu- laria, very few Cyphonautes, a few	Post-larval Natica (?) and other univalves Mussels, '013 inch to '017 inch	Rhizo- sole- nia, and 6 other forms	Ceratium fusus, a few Ceratium tripos, a few Ceratium divergens, very few
	alpente			and a sell on the sell of the	10 11 10 10 10 10 10 10 10 10 10 10 10 1	mann -	10 mm F	
				2000 A 1000 A 10			Rhizo- sol- enia, and 5 other kinds; many in surface- net	
	and and created an	2000 NO. 100 N			1			

	A STATE OF THE STA							
Net put down, where, and time.	Course of Boat thereafter and Depth.	Total Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
	200				•x .			
21st August 1888. ‡ mile E. of Maiden Rock 11.45 a.m.	Towards Pier	5 fathoms Rocky	Appendiculariæ, a few Cyphonautes, many Spirialis, a few Natica catena (?), many Mussels, '014 inch, many Acartia longiremis, many Halitemora longicornis, many Longipedia coronata, many Centropages hamatus Ostracoda, numerous Evadue, very few Exuviæ of Balani Nauplii, a few Magelona, papillicornis, young, not quite \(\frac{1}{2}\) inch Larval Nerine, a few, and other larval Annelids/see sketch) Plutei, very few Tintimus denticulatus, very few	1 ⁷ 2 hour 12,20 p.m.		4 gobies, 3·2 mm. to 4·4 mm., small- est with permanent; raysappear- ing in tail	planulæ	Pleurobrachia, a few small A few ova of Pleurobrachia,
22nd August 1888. Near Eden mouth 3 mile from shore, 13 mile from Pier 11.55 a.m.	N. 3½ fathoms	4 fathoms Sandy	Appendiculariæ, very few Cyphonautes, very few Natica catena (?), very few Mussels '011 to 013 inch, very few Acartia longiremis, many Centropages hamatus Ostracoda, very few Small Medusa bud Tintinnus denti- culatus Ceratium divergens, very few	3 hour 12.40 p.m.		9 gobies, 5 to 12 mm. Pleuronectid (see sketch) 3 Syngmathus acus, 1½ inch	octona (?) Oceania (?) Thaumantias	Beroë, very few Pleurobrachia, n tew Ova of Pleuro- brachia, n few

Ŋ	Iid-water 1	Net.		The same		· max		00 - 7
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults,	Larval Crustaceans,	Adult Crustaceans,	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Other Forms, Greenish Bodies, Remarks, etc.
	Bottom	Form with numerous bristles (Sabellaria), a few Nerine, a few Other forms, a few Terebella Polydora Spio Young Magelona	Nauplii, a few	Acartia longiremis, numerous Halitemora longicornis, a few	Appendicu- laria, very few	Post-larval Univalves, a few Mussels, '011 inch, a few	Rhizo-sol-enia num-erous, 7 other kinds	Ceratium tripos, Tintinnus denticulatus, a few Radiolarian, as before
	Bottom	Tow-net.						1-022-00
		Terebella Polydora, etc.	Nauplii, a few	Cuma bispin- osa (?), young Acartia lon- giremis, numerous Halitiemora longicornis, many Oithona spinifrons, a few Thalestris longimana, 1 specimen Ostracoda, a few	Appendicu- laria, many Cyphonautes, very few	Post-larval Natica, and other uni- valves, many Mussels, 013 inch to 014 inch	Rhizo- solenia, num- erous in both nets, and many other kinds	Ceratium tripos , fusus , divergens Tintinnus denticulatus Radiolarian, as before
and control		Polynoè, very few	Megalops	Liljeborgia shetlandica Schistomysis ornata 1 crab, '06 inch Centropages typicus, a few Halitemora longicornis, Caligus, very few		t i visori	Rhizo- solenia, very few num- erous in surface- net, with many other kinds	

	Course of	Total Depth		Time nd (2) cen up.			olf govern bi	N.
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
27th August 1888. (1) 200 yards N. off Pier head 7.40 a.m.	N.E. to- wards targets 3 fathoms	5 to 7 fathoms Rocky, sandy	Cyphonautes, very few Young mussels, '017 inch, very few Halitemora longicornis, very few Acartia longiremis, very few Larval Annelid (Sabellaria), with enormous bristles (as before) Pleurobrachia, numerous Thaumantias hemisphærica, very few Tintinnus denticulatus, very few	§ hour 8.30 p.m.			Thaumartias hemis- pherica, Thaumartias quadrata, many Thaumartias (?) as before Laodice cruciats (Thaumartias pilosella) 2 Tiara (Oceania) octona	Pleuro- brachia, numerous
(2) 100 yards S.E. of Beacon 3.30 p.m.	Around Beacon	Rocky	Appendicularia, very few Univalves, very few Acartia longiremis, very few Zoeæ, very few Mauplii, very few Larval Annelld (see sketch) Another form (see sketch) Turbellarian (as be- fore Sagittæ, very few, small Thaumantias hemis- phærica, a few Cœlenterate ova, in Morula stage Tintinnus denticu- latus, Ceratium furca	1 hour 3.45 p.m.			Thaumantias hemis-phærica, very few Thaumantias (†) as before	Pleuro- brachia, numerous

							T	1
7	Iid-water	Net.						Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms,	Greenish Bodies, Remarks, etc.
Plutci, a few	Bottom	Tow-net. Nerine Polydora Turbellarian, very few	<i>Nauplii</i> , a few	Halitemora longicornis, Acartia longiremis, many Cyclopina littoralis, Oithona spinifrons, very few Ostracoda, very few, Evadne nordmanni	Cyphonautes, very few	Post-larval Natica catena (f), a few, and other uni- valves	Rhizo- solenia in abun- dance, many other kinds	Tintinnus denticulatus Ceratium fusus, very few Radiolarian, as before
	Some about			1 Dulchia porrecta (?) 2 Hyperia galba, small Pseudo- calanus elongatus			Rhizo- solenia, and a few other kinds in surface- net	
Plutei, very few	Bottom	Tow-net.		Acartia lon- giremis, very few	Cyphonautes, very few		Rhizo-solenia, and many other kinds	

		Total		ime (2) n up.		.bs	Crataw bil	VI.
Net put down, where, and time.	Course of Boat thereafter and Depth.	Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
29th August 1888. 4 mile N. of College 8.50 a.m.	N. 2½ fathoms	4½ fathoms Sandy	Appendiculariæ, very few Univalves, very few Univalves, very few Acartia tongirents, Hatitemora longicornis, Moultings of Cirripeds Megalops, very few Plutei, very few Pleurobrachia, numerous Thaumantias hemisphærica, very few Ova of Colenterate, numerous Thitinnus denticu-	1 hour 9,50 a.m.		1 goby,8 mm., permanent rays in tall	ciata (Thaumautias pilosella), numerous Thaumantias hemis- phærica, numerous Tiara (Oce- ania) octona, numerous Tiara globu- losa, very few Stomobrach- tum octo-	Beroè, num- erous Pleuro- brachia, myriad
	orning		latus, very few	24 25 25 25 25 25 25 25 25 25 25 25 25 25			costatura, very few Margelis ramosa (Bougain- villia britan- nica) 1 Thaunan- tias (Bou- gainvilla) nigritella, young 1 Stomo- brachium octocos atum, Thaumantias hemisphærica, very few Ova numer- ous Planule, a	Pleuro- brachia, numerous
	-30% - 30% -		esperimentally rang	niteral literal		Cow-sudu Jumura	few A few small gonozooids	790.
30th August ISSS. 2 miles N.E. of Pier head 8.45 a.m.	N.E. 31 fathoms	7 fathoms Sandy	Appendiculariæ, very few Centropages hamatus, very few Halitemora longicornis Acartia longiremis, very few Zoeæ, many Plutei, a few Thaumantias hemisphærica Obelia dichotoma, gonozooids Cœlenterate ova	½ hour 9.15 a.m.		3 Pleuronectids, 7, 11, and 11.5 mm., smallest with permanent rays appearing in tail Clupeoids 9–11 mm.	Laodice cru- ciata (Thaumantias pilosella) Thaumantias hemis- pharica, Oceania globulosa Tiura (Oce- ania) oc- tona, very few Tima bairdii	Beroè, many Pleuro- brachia, myriad

	Mid-water	Net.		t and		Fast		000
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Other Forms, Greenish Bodies, Remarks, etc.
A CONTROL OF THE CONT	1, 13 mm.				•		Rhizo- solenia, very few	
Jane 5. Grand S. Grand S. Grand S. Grand S.	Bottom	Tow-net. Form' with enormous bristles (Sabellaria)	1 Zoeæ Nauplii, very few	Halitemora longicornis, a few Centropages hamatus, a few Pseudo- calanus	Appendicu- laria, very few	Mussels, '012 inch	Rhizo- solenia, a few, and a few other forms	Form (see sketch)
				elongatus, Boeck Calanus fin- marchicus, Günner Acartia longiremis, Lilljeborg				
	Many about § inch	2 Tomopteris, about \(\frac{1}{4} \) inch	Zoem of Nor- way Lobster, very few		Allectic from the street of th		Rhizo- solenia, very few, and a few other kinds in surface net	

			, d	Name of Street, or other Parks			
Course of Boat thereafter and Depth.	Total Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
						Thaumantias hemis- phærica, very few	Pleuro- brachia, Å inch less or more; num- erous Ova of Pleuro- brachia
N.E. 2 fathoms	4 fathoms Sandy	few Univalves, a few Bivalves, very few, 013 inch Centropages hamatus, Halitemora longi- cornis, many Acartia longiremis, many Pseudocalanus elongatus Oithona spinifrons, very few Longipedia coronata,	½ hour 9,20 a,m.		1 Pleuronec- tid-like 'witch' 2 gurnards, 5 to 6 mm. 1 Calliony- mus (see sketch) Adult 2 Syngnathus acus, 41 mm., 47 mm.	Thaum antias hemis-phærica, numerous Tiara (Oceania) octona, very iew	Beroė, very few Pleuro- brachia, myriad
-saids business yes with land nath pation a surf- column 2015		Very few Evadne nordmanni, very few Larval Annelids (see sketch) 26th July Plutei, a few Small gonozooids, very few Cælenterate ova, a few		-0/2 to cross		Small gonozooids, Mary ova	Pleuro- brachia, very few
	N.E. 2 fathoms	N.E. 2 fathoms N.E. 2 fathoms 4 fathoms Sandy	N.E. 2 fathoms Sandy 2 fathoms 2 fathoms 2 fathoms 2 fathoms 2 fathoms 2 fathoms Sandy Cyphonautes, very few Univalves, a few Bivalves, very few, 013 inch Centropages hamatus, Halitemora longi- cornis, many Acartia longiremis, many Pseudocalanus elongatus Oithoma spinifrons, very few Longipedia coronata, very few Longipedia coronata, very few Larval Annelids (see sketch) 26th July Plutei, a few Small gonozoolds, very few Colenterate ova, a few	N.E. 2 fathoms Sandy Cyphonautes, very few Univalves, a few Bivalves, very few, oll inch Centropages hamatus, Haltemora longicantis, many Acartia longiremis, many Pseudocalanus elongatus Oithona spinifrons, very few Longipedia coronata, very few Ostracoda, a few Evadne nordmanni, very few Laval Annelids (see sketch) 26th July Plutei, a few Small gonozoolds, very few Caelenterate ova, a few	N.E. 2 fathoms 2	N.E. 2 fathoms Sandy A fathoms Sandy Univalves, a few Bivalves, very few Univalves, very few 0:13 inch Centropages hamatus, Haitemora longicornis, many Acartia longiremis, many Pseudocalanus Oithona spinifrons, very few Longipedia coronata, very few Longipedia coronata, very few Evadne nordmanni, very few Evadne nordmanni, very few Evadne nordmanni, very few Larval Annelids (see sketch) 26th July Plutei, a few Small gonozoolds, very few Colenterate ova, a few Colenterate ova, a few	N.E. 2 fathoms Sandy Invalves, a few Bivaves, very few ol3 inch Centropages hamatus, Halitemora longicornis, many Acartia longiremis, Pseudocalanus elongatus Oithoma spinifrons, very few Lawy few Longipedia coronata, very few Costracoda, a few Evadae nordmanni, very few Lavral Annelids (see sketch) 26th July Plutei, a few Small gonozoolds, very few Calcelletate ova, a few ova few calcelletate ova few ova fieldike vitical field fiel

	IM	lid water-N	ſet.						Other Forms,	
	Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.	
	Plutei, very few	Bottom	Tow-net. Form with enormous bristles (Sabellaria), numerous Form (see sketch) 20th August, a few Nerine Form (see sketch) 25th July	Zoeæ of Norway, Lobster, many Nauplii, many	Mysidæ: Amphithoe rubricata (I) very small Anceus max- illaris, young Calanus fin- marchicus Acartia longiremis, numerous Halitemora longicornis, many Longipedia coronata, very few Caligus ra- pax Pseudo- calanus elongatus, very few Ostracoda, very few	Appendicu- laria, very few	Post-larval Univalves, very few Mussels, '012 inch	Many kinds	Ceratium fusus Ceratium tripos, a few Tintinnus denticulatus	
一一丁二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二				Zoeæ of Norway Lobster	3 Paguri, very small					
The second secon		geroù olasil E ave Mal A		ente ven al como a del como a del como a del						
		Bottom	Form with enormous bristles (Sabellaria), numerous Nerine, numerous Larval forms (see sketches) 25th August, and 25th July) Polydora; Capitellalike, many		Acartia longiremis, myriad Halitemora longicornis, many Pseudo- calanus, elongatus, very few Centropages hamatus, many Many Ostra- cods	Actinotrocha, very few Cyphonautes, very few	Post-larval Univalves, many Mussels, 013 inch, many	A few kinds	Tintinnus denticu- latus, a few Ceratium tripos, very few	

		Tetal		me (2)		1140	A-miavi (M	
Net put down, where, and time.	Course of Boat thereafter and Depth.	Total Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net)	(1) Length of Time Net down, and (2) Time when taken up	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes.	Hydromedusæ.	
3rd September 1888. S. side of mouth of Eden 9.20 a.m.	Towards N. bank of Eden 2 fathoms	4 to 3 fathoms Sandy	Cyphonautes, very few Univalves, many Mussels, '013 inch, a few A very few other bivalves Halitemora longicornis, numerous Acartia longiremis, a few Centropages hamatus Evadne nordmanni, very few Larval Merine, very few Larval Annelid (see sketch, 25th July) Plutei, very few Pleurobrachia, very few Ova of Pleurobrachia, very few Thaumantias hemisphærica, very few Colenterate ova, very few Colenterate ova, very few Ceratium tripos, many Ceratium furca, a few Tintinnus denticuatus, a few			Callionymus, 4·5 mm. 2 gobies, 7, 16 mm. 1 Syngnathus, acus, 43 mm. Clupeoids 10–12 mm.	pilosella), a few	Beroë, a few, small Pleurobrachiu. myriad
sanification of the sanifi					A few min- ute, appar- ently pela- gic	AGE - WOLF	Minute forms A few ova	
Section of the sectio	100		200 (200 (200 (200 (200 (200 (200 (200			principal (control of control of		

_	IM	lid-water N	ſet.		Ball				
	Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Other Forms, Greenish Bodies, Remarks, etc.
	Sales Filonor Mill Sales en Control	A few	2 Tomopteris, 1 Nereis, young, 4		1 Atylus gib- bosus (2) 3 Hyperia galba Pandalus annulicor- nis, young, 9 mm. 1 shrimp, young, 7 mm. Schistomysis ornata	Appendicu- laria, num- erous, largest about 5-5 mm.		Many kinds, num- erous in sur- face- net	almature ath 2001. The class is my last in m
	Plutei, very few	Bottom	Tow-net. Form with enormous bristles (Sabellaria) Tornaria	Nauplii, num- erous	1 Atylus swammerdami Nicea lub-bockiana, very few Schistomysis ornata, Halitemora longicornis, myriad Acartia longiremis, myriad Pseudocalanus elongatus, a few Centropages hamatus Ostracoda, a few	Appendicu- laria, num- erous Actinotrocha, very few Cyphonautes, very few	Post-larval Univalves, very few Mussels, '013 inch, very few	Rhizo-solenia, numer-ous, ard a few other kinds	Ceratium tripos, a few

umediands.	Course of	Total Depth		f Time nd (2) tken up.			Celer O	
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
5th September 1888. ½ mile off Maiden Rock 10.30 a.m.	2½ fathoms	6½ fathoms Partly rocky, partly sandy	few Cyphonautes, very few Phoronis, in confine- ment by metamor- phosis Actinotrocha, a few Univalves, many Mussels, '012 inch,	½ hour 11 a.m.		1 Cottus (?) as before Goby, 7 mm. Rocklings, 6 and 24 mm.	Thaumantias hemisphæ- rica, numer- ous 1 Tiara (Oceania) octona, Turris	Pleurobrachia, myriad, small
			also other univalves Halitemora longi- cornis, many Acartia longiremis, numerous Acartia biflosa, Giesbrecht Centropages hamatus, Longipedia coronata, Claus 1 Atylus swammerdami Zoeæ of Norway Lobster Ostracoda, a few Beadne, very few Nauplii, a few Larval Nerine, a few Larval Annelid with enormous bristles (Nerine) Plutei, a few 1 Pleurobrachia, small Tintinnus denticul- atus, a few Ceratium tripos, a few Ceratium furca, a few Ceratium fusus, very few					
						1 like sand- eel (?), 7·5 mm.	A very few small gono-zoolds	

M	id-water N	Tet.		195		Septil 1		Other Forms,
Larval / Echinoderms.	Sagittæ, Sizes, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca etc.	Dia toms.	Greenish Bodies, Remarks, etc.
	Many	Form (see sketch), a few Form with enormous bristles (Sabellaria) 1 form (see sketch, 27th August)	Zoeæ of Porcellana	4 Atylus swammerdami, Very few Halitemora longicornis, many Acartia longiremis, many Pseudocalanus elongatus, a few	Appendicu- laria, numerous Actinotrocha		Rhizo- solenia, and many other kinds in sur- face net	
	Bottom	Tow-net. Form with enormous bristles (Sabellaria) Nerine, many Form (see sketch (a), 25th July 1888), a few Form as in mid-w ater net	Zoeæ of Norway Lobster, many Nauplii, a few	1 Atylus swammerdami Halitemora longicornis, myriad Acartia longiremis, myriad Centropages hamatus, numerous Calanus finmarchicus, a few Another form as before	Cyphonautes, very few	Post-larval Univalves, many Mussels, '013 inch, a few	Rhizo- solenia, as in surface, many kinds	

	Course of	Total Depth		f Time nd (2) ken up.				
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
Sth September 1888. 13 mile off Pier head 1 mile N.E. of Maiden Rock 1.40 p.m.	S.E	7 fathoms Sandy	Appendiculariæ, a few small Opphonaules, very few Mussels '014 to '012 inch, a few Univalves, young, a few Hatitemora longicornis, many Acartia longiremis, Lilljeborg Centropages hamatus, Lilljeborg Centropages typicus, very few Nauplii, a few Larval Annelld (see sketch, 25th July) Larval Nerine, a few Plutei, a few 3 Pleurobrachia, ½ inch	를 hour 2 p.m.		THE ADDITION OF THE PROPERTY O		
oth September 1888, 1889, 18 mile N.E. of Pler head 1.40 p.m.	E.N.E. 4 fathoms	7 fathoms Sandy	Cyphonautes, very few Mussels '015 inch Podocerus capillatus, Acartia longiremis, myriad Haltemora longicornis, numerous Ostracoda, very few Evadne nordmanni, very few Young crabs (Portunus holsatus) Megalops, very few Larval Annelid with enormous bristles (Sabellaria), very few, ½ inch.	³ hour 2.25 p.m.		4 Calliony- mus lyræ, 10, 8·5 mm. Pleuronectid 11 mm. 1 flounder (?) 6 mm. 3 gurnards, 8·5, 5 mm. 2 Gadus mer- langus, 1, 2½ inches Nerophis æquoreus, 26 mm.	Thaumanias hemisphorica, a few as before Laodice cruciata (Thaumanias pilosella), very few as before Tiara (Oceania) octona, very few, ripe Margelis ramosa (Bougain- villia brit- annica), unripe	Beroé, a few Pleurobrachia myriad, ½ to ½ inch
patient) legist	To the second se	eriasino eria eriasino eriasino eria e eria e e eria e e e e e e e e e e e e e e e e e e e		Appendix App	A Second	Jets-wolf	A few small Medusa buds	

IV	Iid-water I	Vet.				Lance 1		
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans,	Molluscoida.	Larval Mollusca, etc.	Dia- toms,	Other Forms, Greenish Bodies, Remarks, etc.
Plutei, very few	Bottom	Form with enormous bristles (Sabellaria), very few Nerine (see sketch) Form (see sketch (a), 25th July), very few Polynoe, very few		Diastylis rathkii, very few, small Atylus swam- merdami, Acartia longi- remis and Halitemora longicornis, numerous: Oithona spini- frons, very few Longipedia coromata, very few Ostracoda, a few	Appendicu- laria, very few	Post-larval, univalves Mussels, 012 inch, very few	Rhizo-solenia, and a few other kinds in surface net	100 miles (100 miles (
100 Ann			Zoeæ, a few	Crabs 1s to 1s inch, numerous Atylus swammerdami, a few 1 Podocerus capillatus			A few kinds in surface net	
1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Bottom	Tow-net. Many (see sketch, 25th	Nauplii, numerous	1 Atylus	Appendicu-	Post-larval Univalves	A few	Ceratium
		sketch, 25th July) A few (see sketch (a), 25th July) Form with enormous bristles (Sabellaria), a few Polynoe, very few Aphrodite, 5 mm. Pholoë Nep'thys, etc., many	numerous	svammerdami Acartia longiremis, myriad Haltiemora longicornis, numerous Oithona spinifrons, a tew Longipedia coronata Pseudocala- nus elon- gatus	laria, very few	Univalves, numerous Mussels, '013 inch, '015 inch, very few	kinds	fusus and tripos, a few

	Course of	Total		Time nd (2) ken up.		1.20		
Net put down, where, and time.	Boat thereafter and Depth.	Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size, Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusæ.	Medusæ.
12th September 1888, † mile N.E. of Pier 8.20 a.m.	2½ fathoms	42 fathoms Sandy	Appendiculariæ, very few Cyphonautes, very few Actinotrocha, a few Univalves, many Acartia longiremis, Hatitemora longicornis Pseudocalanus elongatus Evadne nordmanni Larval Annelid, with enormous bristles (Sabellaria), very few Plutei, very few Margelis ramosa (Bougainvillia britannica) Ova of Pleurobrachia, a few Ceratium tripos, many Ceratium divergens, very few Radiolarian (?) as before	½ hour 8.50 a.m.		Syngnathus acus, 2 inches dis- integrated	Laodice cruciata (Thaumantias pilosella), many Thaumantias hemispharica, numerous Slomobrachium octocostatum, very few Tima bairdii, very few Margelis ramosa (Bougainvillia britannica), a few Thaumantias hemispharica, very few	Beroë, a few Pleurobrachia myriad Pleurobrachia, very few Ova of Pleu- robrachia, very few
13th September 1888. Near mouth of Eden, 1½ mile off Pier head 8.50 a.m.	N.E. 4 fathoms	5 fathoms Sandy	Appendiculariæ, a few small Univalves, many, principally Velutina, and other littoral forms Young mussels and other bivalves, many Halitemora longicornis, many Acartia longiremis, many Nauplii of Copepoda, a few Fragment of Tomopteris Larval Nerine, a few Larval Nerine, a few Larval Annelid, with enormous bristles (Sabellaria), a few Ceratium tripos, many Ceratium divergens, many Ceratium furca, many Tintinnus denticulatus, very few Radiolarian (?), as before	1 ⁷ = hour 9.25 a.m.		8 clupeoids, 11 mm. A few clupeoids (disintegrated) 1 gurnard, 12·5 mm., young 1 Gadus mar- langus, 3 inches	Tima bairdii, many Tiara (Oceania) octona, many Thaumentias hemisphærica, numerous Margelis ramosu (Bouga'n-villia britannica) Stomo-brachium octocostatum, a few Another Medusa bud	Beroè, many as before Pleuvobrachia, myriad, as before

Mi	d-water N	et.						Other Forms	
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelïds and Adults. Larval Crustacear		Adult Crustaceans.	Molluscoida,	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.	
		Larval Pria- pulus (?) Tornaria	Zoeæ, very⊊ few	Young crabs, numerous			Many kinds in sur- face net		
	Bottom	Tow-net. Larval Merine, many Form with enormous bristles, (Sabellaria), many Trochos pheres, a few	Nauplii, a few	Halitemora longicornis, a few Longipedia coronata, very few Ostracoda, very few	Appendicu- laria, a few small Cyphonautes, very few	Post-larval Univalves, numerous Mussels, '013 mm., and other bi- valves	nume- rous, many kinds	Algoid (a before), very few Ceratium divergens, very few Ceratium tripos, a fer Tintinnus denticulatu very few	
	1, 13 mm.			Copepoda, various im- mature forms			Rhizo-solenia, myriad, and other kinds, numer- ous in surface net		

		Total		ime (2) n up.			vater Nel	hEME
Net put down, where, and time.	Course of Boat thereafter and Depth.	Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(d) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedu æ	Medusæ.
	vento							Pleurobrachia, very few
15th September 1888. ‡ mile N.W. of Rock and Spindle, 1½ mile from Pier head 10.15 a.m.	W.	7 to 6 fathoms Rocky	Appendicularia, many small Cyphonaules, very few Mussels, '012 inch Halitemora longicornis, numerous Acartia longiremis, many Centropages hamatus, Oithona spinifrons, very few Ostracoda, very few Ostracoda, very few Megalops, very few Mauplii, very few Larval Arnelid (see sketch (a), 25th July) very few Larval Nerie, etc. Pleurobrachia, very few, small Ceratium tripos, many Ceratium furca, very few Radiolarian (as before), very few			Larval sand- cels (a few) Clupeoids, 9-11 mm.		

1	Iid-water 1	Net.		1981		Land.		Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms,	Greenish Bodies, Remarks, etc.
	Bottom	Tow-net. Form (see sketch, 25th July), many Form with enormous bristles (Sabellaria), many Nerine, numerous Polynoë, many Trochospheres, many Turbellarian, as before, very few Many Nereids Nephthys, etc.		Halilemora longicornis, many Calanus fin- marchicus, Acartialongi- remis and Longipedia coronata, very few Ostracoda, very few	Cyphonautes, very few	Post-larval Natica, and other univalves, very few Mussels '012 inch '014 inch, very few	Many kinds	Ceratium fusus, very few
Plutei, very few	Bottom	Tow-net. Nerine, a few Polynoe	Zoeæ of Nor- way lobster, very few Nauplii, very few	Schistomysis ornata, very few, small Cuma Young crabs, very few, as before Atylus swammerdami, a few small Atylus bispinosus Podocerus capillatus, very few Halitemora longicornis, a few Acartia longiremis, numerous Pseudocalanus elongatus, many Thalestris rufocincta, 1 specimen	Appendicu- laria, many, small Cyphonautes, very few	Post-larval univalves, many Mussels '015 inch to ½ inch, many	A few kinds in bottom net Many kinds in surface net	Ceratium tripos, very few Ceratium furca, very few Ceratium fusus, very few

and the second	Course of	Total Depth		of Time and (2) ken up.		-1265	Managara il	ec.
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1 Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedu sæ.	Medusæ.
7th September 1888. 23 miles N.E. from Pier head 9.15 a.m.	N.E. 2½ fathoms	4 fathoms Sandy	Appendiculariæ, very few Cyphonautes, very few Univalves, very few Mussels '013 inch to '015 inch, a few Ostracoda, very few Centropages hamatus, very few Acartia longiremis, numerous Eeadne nordmanni, a few Nauplii, a few Larval Nerine, very few Plutei, a few Pleurobrachia, many Ceratium tripos, numerous Ceratium fusca, very few Tintimus denticulatus, a few	10 a.m.		1 goby, 21 mm. 16 Syngnathus acus, 1½ to 2½ inches	Laodice cr uci- ata (Thauman'ias pilosella) very few Thaumanias hemisphærica, many	Pleurobrachia
						Abgraville of the second		Pleurobrachia very few

				al of				
IV.	lid-water I	Net.		11.		nilla i	santi)	Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans,	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
All and the second seco	middens unbetween mides to a 100 mides to a 100 mides and mides to be for the mides to be for the mides to be for the mides	pelijemaniji A (iz. Art. art. pelijemaniji A pelijemaniji A pelijemani pelijemani pelijemani		Young crabs (as before), numerous 1 Avylus swammer tami	Application ages	sound of	A few A few kinds in sur- face net	20 min 2 min
				2010 2010 2010 2010 2010 2010	The second secon			
	Rottom	Tow-net		anin	or all responsible of the control of			
Plutei, a few	Bottom	Polydora, etc. myriad Form with enormous bristles (Sabellaria), numerous Trochospheres	Nauplii, numerous	Atylus swam- merdami, very few, minute Diastylis rathkii, very few, minute Haliemora longicornis, many Acarlia longi- remis, numerous Longipedia coronata, many Pseudocalanus elongatus Evadne nord- manni, a few Ostracoda, very few		Post-larval univalves Mussels '012 inch to '014 inch, a few, 2·5 mm.	Very few kinds	Ceratium fusus, very few Ceratium furca, very few
	Larval Echinoderms.	Larval Echinoderms. Sagittæ, Size, etc. Bottom	Echinoderms. Size, etc. Annelids and Adults. Piutei, a few Polydora, etc. myriad Form with enormous bristles (Sabellaria), numerous Trochospheres of Polynoë, a few Form (see sketch (a), 25th July), myriad 1 Syllis, 3% inch, bearing ova Autolytus	Echinoderms. Size, etc. Annelids and Adults. Larval Crustaceans. Plutei, a few Polydora, etc. myrind Form with enormous bristles (Sabellaria), numerous Trochospheres of Polynö, a few Form (see sketch (a), 25th July), myriad 1 Syllis, paring ova Autolytus	Harval Echinoderms. Sagittae, Size, etc. Adults. Crustaceans. Crustace	Larval Annelids and Adults. Plutet, a few	Hutet, a few Plutet, a few Polydora, etc. myriad Form with encomous the encomous of Polynoë, a few Found State of Polynoë, a few Form (see, seth of My), myriad 1, Syllis, parling by a light of the parling ova Autolytus grotifer, Q Polylis, parling to the parling ova Autolytus grotifer, Q Polylis, parling to the parling ova Autolytus grotifer, Q Polylis and parling ova Autolytus grotife	Plutet, a few Polydora, etc. myrind numerous received in the control of the c

V-4	Course of	Total Depth		f Time nd (2 ken up.				
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2). Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedusa .	Medusæ.
8th September 1888. ³ / ₄ mile N.E. rom Pierhead 11.30 p.m.	S. 3 fathoms.	7 fathoms Sandy	Appendiculariæ, a few minute Cyphonautes, very few Univalves, a few Mussels '015 inch and other bivalves, very few Calanus finmarchicus, very few Halitemora longiremis, a few Acartia longiremis, many Evadne, very few Zoew of Porcellana, long-spined, Larval Annelid (see sketch, 25th July), many Ova of Pleurobrachia, very few Young Pleurobrachia, very few Young Radiolarian, as before Form (see sketch)	1 hour 12 noon		3 Clupeoids, 7-5, 8-5, 13 mm. 1 gadoid, 5-5 mm. 3 gurnards, 8, 11 mm. 3 Pleuro- nectids, 9, 10 mm. 1 Cottus (?), as before, 9 mm. Sand-eel like,	Laodice cruciata (Thaumanti ıs pilosella), ıt few Thaumantics hemisphæ- riea, many Margetis ramosa (Bougainvillia britannica, very few Thaumantics (Bougain- villia) nigri- tella Tiara (Oceania) octona, ; inch	
							aroutos:	Ova of Pleuro brachia, a few

	Mid-water	Net.	1				Course C	Other Forms
Larval Echinoderm	s. Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
	A few	Form with enormous bristles (Sabellaria), very few 2 Tomopteris, medium size	Zoeæ of Norway lobster	Young crabs, as before, very few 1 Atylus swam- merdami, small Halitemora longicornis, very few	Appendicu- laria, very few small	Translate II		
	Bottom	Tow-net.	,					
Plutei, very few		Nerine, numerous Trochospheres of Polynoë, a few Form with enormous bristles (Sabellaria), a few Form (see sketch (a), 25th July) Polynoë longi- setosus, about 1 mm. 1 other form Polydora cilliata, young, 2-5 mm. Turbellarian, young	Zoeæ of Porcellana, long-spined, a few Nauplii, a few	Halitemora longicornis, a few Acartia longiremis, numerous Harpacticus chelifer, many Dactylopus, Claus Evadne nordmanni, very few Ostracoda, very few	Appendicu- laria, very few, minute Actinotrocha	Post-larval univalves, many Mussels ·013 inch, very few	Numerous, many kinds	Ceratium tripos, numerous Ceratium divergens, Tintinnus denticulatus, a few

	Course of	Total Depth		of Time and (2) ken up.		, in F	C material C	et .
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedu: æ.	Medusæ.
0th September 1888. 2 miles from Pier head, 12 mile from Kinkell Ness 12,30 p.m.	W.S.W.	7½ fathoms Sandy	Appendiculariæ, very few Natica, very few Acartia longiremis, numerous Centropayes hamatus, ostracods, a few Evalne nordmanni, very few Young crabs (Portunus holsatus), numerous as before Nauplii, numerous Larval menny Thaumantias hemisphærica, very few, ripe Ceratium tripos, very few	½ hour 1 p.m.	-to VET To control St.	4 gurnards, 12 mm., 10 mm. 1 Callonymus, as before, 9 mm.	Thaumanti is hemis-pharica, numerous ripe Thaumanti as (See skete 1), very few, inripe Tima baire ii, very fey large and small, un ipe Tiara (Oceania octona, a few, unripe Margelis ramosa (Bougaine Ilia britannica), many rip 3	
					,			Ova, very few Probably of Pleurobrachia
						Jan-wat	anni) E	
22nd September 1888. § mile off Maiden Rock 12 noon	E. 5 fathoms	5 fathoms Rocky and sandy	Appendiculariae, numerous, larger than before Univalves, young, many Mussels and other bivalves, '015 inch, very few Young crabs (as before) numerous Acartia longiremis, myriad Evadne nordmanni, many Nauplii, a few Larval Annelids (see sketch, 25th July), a few Larval Nerine, a few 8 Sagitta, 18 mm. Plutiei, very few Pleurobrachia, ½ inch Thaumantias hemispherica, ripe Ceratium tripos, many	1 hour 12.20 p.m.	clupeoids, 8-15 mm.	A response of the control of the con		

		let.				HOSE TO	77.	Other Forms Greenish
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Bodies, Remarks, etc.
	1, 13 mm.	Eleption of emprofit cost off ablica- co	Zoeæ of Porcellana, numerous	Atylus swam- merdami, very few, small		Const. (a)	A few Many kinds in sur- face net	
	Calculation of the Calculation o	TOTAL		Allender Constitution Constitut				
	Bottom	Tow-net. Nephthys, young Polydora and other numer- ous Nerine, myriad Form (see sketch (a), 25th July), myriad Form (see sketch, 25th July), many Trochospheres of Polynoe, very few	Nauplii, numerous	Acartia longi- remis,numer- ous Longipedia coronata, many Ostracoda, many		Post-larval Univalves, many Mussels and other bivalves, '012 inch, very few	Very few A few kinds	
Plutei, very few	Bottom	Tow-net. Polynoè, very few (see sketch) Form (see sketch, 25th July) Form with enormous bristles (Sa-bellaria), very few Polydora, Aricia, Nephthys, Form in tube (Wartelia)	Nauplii, a few	Atylus swam- merdani, very small, very few Acartia lon- giremis, numerous Haltlemora longicornis, a few Centropages hamatus, a few Pseudoca- lanus elon- gatus, Evadne nord- manni, a few, Q with young in brood-pouch Ostracoda, numerous	Phoronis and Actinotrocha (see sketch), only a few of each seen	Post-larval univalves, very few Mussels and other young bivalves, ·008 to '014 inch	A few Many kinds in bottom net; and many, kinds in surface net	

	Course of	Total Depth		Time nd (2) sen up	Mid-water Net.		Net.		
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedu æ.	Medusæ.	
26th September 1888. 2 miles N.E. from Pier head 2.30 p.m.	N.E. by E. 4½ fathoms	5 fathoms Sandy	Appendiculariæ, very few (as before) Cyphonautes, very few Mussels, '012 inch, and other bivalves Univalves, young, a few Acaria longiremis, numerous Centropages hamatus Pseudocalanus elongatus Othona spinifrons (P) Longipedia coronata Ostracoda, many Evadne nordmanni, a few, Q with young in brood-pouch Nauplii, very few Larval Annelids, brittle, green coloration, otherwise like form in sketch of 25th July Larval Nerine, a few Larval Polynoë, very few Trochospheres of Polynoë, very few 3 Pleurobrachia, tinch Larval Pleurobrachia, tinch Larval Pleurobrachia, many, some far advanced, others not Small Medusa bud Ceratium divergens, very few Ceratium divergens, very few Ceratium furca, very few Ceratium furca, very few	½ hour 3 p.m.		5 clupeoids, 10 mm. to 13.5 mm., smallest with perma- nent rays just about to appear in tail, largest with perma- nent rays in dorsal as- pect of tail alone 1 goby, 6 mm.,perma- nent rays appearing in tail clupeoids, 15-16 mm.	Tima bair lii, 1\frac{1}{2} inch in diameter, unripe Laodice ci u- ciata (Thauman ias piloselia) many large, unripe 1 Stomobia- chium octo- costatum, ripe Tiara (Oceania) octona, 2 unripe Margelis ramosa (Bougainv Ilia britannic 1), small, 1 m- ripe	inch Pleurobrachie † to † inch	

Iid-water N	Tet.						Other Forms,
Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
2, 15, 16 mm.			Young crabs (as before), numerous			Very few A few kinds in surface net	
	14.						
Bottom	Tow-net.						
	Nerine, many Form with enormous bristles (Sabellaria), many Form (see sketch, 25th July), many Larval form (see sketch), numerous Larval form (see sketch a), one Trochospheres of Polymoe.	few	A Acartia lon- giremis, myriad Halilemora longicornis, many	Appendicu- laria, very few, as before Cyphonautes, very few	Post-larval Univalves, very few Mussels, '014 inch, and other bi- valves, a few	A few kinds	Ceratium tripos, ver few
	Sagittæ, Size, etc. 2, 15, 16 mm.	Bottom Tow-net. Nerine, many Form with enormous bristles (Sabetlaria), many Form (see sketch, 25th July) many Larval form (see sketch), numerous Larval form (see sketch) and the see sketch). The see sketch (see sketch) and the see sketch (see sketch) numerous Larval form (see sketch). One	Sagittæ, Size, etc. Larval Annelids and Adults. Larval Crustaceans. 2, 15, 16 mm. Larval Crustaceans. Neorine, many Form with enormous bristles (Sabellaria), many Form (see Sketch, 25th July), many Larval form (see sketch), numerous Larval form (see sketch a), numerous Larval form (see sketch a), numerous Larval form (see sketch a), one Trochospheres of Polynoë,	Sagittae, Size, etc. I Larval Annelids and Adults. Larval Crustaceans. Zouth and Adults. Larval Crustaceans. Adult Crustaceans. Young crabs (as before), numerous bristles (Sabellaria), many Form (see sketch, July), many Larval form (see sketch), numerous (see sketc	Sagittæ, Size, etc. Annelids and Adults. Larval Crustaceans. Young crabs (as before), numerous Young crabs (as before), numerous Nerine, many Form with end of the common shristes (Sabellaria), many Larval form (see sketch), numerous Larval form (see sketch), numerous	Sagitta, Size, etc. Crustaceans. Adult Crustaceans. Molluscoida. Larval Mollusca, etc.	Sagitte, Size, etc. Annelids and Adults. Crustaceans. Crustaceans. Molluscoida. Larval Mollusca, etc.

	Course of	Total Depth		f Time nd (2) ken up		.an	C material i	anc .
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedu æ	. Medusæ.
28th September 1888.	Total		Larval forms of Copepoda, and young of several species of Copepoda	2000 41 (20 2011 I		2 Nerophis acquorcus, 23 24 inches;	Tima bair ii 1 small, unripe 1 Thauman- tias hem s- pharica, 1 Tia a (Oceania) octona, almost ri)e	
			,			Pleuronectid, 11 mm. Gobies, 10 to 15 mm. Bimaculated sucker, 7.5 mm. Dragonet, 5 mm. Young whiting, 45 mm. clupeoids, 15-16 mm.		Larval Pleu- robrachia, very few
Sth October 1888. § mile N.E. of Pier head 1.55 p.m.	E. 3 fathoms	5 fathoms Sandy.	Univalves, a few Mussels, '014 inch, very few Evadne nordmanni, very few Nauplii, very few Nerine (larval), very few Ceratium furca, very few Ceratium tripos, § very few	hour 2.45 p.m.;		9 clupeoids, 17 mm. to 18 mm. Permanent rays in ven- tral aspect of tail, and appearing in median dorsal fin	Thaumant as hemisphær ca, many rij e, and nearly so, § inch	Pleurobrachia, myrind, § to y to inch, un- ripe 1 Beroè, 1½ inch

TVI	id-water N	ſet.		E-1				
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Other Forms, Greenish Bodies, Remarks, etc.
AND	3, 15 mm.		A few Zoeæ, with long spines (Por- cettana)	Young crabs (Portunus), many (as before 1 Idotea tri- cuspidata		Post-larval Mussels, 045 inch, 047 inch, a few, and others fully 2 mm. and coloured	A few in sur- face net	AND STATE OF THE PARTY OF THE P
	Bottom	Tow-net. Different forms of Nerine (as before) Many Trochospheres of Polynoë. many other Trochospheres Form in tube (see sketch) Many, Cirratulus, young about 3 mm. Nephthys, young	5	Diastylis rathkii, very few, small Atylus swam- merdami, very few, small Acartia lon- giremis, numerous Halitemora longicornis, a few Longipedia coronata, Claus, many Pseudocalanu elongatus, Boeck		Univalves a few young Mussels, 012 Inch to 014 inch Spirialis, many	Many kinds	Ceratium tripos, many Tintimus denticulatus, a few
Contract Contract of the Contr	Andrews Control of the Control of th	1 Tomopteris	,	gued to our our our our our our our our our ou		Tauroba ()	Many kinds in surface net	1
	Bottom	Tow-net Nerine, very		Halitemora longicornis very few Ostracoda, very few		Post-larval univalves, very few	A few kinds	

				3			
urse of	Total Depth of Water	Confee T	of Time and (2) aken up		.33	E micr-	15
reafter and	and Nature of Bottom.	(Tow-net).	(1) Length Net down, Fime when t	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromedu sæ	Medusæ.
N. thoms	fathoms Sandy		½ hour 2.30 p.m.			Tima bair lii, 14 inch, un- ripe Thaumant as hemisphær ca (as before)	1 Beroe, 1½ inch Pleurobrachia, myriad, as before
						A few ova	Pleurobrachia, very few, as in other net
aetle	5 to 9	Union have					
f	athoms	Divalves, a few Atylus seammer- dami, very few, small Halitemora longi- cornis, many Acartia longiremis, many Ostracoda, a few Nauplii, a few Larval Nerine, very few, 2 kinds Ceratium tripos, very few Tintinnus denticu-	8 hour 9.10 a.m.				
	Sandy	Univalves, very few Mussels, '011 inch, very few Oithona spinifrons (f), very few Acartia longiremis, a few Halitemora longicornis Evadne nordmanni, very few Nauplii, very few Tomopteris, very few, very small Vereis larva, very few, of Pleurobrachia, very few, (embryos well ad-	³ / ₂ hour 9.30 a.m.		, , , , , , , , , , , , , , , , , , ,	numerous, as before as before Tima baird i, many, unitipe I specimen, 2 inches in diameter Stome-brachium octocostatum, many larg, unripe	Beroë, many, 1½ to 2½ to 2½ to concept to the second secon
	Sont reafter and epth. N. thoms Castle f	of Water and Nature of Bottom. N. Statle fathoms Sandy 2 date fathoms Sandy 4 dathoms Sandy	Sastle- fathoms Sandy Sastle- fathoms Sandy Surface Fauna (Tow-net). Surface Fauna (Tow-net).	Tastle- fand Nature of Bottom. Surface Fauna (Tow-net). Surface Faun	E. 4½ fathoms Sandy Livivalves, many fathoms Sandy Luivalves, many Mussels, '011, '012 inch, and other bivalves, a few Atylus swammer-dami, very few, small Halitemora longicornis, many Acavita longiremis, many Ostracoda, a few Naupiti, a few Larval Nerine, very few, 2 kinds Ceratium tripos, very few, 2 kinds Ceratium tripos, very few Tintinus denticulatus, very few Mussels, '011 inch, very few Othona spinifrons (?), very few Halitemora longicornis Evadne nordmanni, very few Naupiti, very few Halitemora longicornis Evadne nordmanni, very few Naupiti, very few Naupiti, very few Tomopteris, very few Naupiti, very few Tomopteris, very few Jewooya of Pleurobrachia, very few (embryos well ad-	Sastle- fathoms Sandy Univalves, many fathoms Sandy Univalves, many fathoms Sandy Univalves, many fathoms Sunsels, '011, '012 jinch, and other blvalves, a few Atylus swammer- dami, very few, small Haltiemora longi- cornis, many Acartia longiremis, many Ostracoda, a few Naupiti, a few Larval Nerine, very few, 2 kinds Ceratium tripos, very few Tintinnus denticu- latus, very few Wussels, '011 inch, very few Tintinnus denticu- latus, very few Wussels, '011 inch, very few Tintinnus denticu- latus, very few Wussels, '011 inch, very few Tintinnus denticu- latus, very few Wussels, '011 inch, very few Wussels, '011 inch, very few Tintinnus denticu- latus, very few Wacartia longiremis, a few Haltiemora longi- cornis Evadane nordmanni, very few Waxplii, very few Tomopteris, very few	Sastle- Sandy Univalves, many fathoms Mussels, '011, '012 inch, and other bivalves, a few daylves, a few daylv

IM	lid-water 1	Vet.		100				Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms-	Greenish Bodies, Remarks, etc.
	Bottom 1 partially decomposed	Tow-net.	Nauplii, a few	Halitemora longicornis, myriad Acartia lon- giremis, many Longipedia coronata, a few Evadne nordmanni, many Ostracoda, very few			Numerous Many kinds	
	Bottom	Tow-net. Nerine, numerous Polynoë, many Sepunculoid(?) in tube Pilidium (Nemertean)	Nauplii, very few Cirripede	Diastylis rathkii, very few Atylus swam- merdami, very few, small Halitemora longicornis, many Acartia lon- giremis, many Longipedia coronata, very few Pseudocalanus elongatus spinifrons	Cyphonautes, many	Post-larval Mussels, '013 inch, A few, and one large about ½'s inch	Numerous in surface net, many in bottom net Many kinds	eren ele
		Tomopteris, a few, very small		Young crabs, a few (as be- fore), pro- bably Por- tuni Atylus swam- merdami, very few			Myriad Many kinds in surface net	

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Notes	Course of	Total Depth		of Time and (2) tken up.		.38	E many his	10
Net put down, where, and time.	Boat thereafter and Depth.	of Water and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	· Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromed use.	Medusæ.
	SAME STATES			collised Later to the collision of the c	e -Manuel Veri	Sur-molt	moch d	Pleuro- brachia, very few Ova of Pleuro- brachia, well ad- vanced, very few
16th October 1888, 1½ mile N. of Pier head, 1 mile from shore 9.30 a.m.	To mouth of Eden 3 fathoms	5 fathoms Sandy	Univalves, very few Acartia longiremis, many Nauplii, very few Nerine (larval), very few Ceratium tripos, many Ceratium divergens, very few	g hour 10,20 a.m.	12 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -	1 gurnard, permanent rays 3 clupeoids, 11.5 mm. to 18.5 mm. No permanent rays in smallest 1 adult Sympathus acus	Laodice c uciata (Thauma tias pilosella), many Thauma tias hemis- phærica, numero is as befor: Tima barraii, young, as before Stomo- brachium octocoste tum, numero is as before	Beroè, many, as before Pleuro-brachia, myriad, as before Pleuro-brachia, sefore Pleuro-brachia, very few
	Autorities Tunities Survives Tunities			Marie Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma		AP CONTRACTOR		
17th October 1888. 3 miles N.E. of Pier head 11.20 a.m.	E. 4 fathoms	8 fathoms Sandy	Univalves, very few Mussels and other bivalves, '012 inch, a few Halitemora longicornis, a few Acartia longiremis, a few Longipedia coronata Evadne nordmanni Nauplit, many Plutei, a few Ceratium tripos, myriad Ceratium furca, a very few	marcal 1 (2008)		Adult 3 Syngnathus acus	Laodice cru- ciata (Thaum mtias pilosell') Thaum ntias hemis- phæric i, as before Tima bi irdii, many	Beroè and Pleuro- brachia, many, as before

				anno anno anno anno an	-	4		
IM	lid-water N	Tet.		THE STATE OF THE S		juril dopeli ni		Other Forms, Greenish
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crnstaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Bodies, Remarks, etc.
	Bottom Very few small	Tow-net. Nerine, 3 kinds, a few Polydora; Cirratulus, young, about \(\frac{1}{2} \) inch Polynoë, very few		Atylus swam- merdami, very few, small Parathe- misto ob- livia, Halitemora longicornis, numerous Acartia longipemis, Longipedia coronata (?) Ostracoda, very few		Post-larval Spirialis, very few Mussels, '016 inch, and other bi- valves, also larger mus- sels with coloured bands and elongated	Num- erous Many kinds	
paracity, paraci	Very few	1 Tomopteris		Young crabs, many (as before) Catigus, very few 1 Idota linearis		Post-larval univalves, very few Mussels, '016 inch	Myriad Many kinds in surface net	Total
	Bottom 1	Tow net.	Balani, very few	Acartia longiremis, numerous Calanus fin- marchicus, a few Halitemora longicornis Evadne nordmanni, a few young		Spirialis, very few Mussels, '015' inch, and other bi- valves		
				Nephrops norvegicus, young, a inch				

Net put	Course of Boat	Total Depth of Water		of Time and (2) aken up.		J6	Wingtes afti	
Net put down, where, and time.	thereafter and Depth.	and Nature of Bottom.	Surface Fauna (Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature, Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydromet usæ.	Medusæ.
	9002 9002 9002 1003 1003 1003 1003 1003 1003 1003 1							Pleuro- brachiu, very few as before
18th October			•				,	
18th October 1888. Abreast Maiden Rock, ½ mlle from shore 9.30 a.m.	E.	5 to 9 fathoms Sandy	Univalves, a few Post-larval Portuni, young Calanus jinmarchi- cus, Halitemora longi- cornis Acartia longiremis Larvæ of Balani Occania octona, and other Medusa-buds	‡ hour 10.15 a.m.				Pleuro- brachia, very few as before Larval Pleuro- brachia, very few Ova
30th October 1888. Abreast of Kinkell Ness 8.30 a.m .	N. 4 fathoms	Rocky and sandy	Bivalves, '017 inch, very few Halilemora longicornis, many Acartia longiremis, numerous Pseudocalanus elongatus Balani (Ostracod stage), very few Pleurobrachia, very few	1 hour 9.30 a.m.				Beroë, many Pleuro- brachia, myriad, like largest of former Pleuro- brachia, very few
						,		

M	id-water N	let.		05		1945 ·	Dia- toms.	Other Forms, Greenish Bodies, Remarks,
Larval ninoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larvál Crustáceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.		Remarks, etc.
	Bottom	Tow-net.						
	*	Trochos- pheres of Polynoë, very few Nerine, very few Nephthys Pholoë	Nauplii, very few Zoeæ of Porcellana	Atylus swam- merdami, very few Acartia longiremis, many Halitemora longicornis, many Longipedia coronata,	Appendicu- laria, young	Post-larval Univalves Mussels, '012 inch, very few	Myriad Many kinds	Cerátium tripos, my- riad Ceratium furca, very
				very few Pseudo- calanus elongatus Ostracoda, very few	and a servan	- 12 P	path of the second	
	Bottom	Tow-net.		la la lace	a granting			
		Nerine, many, 2 kinds	Nauplii, a few	Calanus fin- marchicus, a few Acartia longiremis, many Halitemora longicornis Longipedia coronata,	Appendicu- laria, young	Post-larval Univalves, many Mussels, '015 inch, '022 inch, very few, and other bi- valves	Myriad Many kinds	Ceratium tripos, many
				very few Pseudo- calanus elongatus Evadne, a few Ostracoda, many			11-12-12 11-12 11-12-12 11-	
					The same of			
	Bottom Many, 8 to 15 mm.	Two forms of Nerine, a few	Nauplii, very few Balanus	Halitemora longicornis, numerous Acartia longiremis, nyriad Pseudo- calanus elongatus, a few Centropages hamatus		Post-larval Univalves, a few		Ceratium divergens, very few Tintinnus denticulatu very few 4th Novemb (Thames) Bacillaria pera, abun- dant Chectoceus vighamii Eucampia, Osihosira

	1						
Course of Boat thereafter and Depth.	Total Depth of Water and Nature of Bottom.	Surface Fauna (Tow-net).	1) Length of Time Net down, and (2) ime when taken up.	Pelagie Ova, Nature, Size, Larval Fishes, Nature, Size,	Coloration,	Hydrom edusæ.	Medusæ.
N.E. 3 fathoms	5 fathoms Sandy	Swarms of Megalops stage of crabs (Hyas) young Macronra, Parathemisto, a few; Copepoda and Pleurobrachia	1 hour 10 a.m.	28 - 1 Val. (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	Bimaculated sucker, 8 mm. 4 clupeoids, 14.5 mm. to 19 mm.	Aglant ia, a few P anulæ	Beroë, large many Pleurobrachi myriad (a before) an ranging from 7s to inch, som 1n inch
To Castle and back	4 fathoms Sandy	Acartia longiremis, many Exuviæ of Balanus, very few Tomopteris, a few small Tube of Annelid Sagitta, many as before Pleurobrachia, very few, small Aglantha digitalis (Circe rosea), many	1 hour 9.20 a.m.		Young gobies, 18 to 23 mm.		Pleurobrachi very few Lesueuria, Beroè (als in Thames)
Co 2 miles off Pier 4 fathoms	9 to 7 fathoms Sandy	1 Atylus swammer- dami bairdii, medium size Aglantha digitalis (Circe rosea), many Tintinnus, many [Peridinum fuscus, (in Thames) also Tintinnus]	2 hours 4 p.m.			2 (r 3	1 Beroë, 4 inch Pleurobrachia inch Pleurobrachia inch down wards, reproductive elements not well developed
	Boat thereafter and Depth. N.E. 3 fathoms To Castle and back	Course of Boat thereafter and Depth of Water and Nature of Bottom. N.E. 5 fathoms Sandy Fo Castle and back 4 fathoms Sandy	Course of Boat thereafter and Depth. N.E. 5 fathoms Sandy Fo Castle and back Sandy To Castle and back To Castle and Complex back To Castle an	Course of Boat thereafter and Depth. of Water of Bottom. N.E. 5 fathoms Sandy N.E. 5 fathoms Sandy N.E. 5 fathoms Sandy Fo Castle and back Surface Fauna (Tow-net). Swarms of Megalops stage of crabs (Hyas) young Macroura, Parathemisto, a few; Copepoda and Pleurobrachia Fo Castle and back Sandy Swarms of Megalops stage of crabs (Hyas) young Macroura, Parathemisto, a few; Copepoda and Pleurobrachia Sandy Exurise of Balanus, very few Tomopteris, a few small Tube of Annelid Sagitta, many as before Pleurobrachia, very few, small Aglantha digitalis (Circe rosea), many To 2 miles off Pier fathoms Sandy Surface Fauna (Tow-net). 1 hour stage of crabs (Hyas) young Macroura, Parathemisto, a few; Copepoda and Pleurobrachia Sandy Surface Fauna (Tow-net). 1 hour stage of crabs (Hyas) young Macroura, Parathemisto, a few; Copepoda and Pleurobrachia Sandy Sandy I hour stage of crabs (Hyas) young Macroura, Parathemisto, a few; Copepoda and Pleurobrachia Sandy Surface Fauna (Tow-net).	N.E. 5 fathoms Sandy Swarms of Megalops stage of crabs (Hyas) young Macroura, Parathemisto, a few; Copepoda and Pleurobrachia 1 hour 10 a,m. 11 nour 19,20 a.m. 29,20 a.m. 29,2	N.E. 5 fathoms Sandy Sandy Stage of crabs (Hyas) young gepoda and Pleurobrachia Pleuromachia Sandy San	N.E. 5 fathoms Sandy N.E. 5 fathoms Sandy Sandy Sandy Fo Castle and back Sandy Fo 2 miles of Friend fathoms Sandy Fo 2 miles (Circe rosea), many Fratitunus, many Fratitunus, many Friendium, friend size, shady friend size, shady friend size, and sucker, shad size, sha

IV.	Iid-water l	Net.		100		AND IN	- 20.	Other Forms, Greenish
Larval hinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Bodies, Remarks, etc.
	Numerous and large	Larval forms of Nerine Tomopteris, chiefly small		Diastylis, a few Copepoda, a few		Section of the sectio		
	Bottom Numerous, large and small	Tow-net. Larval Nerine Nematodes, a few Tomopteris, very few, small		Schistomysis ornata, many 1 Crangon vulgaris, Acartia longiremis, myriad Pseudocalanus elongatus, numerous	Cyphonautes	Post-larval Univalves, a few Mussels, '016 inch, very few		
								Spores of algæ Fragments of algæ, in surface net
				70,000 23,400 40,40		1000 E	DA ALK	Array Array
	Bottom A few, § inch	Tow-net.		Parathemisto oblivia Halitemora tongicornis Pseudocalanus elongatus, and Calanus finmarchicus, in swarms 1 Eradne				

	1	1 /						
Net put	Course of Boat	Total Depth of Water	Surface Fauna	of Time and (2) aken up.	·	30	s zola =-hij	y.
down, where, and time.	thereafter and Depth.	and Nature of Bottom.	(Tow-net).	(I) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature Size, Larval Fishes Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration. etc.	Hydro nedusæ	Medusæ.
6th December 1888. 1 mile of Pier head 2.30 p.m.	Harbour,	5 to 7 fathoms Sandy				Jon-Wall	Agla tha digrialis (Circe rosea), many Ston obrachism octeostatum, many, and of about same size as before; repreductive organs in some nearly rip;	some and in goo
10th December 1888.		Landy in 3	estandar de			ale V Line I	S MORES KEE TOTAL	
100 yards N. of Pier head	and again S, nethad touched bottom	7 fathoms	Cyphonautes, numerous Larval Spirialis, swimming with Epipodia Acartia longiremis Nauplii, a few Exuviæ of Balanus Sagitta, numerous Pluteus, arms short and apparently atrophied; skeletons still visible, no starfish Pleurobrachia, young forms with ova Aglantha digitalis (Circe rosea), a few Ceratium tripos, numerous Ceratium furca	Andrews		200 May 100 Ma	HEGG	
12th December 1888, 100 yards off Pier 10 a.m.	N.E. for ‡ mile 2_fathoms	7 to 5 fathoms		10.45 a.m.			T ma bairdii, A plantha cigitalis ((tirce rosea), nany S omobra- hium cotocostatum	Beroë, a few
13th December 1888. 200 yards off Budda Rock 10 a.m.	Along shore to W., end of E. rocks 3½ fathoms	7 fathoms	Copepoda Sagitta, a few Aglantha digitalis, very few	1½ hour 11.30 a.m.		Clupeoid, 1½ inch	tigitalis,	3 Lesueuria about § inch, Pleurobrachia many large and small
			11/0 11/0 11/0	1914 1914 - 1914 18170 - 1914 18170 - 1914				Lesueuria Pleurobrachie

				300	-	1		
IM	lid-water r	iet.				1200	o assure?	Other Forms,
Larval chinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
				Parathemisto oblivia, a few				
	Bottom	Tow-net. Bristles of Sabellaria, and fragments of Polynoe		Calanus fin- marchicus Pseudocalanus elongatus, Considerable number, Shells of Ostracoda	Cyphonautes, many	Minute shells Littorina (?), young		Foraminifera Fragments of algæ, in bottom net
				-				
	A few, 13 inch			Parathemisto oblivia, very few				
	In swarms, #4 to 1/2 inch, some 1/2 inch and less	1 Tomopteris, about 3 inch		Parathemisto oblivia, a few				Spores of algain surface net, and in bottom net,
Many	Bottom	Tow-net.	Copepoda,					

Net put	Course of Boat	Total Depth of Water	Surface Fauna	of Time and (2) aken up.			on rote well	70
down, where and time.	thereafter and Depth.	and Nature of Bottom.	(Tow-net).	(1) Length of Time Net down, and (2) Time when taken up.	Pelagic Ova, Nature Size. Larval Fishes, Nature, Size.	Post-Larval Fishes, Nature, Size, Coloration, etc.	Hydrom dusæ.	Medusæ.
14th December 1888. Site of target, N. of Bat- tery 10.30 a.m.	E.N.E. for 1600 yards 3 fathoms	7 fathoms	1 Tomopteris, 4 inch Sagitta, many Pleurobrachia, a few, about § inch and under	1 hour 11.30			Aglant ta digite lis, many	1 Lesueuria, \$\frac{1}{2}\$ inch Pleurobrachia. numerous, large, \$\frac{1}{2}\$ inch to \$\frac{3}{2}\$ inch Pleurobrachia. \$\frac{6}{2}\$ inch and under
18th December 1888. Opposite Castle 12 noon	Towards Eden, 3 miles course 3 fathoms	5 fathoms	Sagitta, a few, various sizes Aglantha digitalis, a few [In Thames:— Noctiluca, Pleurobrachia Infusoria in sand case Larval Molluses, Annelids, bivalves, and a Copepod]	1½ hour 1.30 p.m.		200-00T	Aglar tha digitalis, in swa ms; reproductive organs develoring	Swarms of Pleurobrachia
							Aglauha digitalis, a few	

IM	Iid-water r	net.						Other Forms,
Larval Echinoderms.	Sagittæ, Size, etc.	Larval Annelids and Adults.	Larval Crustaceans.	Adult Crustaceans.	Molluscoida.	Larval Mollusca, etc.	Dia- toms.	Greenish Bodies, Remarks, etc.
	Many, some over ³ / ₄ inch in length	2 Tomopteris about ½ inch	1 young Carcinus maenas Megalops and Zoeæ of	Parathemisto oblivia, very few				
	Bottom Many	Tow-net. Bristles of Sabellaria and Nereis		Calanus fin- marchicus, a few, small			Some	Spores of algae Fragment of young sponge with spicules like those of Oculina (?)
	In swarms, same length as before, 1 inch and less Some showed sperm-cells clear and translucent, and many large			Parathemisto oblivia, con- siderable number Calanus fin- marchicus, considerable number			Some in mid- water net	Spores of algæ, a few in mid-water net
	Bottom A few	Tow-net.		A very few Copepoda				

