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UNDER LEDELSE AF LAUGE KOCH

CONTRIBUTIONS TO THE ANIMAL ECO-
LOGY OF THE SCORESBY SOUND FJORD
COMPLEX (EAST GREENLAND)

BY

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WITH 20 TABLES AND 3 FIGURES IN THE TEXT AND 6 PLATES

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I. INTRODUCTION

This work forms a direct continuation of the investigations which were carried out in 1931—32 with the scientific station at Ella Island within the Franz Joseph Fjord area as a base, and which were continued from the s.s. "Godthaab" in the summer of 1932 within the same region. The collections for this investigation were already finished in 1932, and the results have been published in part¹).

The next link in the thorough investigation of the East Greenland fjords was naturally the Scoresby Sound fjord complex, and in the summer of 1933 the expedition ship "Godthaab" was again equipped as a research ship, and during the months of July and August covered the greater part of the fjord area. While in 1932 the object of the "Godthaab" was to make investigations at great depths only, shallow water samples having been collected by the wintering zoologist, in 1933 it was the purpose to secure a representative, quantitative material from the Scoresby Sound area, from the coast outward to the greatest depths of the fjord, the whole area being quantitatively a *terra incognita*.

Although the work was very exacting, it was carried through, even on a larger scale than planned, since the extraordinarily favourable ice conditions enabled the expedition to commence the marine-biological work as early as June 26th, that is, about one month earlier than is usual in these regions. The work was arranged in such a way that each section comprised at least ten shallow water samples taken within a fairly limited area with the $\frac{1}{10}$ or the $\frac{1}{5}$ sq.m Petersen bottom sampler. Taking samples all along the way, the ship then sailed towards increasingly greater depths, where, however, the samples were taken at greater intervals and in far smaller numbers than in the shallow water. From the outer district of the fjord as well as from the middle district, the Hall Fjord area, a large number of such sections are at hand, whereas from the inner district (the Nordbugt in Nordvest Fjord), on account

¹) SPÄRCK, 1933, and THORSON, 1933.

of the very difficult working conditions, only one section was secured, which, on the other hand, is based on a considerable material. Pl. 4 shows the distribution of the observation posts within the fjord area.

At the same time plankton investigations¹⁾ and hydrographical investigations were frequently made (see p. 10), and nearly every 10th or 15th minute during the voyage soundings were taken by means of the echo sounding machine, which were further controlled by readings of the metre-wheel when the bottom sampler was at work (see the bathymetrical chart in pl. 6).

During my work last summer I received valuable assistance from different quarters. Thus I am greatly indebted to the captain, Mr. H. ROSEFELDT, and the officers and crew of the "Godthaab". Most of the soundings taken by means of the echo sounding machine were taken by the first mate, Mr. P. HANSEN, and the second mate, Mr. L. RASMUSSEN, who also inserted their observations on the chart. But the greatest debt of gratitude I probably owe to my fellow zoologists, stud. mag. H. USSING, stud. mag. SØGAARD-ANDERSEN, and stud. mag. H. MADSEN, all of whom have by their great energy and helpfulness contributed to the good result obtained. H. USSING has undertaken the hydrographical work, which he is publishing as a section of this paper, and he has done excellent work especially as a marine-biological assistant. I beg these three gentlemen to accept my most cordial thanks.

My thanks are likewise due to Professor Dr. O. CARLGREN, Lund, who has determined part of the *Actinia* material, to mag. scient. E. WESENBERG-LUND, who has determined part of the Polychaeta, to Professor Dr. H. BACKLUND and mag. scient. A. NOE-NYGAARD for placing their map of the Storfjord at my disposal for the preparation of the bathymetrical chart, and to cand. mag. THOMSEN for much help and kind interest during the working up of the hydrographical results. I further beg to express my sincere thanks to Dr. R. SPÄRCK, who assisted me in the preparations for the summer cruise, to Mr. H. RØHLING, who has drawn some of the maps, and to mag. scient. MARIE JØRGENSEN, who has assisted me in sorting the material.

Finally I am greatly indebted to the leader of the expedition, Dr. LAUGE KOCH, for having included marine investigations in the work of the expedition, and for the great interest he has shown in my work by placing the "Godthaab" at the disposal of the zoologists for marine biological investigations during the whole summer, so affording Danish zoologists an opportunity of obtaining a knowledge of the interesting animal life of these waters.

¹⁾ Not yet published.

II. THE BATHYMETRY OF THE SCORESBY SOUND FJORD COMPLEX

(Cfr. the bathymetrical map in pl. 6).

The investigations made in the summer of 1932 in the Franz Joseph Fjord complex (SPÄRCK 1933, pp. 7—12) showed that nearly the whole of this fjord district is made up of a system of threshold fjords, in which the thresholds occur at a fairly inconsiderable depth (often less than 200 m below the surface of the water). Franz Joseph Fjord and Kong Oscar Fjord are both of them divided by such low thresholds into two basins, which again are divided by deeper-lying thresholds into a number of smaller basins. A similar low threshold occurs at the mouth of Dusén Fjord, etc. Only the outer parts of Franz Joseph Fjord and Kong Oscar Fjord lack thresholds towards the open sea, with which these fjords are thus in open communication in their entire depth. Finally, all the outer fjords of the Franz Joseph Fjord system, taken as a whole (maximum depth 500—600 m), form a threshold in relation to the inner parts of the fjords (maximum depth 800—1000 m). This threshold as well as the above-mentioned low thresholds are, of course, of essential importance to the hydrography of the fjord (SPÄRCK 1933, p. 19) and accordingly to the ecology, the threshold being i. a. an essential obstruction to strong movements of the water.

If we compare these conditions with the bathymetrical conditions of the Scoresby Sound fjord complex (see pl. 6), the most remarkable difference between the latter and the Franz Joseph Fjord complex is that in Scoresby Sound no thresholds whatever have been encountered at lesser depths than 400 m below the surface of the water¹⁾. The bathymetry of the outer part of Scoresby Sound was found to correspond entirely to the conditions in the outer district of Franz Joseph Fjord, even the shallow-watered Hurry Inlet (greatest depth 140 m) corresponds entirely to the shallow-watered Musk-ox Fjord within the northern fjord complex (cf. SPÄRCK 1933, pl. 1), that

¹⁾ See, however, the threshold between the Bjørne Islands and Milne Land mentioned below.

is, no thresholds occur at their mouths. As regards the outer district of Scoresby Sound the bathymetrical conditions moreover correspond entirely to the topography of the surrounding landscape. The north coast of the outer district, including Hurry Inlet, shows shallow-watered, slightly sloping bottom areas, corresponding perfectly to the low sedimentary deposits of Jameson Land, while the greatest depths of the outer district occur at a distance of 0.5—1 mile from the high basalt cliffs of the south coast. The same conditions prevail in the middle part of the fjord area, the Hall Fjord area. The shallow-watered areas continue along the coast of Jameson Land, while the deep channel constantly following the south coast continues towards the interior and is in direct communication with the 500—600 m deep basin that occurs between Cape Leslie, Cape Stevenson, and Danmark Island. This basin is separated inwards from the very deep Føhn Fjord (depth 900—1000 m) by a threshold extending from Gaase Land to Danmark Island. To the north the basin is bounded by a threshold occurring at a depth of 400 m between Cape Leslie and Jameson Land, and north of this threshold we find a deep basin (depth 500—600 m), the actual Hall Fjord, quite similar to that occurring south of the threshold. On the north the Hall Fjord basin is bounded by another threshold, the exact depth of which is unknown, but which must be presumed to extend in continuation of the Bjørne Islands, at a depth of about 450 m, and which thus separates this basin from the very deep Nordvest Fjord (depth 1000—1450 m). Whether the Hall Fjord basin is separated from Ø Fjord, is not known with certainty. It is true that a threshold of a depth of from 150 to 200 m extends between the two southernmost of the Bjørne Islands and Milne Land, but as the bathymetrical conditions between the northernmost of the Bjørne Islands as well as between the Bjørne Islands and Ren Land are unknown, it is still questionable whether this threshold is effective. In Nordøst Fjord, at the mouth of Schuchert River, there is a very large deposit cone, which extends right out to the islands lying opposite the mouth of the river. This is also plainly evidenced by the large number of icebergs that have stranded at the boundary between the deposit cone and the Hall Fjord basin.

It only remains to mention the inner fjords, Nordvest Fjord, Ø Fjord, and Føhn Fjord. All these three fjords have undoubtedly originated by faulting and present very great depths. Thus Nordvest Fjord with its depth of 1450 m is the deepest fjord of the world, and by far the greater part of its bottom area exhibits depths of more than 1000 m. Throughout the length of the fjord the mountain sides descend almost perpendicularly into the sea from a height of more than 2000 m above sea-level. It may be mentioned

that only in a single place in this fjord did s.s. "Godthaab" succeed in finding a suitable anchorage, viz. in the Nordbugt.

Quite similar aspects to that of Nordvest Fjord are exhibited by Ø Fjord and Føhn Fjord. Ø Fjord presents depths exceeding 1000 m, Føhn Fjord depths of very nearly 1000 m. Since on its voyage up through Ø Fjord the "Godthaab" only pushed as far as Storø, and up Føhn Fjord only as far as Røde Island, nothing is known about the bathymetrical conditions in the branch of the fjord extending between these two islands. The topography of the landscape, however, indicates that the same great depths as occur in Ø Fjord and Føhn Fjord continue here, but if so, with a threshold at Røde Island. Finally, the southernmost ramification of Scoresby Sound, Gaase Fjord, seems to be relatively shallow. It is true that the ice impeded navigation in the innermost parts of the fjord, but the distance covered exhibited much lower depths (maximum depth 280 m).

A comparison formerly made between the bathymetry and the geology of Franz Joseph Fjord (SPÄRCK 1933, p. 10) showed that the large shallow-watered thresholds at Cape Ovibos and Ella Island are situated at the transition between the sediments and the Algonkian. In the Scoresby Sound Fjord complex conditions are far more intricate. The only thing that can be ascertained with some degree of certainty is that the 400 m deep threshold lying between Cape Leslie and Jameson Land should be regarded as a corner of the Jameson Land sediment block, which here continues below the water towards Cape Leslie. This agrees fairly well with the fact pointed out by КОЧ (1929, p. 294) that the eastern part of this block was greatly elevated, while the southwestern corner doubtless subsided considerably. Finally it should be pointed out that the three deep fjord ramifications, Nordvest Fjord, Ø Fjord, and Føhn Fjord, cut across crystalline rocks.

Thus apart from the low thresholds, the Scoresby Sound and the Franz Joseph Fjord systems agree closely in the main features of their bathymetry. It applies to both of them that at their mouths the depth is relatively slight, and that they attain their maximum depth in the inner ramifications, near the heads of the fjords. Thus the three branches of the Scoresby Sound fjord system, Nordvest Fjord, Ø Fjord, and Føhn Fjord, are of exactly the same type as the inner ramifications of Franz Joseph Fjord. However, the lack of shallow-watered thresholds within the Scoresby Sound area and, as regards the outer districts, the enormous width of the fjord will cause much heavier movements of the water than in Franz Joseph Fjord, and this naturally sets its mark on the animal life. Thus it would seem that the influence of the open sea can be traced much farther towards the interior of the Scoresby Sound fjord area than within the Franz Joseph Fjord complex.

III. THE HYDROGRAPHICAL CONDITIONS IN THE SCORESBY SOUND FJORD COMPLEX

By H. USSING.

This district has formerly been subjected to hydrographical investigations. Thus hydrographical observations were frequently made on the Danish expedition to East Greenland in 1891-92. (RYDER 1896). In the summer of 1932, too, a few hydrographical samples were taken by s.s. "Godthaab" in the mouth of Scoresby Sound. The latter, however, have not yet been published.

It is especially interesting to compare RYDER's investigations, which, however, were not extended to the inner, very deep, ramifications of the fjord, with our results from the summer of 1933, the temperatures stated by RYDER for the deeper water layers being considerably lower than those at corresponding depths in the summer of 1933. This peculiar phenomenon will be treated later.

As already demonstrated by RYDER (l. c.), there occur in the summer three distinctly separated, different water layers, viz. an upper layer, generally only a few metres thick and with a positive temperature and low salinity, below this a layer with negative temperature, and finally, at depths exceeding 300-400 m, another layer with positive temperature. Section A (pl. 5) shows the distribution of these water layers in July, 1930, which will be seen to correspond in its main features to that recorded by RYDER. The three sections, A, B, and C, represented on the hydrographical chart (pl. 5) are based on the subjoined table, where the temperatures, salinities, and specific gravities measured in the summer of 1933 in the various localities are given.

The surface layer, the fjord water, with positive temperature and reduced salinity, occurs everywhere as soon as the ice has broken up. Its thickness and composition, however, vary greatly on account of this layer having originated as a mixture of the cold salt water that occurs below the ice in winter and the warmer fresh water originating from the melting of the ice. At the mouth of the fjord the thickness of the surface water layer is inconsiderable, since already at a depth of

5 m a temperature of -0.32°C . and a salinity of 32.3 per mille were measured. At station 6 south of the Børne Islands we still find a temperature of -0.32°C . at a depth of 5 m. In the deep Nordvest Fjord, however, conditions are different. Thus at station 8 in this fjord a temperature of 2.15°C . and a salinity of 22.5 per mille were measured at the same depth, and station 9 farther towards the interior of the same fjord even shows a temperature of 0.57°C . at a depth of 10 m.

The thickness of the fjord water layer increases in the course of the summer. Thus station 19 (near the mouth of Scoresby Sound), where observations were made at the end of August, showed a temperature

St. 1. $11/7$, 1933.
Bottom-Depth: 100 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
5	-0.32	32.34	1.02599
10	-0.46	32.34	1.02600
25	-1.30	32.52	1.02618
50	-1.69	32.62	1.02626
75	-1.66	33.19	1.02672
90	-1.67	33.44	1.02693

St. 2. $11/7$, 1933.
Bottom-Depth: 325 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
10	-0.18	32.27	1.02598
25	-1.18	32.52	1.02618
50	-1.64	33.12	1.02666
100	-1.62	33.55	1.02701
200	-1.13	34.35	1.02765
300	$+1.50$	—	—

St. 3. $11/7$, 1933.
Bottom-Depth: 530 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
100	-1.66	33.65	1.02710
200	-1.45	34.42	1.02771
250	-1.16	34.59	1.02781
300	-1.16	34.78	1.02800
400	$+1.24$	34.95	1.02801
500	$+1.21$	34.95	1.02802

St. 4. $11/7$, 1933.
Bottom-Depth: 390 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
250	-0.92	34.45	1.02772
300	-1.14	34.62	1.02788
350	$+0.90$	34.74	1.02787

St. 6. $22/7$, 1933.
Bottom-Depth: 550 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
0	$+2.72$	3.36	1.00273
5	-0.32	—	—
13	-1.14	31.40	1.02527
28	-1.45	32.57	1.02622
100	-1.16	33.48	1.02693
300	$+0.27$	34.69	1.02785
500	$+1.26$	34.94	1.02800

St. 8. $23/7$, 1933.
Bottom-Depth: 1250 m

Depth in metres	Temperature	Salinity ‰	Specific gravity
5	$+2.15$	22.54	1.01808
10	-1.16	31.22	1.02511
25	-1.24	32.55	1.02618
200	-1.29	34.49	1.02776
400	$+0.76$	34.76	1.02789
600	$+1.05$	34.88	1.02797

St. 9. ²³/₇ 1933.
Bottom-Depth: 1450 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
0	+ 8.36	18.86	1.01465
10	+ 0.57	27.74	1.02226
25	— 1.00	32.56	1.02620
100	— 1.16	33.75	1.02716
300	— 1.23	34.71	1.02796
500	+ 0.98	34.83	1.02793
1000	+ 1.00	34.85	1.02794

St. 10. ²⁴/₇ 1933.
Bottom-Depth: 350 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
25	— 0.80	32.50	1.02614
100	— 0.78	33.64	1.02706
300	— 1.14	34.72	1.02785

St. 13. ²⁰/₈ 1933.
Bottom-Depth: 400 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
5	— 1.21	23.60	1.01897
10	+ 0.97	31.15	1.02497
25	— 1.14	32.48	1.02614
100	— 1.42	33.51	1.02698
300	— 1.20	34.69	1.02792
390	+ 1.21	34.94	1.02800

St. 14. ²²/₈ 1933.
Bottom-Depth: 500 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
10	+ 3.15	27.13	1.02177
25	— 1.13	32.38	1.02605
100	— 1.19	33.78	1.02720
300	— 1.23	34.68	1.02793
400	+ 0.82	34.85	1.02796
450	+ 0.83	34.85	1.02796

St. 16. ²²/₈ 1933.
Bottom-Depth: 900 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
0	+ 6.88	—	—
25	— 1.46	32.66	1.02629
100	— 1.22	33.89	1.02728
300	+ 0.80*	34.73	1.02786
400	— 1.22*	34.86	1.02806
800	+ 0.91	34.87	1.02797

St. 17. ²¹/₈ 1933.
Bottom-Depth: 530 m.

Depth in metres	Temperature	Salinity ‰	Specific gravity
0	+ 7.62	22.14	1.01730
25	— 1.21	32.29	1.02598
100	— 1.37	33.62	1.02707
200	— 1.21	34.47	1.02775
300	— 0.06	34.66	1.02785
400	— 1.22	34.72	1.02795
500	+ 1.22	34.95	1.02801

*) These two Temperatures have probably been interchanged; if so, the conditions will be as shown in Section B.

of 0.94° C. at 5 m depth, while at 10 m depth the temperature was still negative, viz. — 1.22° C. The salinity of this surface layer is least during the period when the ice is breaking up, when the water may be almost fresh. Thus at station 6 (pl. 4) the salinity was 3.36 per mille (2.74° C.). However, as soon as the ice has disappeared, the salinity is quickly augmented, ranging generally from 18 to 30 per mille, and increasing rather rapidly towards the lower water masses. The temperature of the surface water on the whole rises proportionally to the distance from

the open sea. Thus while station 12 (near the open sea) showed a temperature of 0.80°C ., the surface temperatures at station 16 (in Føhn Fjord) and station 11 (at the Bjørne Islands) were 6.88°C . and 9.98°C . respectively.

The bathymetrical conditions observed here agree in all essentials with those of Franz Joseph Fjord (SPÄRCK 1933, p. 19). However, in Scoresby Sound the fjord water, as far as known, nowhere attained the considerable thickness, over 25 m, recorded by SPÄRCK (l. c.) from Dusén Fjord and Musk-ox Fjord. RYDER, however, records a fjord water layer from Scoresby Sound in 1891—92 of a thickness of from 10 to 20 fathoms with temperatures above zero. Hence it is quite evident that the thickness of this water layer, which is formed afresh every year, varies considerably from one year to another¹).

Below the fjord water layer there occurs, downwards to a depth of 300—400 m, a water layer with negative temperatures and salinities varying from 32.30 to 34.80 per mille. The salinity always increases gradually downwards. Water with a negative temperature and a salinity of over 34.80 per mille was nowhere observed. Within this water layer the temperature decreases gradually to a certain depth (in the outer district of the Scoresby Sound fjord and within the Hall Fjord area down to some 50—100 m), to rise again at greater depths. This negative water layer originates from the East Greenland Polar Current, which moves from the Polar Sea, along the East Greenland coast southward to Cape Farewell. RYDER ascertained that the peculiar temperature distribution of this water layer is *not* produced on the spot by the cooling of the preceding winter, for he found that throughout the year the temperature minimum occurred at about the same distance from the surface. Further it agrees with RYDER's suppositions that the lowest temperatures were found near the open sea, where in winter the air temperatures are higher than in the interior of the fjords.

In Scoresby Sound the thickness of this water layer shows a dependence on the distance to the open sea similar to that formerly observed in Franz Joseph Fjord (SPÄRCK 1933). Thus in section A (pl. 5), the 0° isotherm — which will be used for marking the downward boundary of the Polar Current layer — will be seen to extend nearly horizontally at a depth of about 300 m throughout the district from the open sea as far as station 6 south of the Bjørne Islands, and to descend below 400 m at station 9 (in Nordvest Fjord). The size of the temperature minimum also shows a distinct dependence on the distance from the open sea. Thus it will appear from section A that the water layer with temperatures below -1.40°C . tapered towards the interior of the

¹) In the month of August 1932 a few observations in the mouth of Scoresby Sound showed positive temperatures even at a depth of 10 m.

fjord, to disappear entirely at the Bjørne Islands. This is the natural consequence of the interposition of the Polar Current layer between two warmer water layers, which will constantly affect its temperature. The greater the distance from the open sea, the more difficult is the renewal of the cold water layer, so the longer it will be under the influence of the warmer strata. Thus the Bjørne Islands must be assumed to act as a hindrance to the free water exchange, and inside these islands the mutual influence of the water layers will be more advanced. Altogether the conditions of this water layer agree rather closely with RYDER's observations from 1891—92. At a few stations, however, at a depth of 150 fathoms, RYDER noticed a decrease in the salinity, in a single locality even to 19.0 per mille; RYDER thought this might be ascribed to the water originating from the melting of the lower portions of the icebergs, which extend right down into the warm bottom water. However, such a low salinity in connection with temperatures about zero will result in a specific gravity so much below that of the overlying strata that the condition will be quite unstable and hence hardly of long duration.

Below the Polar Current layer and right down to the bottom we find a water layer with positive temperatures and salinities ranging from 34.69 to 34.95 per mille. The highest temperature registered was 1.50°C . at 300 m depth (station 2). However, in 1932 SPÄRCK (l. c.) measured a temperature of 1.71°C . at 375 m depth in a place not very distant from station 2. In contrast to Franz Joseph Fjord, no thresholds within the whole of the area investigated rise to the 0° isotherm (see, however, section B) and accordingly this water layer is characterised by a considerable uniformity (see the bathymetrical chart). In the outer parts of the fjord complex the temperature increases towards greater depths, and below a certain depth — 500—550 m — temperatures above 1.20°C . are encountered. This means that a threshold rising to that height (500—550 m) may shut out the whole water layer with temperatures above 1.20°C . At the Bjørne Islands we are confronted with exactly that phenomenon, since to all appearance the threshold here occurs at a depth of between 400 and 500 m.

In Nordvest Fjord the highest temperature of the bottom layer which was measured was 1.05°C ., and from 500 to 1000 m depth the temperature is constantly very near 1.00°C . From still greater depths no measurements are available, but it seems very improbable that essential changes in the condition of the water masses should take place from 1000 to 1450 m, the greatest depth measured.

It will be seen from section B that a threshold occurs between Danmark Island and Gaase Land at a depth of about 450 m. The threshold does not, apparently, reach the 0° isotherm, but this cannot

be decided with certainty, no observations having been made on the threshold itself. Another circumstance that reduces the efficiency of the threshold is, that to all appearance the water may be renewed by way of Ø Fjord and Røde Fjord. The effect of the threshold, however, is distinctly displayed in the highest temperatures measured. While thus, at station 17 (pl. 4), the highest temperature measured was 1.22°C . at 500 m depth, no temperature above 0.91°C . was measured in the warm bottom layer inside the threshold.

The salinity of the bottom layer increases downwards to about 50—100 m below the 0° isotherm. Beyond this point it attains a value which remains constant right down to the bottom. In the outer fjords as far as Bjørne Islands and Danmark Island this value is 34.95 per mille while in Nordvest Fjord and Føhn Fjord it is about 34.85 per mille.

We will now consider the equilibrium conditions within the three water layers described above. It will be easily seen from the tables of the specific gravity that an extremely stable equilibrium prevails in the fjord water as well as in the Polar Current water. The specific gravity increases evenly with the depth. As regards the warm bottom water, conditions are different. Here the specific gravity is nearly constant throughout the layer, viz. 1.02785—1.02800, and for several stations this value is equal to or less than the specific gravity of the superjacent Polar Current water. For instance station 9 showed a specific gravity of 1.02796 at 300 m depth (i. e. Polar Current water), while at 500 m depth (the warm bottom water) the specific gravity was 1.02793. It is true that the last decimal is never quite reliable, being dependent on the accuracy of the salinity determination, but the example shows the specific gravities of the two layers to be of the same order of magnitude. Thus conditions are not very stable. Now, such a diminutive difference in specific gravity could hardly of itself give rise to currents that would eliminate the inequilibrium, i. a. because the water is compressed, though but slightly, by the superjacent water masses, which results in the specific gravity being somewhat greater than calculated, and of course greater at great depths than at small depths. But if other causes should bring about a disturbance of the equilibrium — the thought of the many calving icebergs here suggests itself — there will no doubt be a tendency to an exchange and mixing of the water masses. It is doubtless this phenomenon which is illustrated in section B (pl 4), where a water body of positive temperature has been forced upwards by the heavier Polar Current water and has become mixed with the latter, so that it behaves like water with a temperature about zero (-0.06°C .). Thus it must be assumed that an extensive mixing of the Polar Current water and the warm bottom water is constantly taking place, and this is all the more probable since the difference between the temperature minimum

of the cold layer and the maximum of the warm layer decreases from the mouth of the fjord towards the interior. Thus at stations 2 and 3 this difference is 3.16°C. , while at station 9 in Nordvest Fjord it is 2.23°C.

If we compare the temperature conditions of the warm bottom layer as recorded here with the results arrived at by RYDER, there proves to be a rather considerable difference. While RYDER, with a single exception, did not measure temperatures above 0.5°C. in this water layer, in 1933 temperatures exceeding 0.8°C. were registered at all stations where observations were extended to this layer. If the stations in the outer part of the fjord system alone are considered — the same districts whence RYDER's observations are derived — temperatures exceeding 1.2°C. were ascertained in all the 1933 stations where observations were extended down into the bottom layer, that is, a difference from RYDER's temperatures of over 0.5°C. At RYDER's station XXII between Jameson Land and Cape Stevenson, it is true, a temperature of 1.9°C. was measured at 150 fathoms, but this does not alter the fact that the temperature of the bottom layer was on the whole considerably lower in the summer of 1891 than in 1933.

Of special interest are RYDER's temperature measurements during his wintering in Scoresby Sound. He ascertained that not only does a cooling of the uppermost water layer take place in the winter, but the temperatures of the warm bottom layer also decrease considerably. Thus at a depth of 415 m the average temperature was 1.4°C. lower in the winter than in the summer. RYDER explains this, no doubt correctly, as follows: the melting of the snow gives rise to a surface current running out of the fjord, which causes another current to move inward along the bottom, analogously to the conditions in the Baltic. As no melting takes place in the winter, the inward bottom current, too, will cease. On account of the previously mentioned differences in the specific gravity, the warm bottom water will mix with the Polar Current water, and consequently the temperature in the deep will fall.

The warm bottom layer is thus to be renewed more or less completely every year, and as the amount of inward-streaming water depends to a great extent on the amount of snow melted, it is only natural that the temperature of this layer varies from year to year. It remains to ascertain the origin of this layer. Its presence has been ascertained at Danmarks Havn, in Franz Joseph Fjord, and in many other places along the east coast of Greenland southwards to Scoresby Sound. It is now commonly supposed to originate from a branch of the Gulf Stream, which west of Spitzbergen bends to the west, then dives down below the East Greenland Polar Current, and follows it southward along the coast. The place nearest the mouth of Scoresby Sound

in which this current has been observed is latitude $71^{\circ}30'$ N. longitude 19° W. (Station 48 of the Belgica Expedition. Cf. HELLAND-HANSEN and KOEFOED 1909). Here, as in most places along the outer coast, it occurs between water layers of a lower temperature. Thus at a depth of 100 m the temperature is -0.73° (salinity 34.91 per mille), at 200 m the temperature is 1.53° (salinity 34.86 per mille), at 300 m 1.00° C. (salinity 34.93 per mille), and at 600 m depth 0.08° C. (salinity 34.92 per mille). As the deep channel extending along the south coast of Scoresby Sound presents depths of about 550 m, it might be anticipated that here the temperature, as outside the fjord, would decrease towards the bottom below a depth of 300—400 m. As will appear from the above, this is not the case. Even at the mouth of the fjord the temperature was 1.21° C. at a depth of 500 m (station 3). Thus it must be assumed that a threshold occurs outside the mouth of Scoresby Sound, which prevents the colder water below the warm layer to penetrate into the fjord. It is difficult to say anything about the depth of this threshold, since in 1933 no determination was made of the extent and depth of the warm layer outside the mouth of the fjord. Hence the final settlement of this question must be left to future investigators.

IV. ON THE ANIMAL COMMUNITIES AND THE PRODUCTIVITY OF THE BOTTOM FAUNA IN THE SCORESBY SOUND FJORD COMPLEX

A. Communities and Zones of the Clay Bottom.

All the clay bottom samples have been taken with the $\frac{1}{10}$ (155 samples) or the $\frac{1}{5}$ (115 samples) sq.m Petersen bottom sampler, and the animals were weighed immediately after rinsing. Thus all the weights given in the following tables (tables 1 to 20) are based exclusively on living material, in contrast to the shallow water samples from the Franz Joseph Fjord area (THORSON 1933), which were based on material conserved in alcohol. In each of the above-mentioned tables, a series of samples taken at a certain depth in a certain locality is given. Since the $\frac{1}{5}$ as well as the $\frac{1}{10}$ sq.m bottom samplers have been used, the weights for each sample, whether taken with the $\frac{1}{10}$ or the $\frac{1}{5}$ sq.m sampler, are multiplied up to the weight of a full square metre, so that all the samples given in the tables are directly comparable. In the last column of each table the average weight per sq.m in the particular locality is given, calculated on the basis of all the samples recorded in the table. Only in the case of animal communities not previously described (e. g. the *Venus*-community, the *Portlandia*-community, or the *Halcampoides*-zone) or of peculiar transitional zones between the various communities, all the samples are given in the table. As regards the communities formerly known, only the average number and weight of the samples from the particular locality are listed. In addition the new animal communities — as in the publications from the Franz Joseph Fjord area (SPÄRCK 1933, THORSON 1933) — are represented in an easily surveyable form on three plates (pls. 1, 2, and 3), each illustrating the number of animals and their distribution over 0.25 sq.m of bottom. Finally the map (pl. 4) shows the distribution of the stations throughout the Scoresby Sound fjord complex, it being further indicated which animal community was found at the particular station. In addition to the bottom samples a number of dredge hauls have been used in order to find out what animal communities occurred within the area, but each such case is expressly recorded in the text.

The *Macoma-calcaria*-community.

(Tables 1, 2, 3, 4, 5, 6, 15, 16. — Depth c. 5 m to c. 50 m).

This community, which occurred throughout the Franz Joseph Fjord area in shallow water at depths up to about 45 m, has already been discussed at length under the description of that district (THORSON 1933, pp. 8—35, pls. 1, 2, and 3). It is further of common occurrence in shallow water within the Scoresby Sound fjord complex. The modifications under which the community occurs within the latter area will be elucidated through a brief outline of its aspect in a number of different localities within the district, beginning with the area near the open sea and ending in the innermost parts of the fjords.

The outer district (with the exception of Hurry Inlet). Here the *Macoma-calcaria*-community is everywhere replaced by the *Venus*-community (see p. 33) or by an epifauna. It is only at Cape Hooker that it becomes of any importance, the transitional zone between the *Venus*- and the *Macoma*-community being here distinctly observable (see table 6)¹⁾.

Hurry Inlet. In the mouth of Hurry Inlet the *Macoma*-community is entirely replaced by the *Venus*-community (table 8), but already at Konstabel Pynt the *Macoma-calcaria*-community is met with in a hitherto undescribed, rather deviating modification, in which the *Actinia: Halcampoides purpurea* plays an essential part both as to number and as to weight (p. 25, table 5, pl. 1). By the Fame Islands at the head of Hurry Inlet, however, the *Macoma*-community is present in its typical, richly developed, form (table 1).

Hall Inlet and the adjacent areas. Along the coast of Jameson Land inside Cape Hooker the *Macoma*-community becomes dominant over the *Venus*-community, so that already at Cape Leslie a typical *Macoma*-community is met with (table 2: *Macoma calcaria* 11 specimens 5.70 g per sq.m.), with *Ophiocten sericeum*, *Pecten groenlandicus*, and *Philomedes globosus* as typical accompanying animals. At the coast of Jameson Land opposite the Bjørne Islands the vertical distribution of the *Macoma-calcaria*-community seems to be very inconsiderable, since here even at depths of 30 m it is greatly mixed with the *Arca-Astarte-crenata*-community (table 16). Finally, the *Macoma*-community is known from Danmark Island (19—22 m depth), where it occurs in a modification that comes very close to the typical form (table 3).

The innermost parts of the fjords. The *Macoma-calcaria*-community is known from the Nordbugt in Nordvest Fjord (depth 25—30 m), where it forms a transitional zone to the *Portlandia-arctica*-

¹⁾ In table 6 the animals typical of the *Macoma*-community have been marked with an asterisk, while those typical of the *Venus*-community are marked with a †.

Table I. The *Macoma-calcaria*-community.

Hurry Inlet by the Fame Islands. Date 9-7-1933. Hard clay. Depth 15—27 m.
Average number and weight per sq.m based upon 10 samples taken with the $\frac{1}{10}$ sq.m
Petersen-bottom-sampler. Typical animals are marked with an asterisk.

	Number	Weight in gr
<i>Halcampoides purpurea</i> (STUD.)	1.0	1.20
<i>Myriotrochus rinki</i> STEENSTRUP	1.0	2.00
<i>Ophiocten sericeum</i> (FORBES)	1.0	0.45
* <i>Nephtys ciliata</i> (MÜLL.)	11.0	10.20
<i>Gattyana cirrosa</i> (PALL.)	1.0	0.60
<i>Ammotrypane aulogaster</i> RATHKE	1.0	0.40
<i>Owenia fusiformis</i> DELLE CHIAJE	3.0	2.80
<i>Lumbriconereis</i> sp.	4.0	5.70
<i>Terebellidae</i>	2.0	0.10
<i>Sabellidae</i>	2.0	3.80
<i>Maldanidae</i>	10.0	8.90
Other <i>Polychaeta</i>	141.0	29.65
<i>Priapulus caudatus</i> (LAM.)	1.0	0.20
Other <i>Gephyrea</i>	3.0	0.20
<i>Nemertini</i>	2.0	0.20
<i>Natica groenlandica</i> (BECK)	2.0	0.35
<i>Cylichna reinhardti</i> (MØLLER)	1.0	0.10
<i>Nucula tenuis</i> MTG.	7.0	2.15
<i>Leda pernula</i> MÜLL.	3.0	2.10
<i>Portlandia arctica</i> (GRAY)	6.0	10.30
<i>Arca glacialis</i> GRAY	2.0	4.10
<i>Modiolaria laevigata</i> (GRAY)	3.0	0.30
* <i>Astarte banksi</i> LEACH	32.0	47.15
<i>Astarte borealis</i> (CHEMN.) ad.	4.0	23.40
<i>Astarte elliptica</i> BROWN	4.0	14.20
* <i>Axinus flexuosus</i> (MTG.)	31.0	0.95
* <i>Macoma calcaria</i> (CHEMN.) ad.	4.0	12.90
<i>Macoma moesta</i> (DESH.)	3.0	0.80
<i>Mya truncata</i> L. juv.	1.0	0.15
<i>Saxicava arctica</i> L. ad.	2.0	5.70
<i>Lyonsia arenosa</i> MØLL. ad.	1.0	0.40
<i>Modiolaria nigra</i> (GRAY)	4.0	10.70
<i>Diastylis</i> sp.	1.0	0.20
<i>Leucon</i> sp.	1.0	0.05
<i>Amphipodae</i>	1.0	0.10
<i>Arcturus</i> sp.	1.0	0.10
Total weight per sq.m ...	..	202.60

community (table 4; see also p. 43). The community is further known from Røde Island in Røde Fjord¹). Thus the following dredge hauls were taken in the bay opposite Røde Island on August 22, 1933²):

- 7—10 m Clay, plenty of *Fucus*: 2 **Macoma calcaria*, 56 **Mya truncata*, 35 *Saxicava arctica*, 43 *Astarte elliptica*, 38 *Astarte banksi*, 20 **Astarte borealis*, 31 *Modiolaria laevigata*, 10 **Axinus flexuosus*, 2 **Pecten groenlandicus*, 25 **Nereis zonata* etc.
- 13—18 m Clay, gravel: 26 **Macoma calcaria*, 140 **Mya truncata*, 45 **Pecten groenlandicus*, 54 **Cardium ciliatum*, 26 *Saxicava arctica*, 70 *Astarte banksi*, 23 *Astarte elliptica*, 22 *Modiolaria laevigata*, *17 *Leda pernula*, 16 *Myriotrochus rinkii*, 17 *Strongylocentrotus droeb.*, c. 100 **Ophiosten sericeum*, etc.

Thus the *Macoma-calcaria*-community is traceable as far into the fjords as samples have so far been taken, and it is still of common occurrence everywhere in shallow water at a distance of about 250 km from the open sea.

Despite the fact that the *Macoma-calcaria*-community may thus be encountered everywhere throughout the Scoresby Sound fjord area, a comparison with the modifications of this community occurring in the Franz Joseph Fjord area shows essential points of difference between the two districts. Thus in a large number of localities in Franz Joseph Fjord three zones were distinguishable within this community, viz. the *Astarte-borealis*-zone with *Pectinaria*, the lower-*Ophiosten*-zone with *Pectinaria*, and the deeper-*Ophiosten*-zone (THORSON 1933, pp. 8—35). These zones, however, were not found within the fjord area of Scoresby Sound, chiefly because the animal that is typical of the two zones in the Franz Joseph Fjord area, the Polychaete *Pectinaria granulata*, is entirely absent from Scoresby Sound, where no representative whatever of the genus *Pectinaria* has been found. In this way the lower and the deeper *Ophiosten*-zones in Scoresby Sound unite into one zone (table 2), and in contrast to this zone there occurs on the other hand a modification associated with quite shallow water — that is, corresponding to the *Astarte-borealis*-zone of the Franz Joseph Fjord — which, like the latter, is characteristic on account of its lack of *Ophiosten sericeum* (tables 1 and 3). In certain places in Scoresby Sound *Ophiosten sericeum* seems to have its inner limit in somewhat deeper water (c. 20 m) than in the Franz Joseph Fjord area (c. 12 m).

¹) The four bottom samples available from this locality were incomplete and contained *Ophiosten sericeum* but no *Macoma calcaria*.

²) In these lists only the animals abundantly represented in the samples and characteristic of the locality are given. The animals typical for the *Macoma-calcaria*-community are marked with an asterisk.

Table 2. The *Macoma*.
Jameson Land opposite Cape Leslie. Sandy clay. 26-7-1933. 10 samples taken with

	St. 272 22 m		St. 273 21 m		St. 274 22 m		St. 275 22 m	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
<i>Halcampoides purpurea</i> (STUD.).....	..	..	..	..	..	..	..	..
<i>Myriotrochus rinki</i> STEENSTRUP	..	..	..	..	..	..	30	2.00
<i>Eupyrgus scaber</i> LÜTKEN	10	1.00	10	2.00	..	..	..	..
<i>Trochoderma elegans</i> THÉEL	..	..	10	0.50	..	..	..	..
* <i>Ophiocten sericeum</i> (FORBES)	90	7.00	20	1.00	20	1.00	40	2.50
<i>Flabelligera affinis</i> (SARS).....	..	..	..	..	..	..	..	..
<i>Ammotrypane aulogaster</i> RATHKE	10	1.00	..	..	..	..	10	3.00
<i>Lumbriconereis</i> sp.	..	..	..	..	..	..	..	..
<i>Terebellidae</i>	..	..	..	..	..	..	..	..
<i>Maldanidae</i>	..	..	..	..	..	..	..	..
Other <i>Polychaeta</i>	150	1.50	350	11.00	150	4.50	140	5.00
<i>Balanoglossus</i> sp.	..	..	10	2.00	..	..	..	..
<i>Nemertini</i>	..	..	..	..	..	..	..	..
<i>Margarita groenlandica</i> (CHEMN.)	10	0.50	..	..	..	..	..	..
<i>Natica groenlandica</i> (BECK)	..	..	..	..	10	0.50	..	..
<i>Rissoa jan-mayeni</i> FRIELE	..	..	..	..	10	0.50	..	..
<i>Cylichna reinhardti</i> (MØLLER).....	..	..	..	..	..	..	..	..
<i>Philina ossian-sarsi</i> FRIELE	10	1.00	..	..	..	..	..	..
<i>Utriculus</i> sp.	..	..	..	..	..	..	10	0.50
<i>Leda pernula</i> MÜLL.....	..	..	..	..	..	..	..	..
<i>Portlandia lenticula</i> (MØLL.).....	..	..	..	..	10	1.00	..	..
<i>Portlandia frigida</i> (TORELL)	..	..	..	..	..	..	..	..
<i>Dacrydium vitreum</i> (HOLB.)	10	0.50	..	..	..	..	..	..
<i>Modiolaria nigra</i> (GRAY).....	..	..	10	17.00	..	..	..	..
* <i>Pecten groenlandicus</i> CHEMN.	10	1.00	..	..	10	0.50	10	0.50
<i>Astarte banksi</i> LEACH ad.....	..	..	30	26.00	10	2.00	..	..
<i>Astarte borealis</i> CHEMN. ad.....	..	..	70	501.00	10	6.00	..	..
<i>Astarte elliptica</i> BROWN ad.....	..	..	..	..	..	..	..	..
* <i>Axinus flexuosus</i> (MTG.)	20	0.50	110	1.50	70	2.00	40	1.00
* <i>Macoma calcaria</i> (CHEMN.).....	30	21.00	10	10.00	10	0.50	10	0.50
<i>Cardium ciliatum</i> FABRICIUS	10	1.00	..	..	..	..	..	..
<i>Mya truncata</i> L. juv.....	..	..	..	..	..	..	10	0.50
<i>Saxicava arctica</i> L. juv.....	10	0.50	..	..	..	..	..	..
<i>Pandora glacialis</i> (LEACH).....	..	..	..	..	..	..	..	..
<i>Neæra obesa</i> LOVÉN	..	..	10	0.50	..	..	..	..
* <i>Philomedes globosus</i> LILJEB.....	420	1.00	275	1.00	60	0.50	20	0.50
<i>Diastylis</i> sp.....	50	2.00	40	1.00	..	..	50	2.50
<i>Amphipodae</i>	..	..	10	0.50	..	..	..	..
<i>Isopodae</i>	..	..	..	..	..	..	..	..
<i>Ascidiae</i>	30	9.50	70	18.00	..	..	10	2.00
Total weight of sample per sq.m. in gr...	49.00		643.00		19.00		20.50	

calcaria-community.
the 1/10 sq.m bottom-sampler. Typical animals marked with an asterisk.

St. 276 22 m		St. 277 22 m		St. 278 22 m		St. 279 22 m		St. 280 23 m		St. 281 22 m		Average number and weight per sq.m	
Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight in gr
..	..	..	..	10	0.50	10	25.00	..	..	..	..	2.0	2.55
10	1.00	..	..	..	..	..	..	..	..	..	..	4.0	0.30
..	..	10	0.50	..	..	..	..	..	..	..	..	3.0	0.35
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
20	1.00	70	3.50	30	2.00	10	1.00	40	3.00	10	2.00	35.0	2.35
..	..	..	..	..	..	10	1.00	..	..	..	..	1.0	0.10
..	..	..	..	..	..	20	0.50	..	..	..	..	4.0	0.45
..	..	..	..	..	..	..	..	..	..	10	8.00	1.0	0.80
..	..	..	..	..	..	30	2.00	20	0.50	20	1.00	7.0	0.35
..	..	..	..	..	..	40	1.00	50	1.50	50	2.00	14.0	0.45
250	6.50	10	1.00	30	4.00	210	4.00	150	2.00	60	1.00	140.0	4.05
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.20
..	..	10	0.50	..	..	10	1.00	..	..	..	..	2.0	0.15
10	1.00	..	..	..	..	..	..	..	..	..	..	2.0	0.15
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
..	..	10	1.00	..	..	..	..	..	..	20	1.50	3.0	0.25
..	..	..	..	10	0.50	..	..	20	0.50	10	0.50	5.0	0.25
10	0.50	..	..	10	0.50	10	0.50	..	..	..	..	4.0	0.20
..	..	..	..	30	16.00	10	5.00	..	..	..	..	4.0	2.10
..	..	..	..	..	..	10	0.50	..	..	..	..	2.0	0.15
..	..	..	..	..	..	..	..	10	0.50	..	..	1.0	0.05
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
..	..	..	..	..	..	..	..	..	..	..	..	1.0	1.70
20	0.50	10	0.50	10	1.00	10	10.00	10	0.50	..	..	9.0	1.45
10	11.50	10	13.50	10	10.00	..	..	..	..	..	..	7.0	5.30
..	..	10	79.00	10	50.00	..	..	10	76.00	..	..	11.0	71.40
..	..	30	154.00	10	38.00	10	0.50	..	..	..	..	5.0	19.25
90	1.50	30	1.00	30	0.50	60	1.00	90	2.00	50	1.00	59.0	1.20
20	22.00	..	..	..	..	10	0.50	10	0.50	10	2.00	11.0	5.70
..	..	..	..	10	95.00	..	..	..	..	..	..	2.0	9.60
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
..	..	..	..	10	2.00	..	..	..	..	..	..	2.0	0.25
..	..	..	..	..	..	10	2.00	..	..	..	..	1.0	0.20
10	0.50	..	..	..	..	..	..	..	..	..	..	2.0	0.10
200	1.00	40	0.50	40	—	330	—	250	—	250	—	189.0	0.75
20	1.00	..	..	10	0.50	40	2.00	40	4.00	..	..	25.0	1.30
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
..	..	10	1.00	..	..	..	..	..	..	..	..	1.0	0.10
70	13.00	70	44.00	40	28.00	20	13.00	20	5.00	30	31.00	36.0	16.35
61.00		310.00		248.50		70.50		96.00		50.00		150.30	

Table 3. The *Macoma-calcaria*-community.

South-east of Danmark Isl. Date 21-8-1933. Soft clay. Depth 18—22 m. Average number and weight per sq.m based upon 12 samples taken with the $\frac{1}{10}$ sq.m. Petersen-bottom-sampler. Typical animals marked with an asterisk.

	Number	Weight in gr
<i>Hexactinellidae</i>	+	+
<i>Ophiocten sericeum</i> (FORBES).....	1.0	0.08
<i>Nereis zonata</i> MGRN.....	2.5	2.41
<i>Ammotrypane aulogaster</i> RATHKE.....	2.5	0.58
<i>Harmothoë</i> sp.....	6.5	1.58
<i>Sabellidae</i>	1.5	11.81
<i>Maldanidae</i>	44.0	2.29
<i>Eumenia</i> sp.	1.0	1.75
<i>Lumbriconereis</i> sp.....	2.5	3.50
Other <i>Polychaeta</i>	51.5	49.33
* <i>Priapulius bicaudatus</i> DANIELSEN.....	3.5	4.20
<i>Phascolion strombi</i> MONT.	1.5	0.33
<i>Nemertini</i>	2.5	1.28
<i>Margarita groenlandica</i> (CHEMN.).....	2.5	0.08
<i>Natica groenlandica</i> (BECK).....	1.0	0.17
<i>Bela pyramidalis</i> (STRØM)	1.0	0.04
<i>Bela tenuicostata</i> (M. SARS)	1.5	0.04
<i>Cylichna</i> sp.	1.0	0.04
<i>Leda pernula</i> MÜLL.	6.5	1.58
* <i>Nucula tenuis</i> MTG.....	12.5	1.08
<i>Arca glacialis</i> GRAY	1.0	0.75
<i>Dacrydium vitreum</i> (HOLB.).....	1.5	0.08
<i>Modiolaria laevigata</i> (GRAY)	4.0	2.27
<i>Astarte banksi</i> LEACH.....	5.0	1.83
* <i>Astarte elliptica</i> BROWN.....	13.5	26.41
<i>Axinus flexuosus</i> (MTG.).....	7.5	0.33
* <i>Macoma calcaria</i> (CHEMN.)	19.0	18.80
<i>Macoma moësta</i> (DESH.).....	1.0	0.08
<i>Cardium ciliatum</i> FABRICIUS.....	4.0	59.08
<i>Mya truncata</i> L.	1.0	0.04
* <i>Saxicava arctica</i> L.	51.5	170.00
<i>Pandora glacialis</i> (LEACH).....	1.0	0.04
<i>Philomedes globosus</i> LILJEB.	9.0	0.12
<i>Amphipodae</i>	3.5	0.17
<i>Tanaidae</i>	3.5	0.20
<i>Spirontocharis</i> sp.	1.0	0.50
<i>Ascidiae</i>	1.5	1.25
Total weight per sq.m...	—	363.12
Total weight per sq.m (<i>Saxicava arctica</i> excluded) ..	—	193.12

The weights of this community in the Scoresby Sound district seem on the whole to be somewhat higher than in the Franz Joseph Fjord area. Thus the zone free of *Ophiecten* in Hurry Inlet at the Fame Islands gave about 220 gr per sq.m (table 1), while the corresponding *Astarte borealis* zone in the Franz Joseph Fjord area showed a weight of 111 gr (including *Saxicava arctica* 145 gr¹⁾) per sq.m. At Jameson Land off Cape Leslie the *Ophiecten*-zone showed c. 150 gr per sq.m (the two *Ophiecten*-zones in Franz Joseph Fjord weighed on an average 85 gr per sq.m (including *Saxicava* 260 gr) and c. 100 gr per sq.m (including *Saxicava* 260 gr)). As regards Scoresby Sound, far greater weights are exhibited by the modification of the *Macoma-calcaria*-community peculiar to Hurry Inlet, viz.

The *Halcampoides*-Zone.

(Table 1, Plate 1).

This zone is principally characterised by the very frequent occurrence of the Actinia *Halcampoides purpurea* (STUD.), (94 ad. and 23 juv. specimens of a weight of 275 and 5 gr per sq.m respectively). As this species attains a rather big size, it entirely characterises the animal life of the bottom within the zone. The species is so numerous that the usual type animal of the *Macoma-calcaria*-community is thrown entirely into the background. (*Macoma calcaria* 14 specimens, 5.05 gr per sq.m, *Ophiecten sericeum* 11—12 specimens, 1.53 gr per sq.m). Since, however, both these forms are present in vast numbers, and, accordingly, their accompanying animals too, more especially *Axinus flexuosus* (186 specimens, 5.60 gr per sq.m), and since moreover the *Halcampoides*-zone has a very limited distribution, it seems reasonable *not* to regard the *Halcampoides*-zone as a special animal community, but merely as a highly deviating modification of the *Macoma-calcaria*-community (pl. 1 shows 0.25 sq.m of this zone). The *Halcampoides*-zone with its 368 gr per sq.m attains by far the greatest weights within the *Macoma-calcaria*-community. It seems to be restricted to localities where the food conditions reach an optimum²⁾. At Konstabel Pynt, where the bottom samples listed in table 5 were taken, these conditions seem to be present. The locality is an even shallow-watered bay sheltered by the cape and with a very soft bottom and such a considerable layer of detritus as

¹⁾ As *Saxicava arctica* is an animal belonging to the epifauna of the clay bottom (THORSON 1933, pp. 61—62), it should not be included in the actual bottom fauna.

²⁾ The *Venus*-community, too — as regards weight on the whole the richest of the East Greenland animal communities — when most vigorously developed (e. g. at Cape Hope) exhibits a quite similar weight (370 gr per sq.m) to that of the *Halcampoides*-zone (368 gr per sq.m).

Table 4. Transitional zone between the *Portlandia*.
The Nordbugt, Nordvest Fjord. 24-7-1933. 10 samples taken with the $\frac{1}{10}$ sq.m

	St. 208 28 m		St. 209 30 m		St. 210 28 m		St. 211 25 m	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
<i>Halcampoides purpurea</i> (STUD.).....	10	2.00	10	4.00	..	..	..	..
* <i>Myriotrochus rinki</i> STEENSTRUP	10	10.00	..	..	10	5.00	..	..
<i>Ophiocten sericeum</i> (FORBES).....	10	2.00	..	..	..	..	10	2.00
<i>Polychaeta</i>	80	3.00	90	2.00	10	0.50	70	2.00
<i>Balanoglossus</i> sp.	..	..	10	13.00	..	..	..	..
<i>Nemertini</i>	..	..	..	..	..	..	..	..
<i>Alcyonidium disciforme</i> SMITT	..	..	..	..	..	..	..	..
<i>Margarita groenlandica</i> (CHEMN.)	..	..	..	..	..	..	10	1.00
<i>Bela trevelyana</i> (TURT.).....	..	..	..	..	..	..	..	..
<i>Philine</i> sp.	..	..	10	3.00	..	..	..	..
<i>Leda pernula</i> MÜLL.	..	..	..	..	..	..	..	..
* <i>Portlandia arctica</i> (GRAY) ad.	10	4.00	..	..	..	..	30	5.00
* <i>Portlandia arctica</i> (GRAY) juv.	..	..	10	0.50	..	..	30	2.00
* <i>Portlandia lenticula</i> (MØLL.)	20	0.50	20	0.50	20	0.50	..	..
* <i>Portlandia intermedia</i> (M. SARS)	..	..	10	0.50	..	..	20	0.50
<i>Arca glacialis</i> (GRAY)	..	..	10	2.00	..	..	..	..
<i>Dacrydium vitreum</i> (HOLB.)	..	..	..	..	..	..	10	0.50
<i>Pecten groenlandicus</i> CHEMN.	..	..	..	..	10	0.50	..	..
<i>Axinus flexuosus</i> (MTG.)	60	2.00	10	1.00	..	..	..	..
* <i>Macoma calcaria</i> (CHEMN.)	..	..	20	0.50	..	..	10	11.00
<i>Macoma moesta</i> (DESH.)	..	..	..	..	..	..	..	..
<i>Cardium ciliatum</i> FABRICIUS	..	..	..	..	..	..	..	..
<i>Saxicava arctica</i> L.	..	..	..	..	..	..	..	..
<i>Thracia truncata</i> TURT.	..	..	30	6.00	10	0.50	10	1.00
<i>Pandora glacialis</i> (LEACH)	..	..	10	1.00	..	..	..	..
<i>Nææra obesa</i> LOVÉN	..	..	10	0.50	10	0.50	..	..
<i>Philomedes globosus</i> LILJEB.	..	..	..	..	20	0.50	..	..
<i>Diastylis</i> sp.	..	..	..	..	..	..	10	5.00
<i>Amphipodae</i>	..	..	..	..	10	0.50	20	1.00
<i>Nymphon</i> sp.	..	..	..	..	..	..	..	..
<i>Hydroidae</i>	..	..	..	..	..	..	..	..
<i>Ascidiae</i>	20	7.00	..	..	..	..	..	..
Total weight of sample per sq.m in gr...	30.50		34.50		8.50		31.00	

III Contributions to the Animal Ecology of the Scoresby Sound Fjord Complex. 27

community and the *Macoma*-community.
bottom-sampler. Typical animals marked with an asterisk.

St. 212 28 m		St. 213 25 m		St. 214 28 m		St. 215 30 m		St. 216 28 m		St. 217 29 m		Average number and weight per sq.m	
Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight in gr
10	2.00	..	..	..	..	..	..	..	..	..	..	3.0	0.80
..	..	10	11.00	10	36.00	10	9.00	10	10.00	..	..	6.0	7.10
..	..	..	..	..	..	..	..	..	..	..	..	2.0	0.40
40	7.00	50	1.00	..	..	10	1.00	30	2.00	40	37.50	42.0	5.50
..	..	..	..	..	..	..	..	..	..	..	..	1.0	1.30
..	..	..	..	..	..	..	..	10	1.00	..	..	1.0	0.10
..	..	..	..	..	..	..	..	..	..	30	7.00	3.0	0.70
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.10
..	..	10	0.50	..	..	..	..	..	..	..	..	1.0	0.05
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.30
10	3.00	..	..	..	..	..	..	..	..	10	0.50	2.0	0.35
20	1.00	20	5.00	..	..	..	..	40	10.00	10	2.00	13.0	2.70
..	..	30	1.00	..	..	20	1.00	..	..	..	..	9.0	0.45
30	2.00	60	2.00	40	1.00	50	2.00	60	2.00	70	2.00	37.0	1.25
40	1.00	20	0.50	20	0.50	20	0.50	30	1.00	10	0.50	17.0	0.50
..	..	..	..	..	..	..	..	..	..	10	3.00	2.0	0.50
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
..	..	..	..	30	3.00	..	..	10	0.50	..	..	11.0	0.65
30	12.50	..	..	..	..	..	..	..	..	50	25.00	11.0	4.90
..	..	..	..	..	..	..	..	..	..	10	2.00	1.0	0.20
10	0.50	..	..	..	..	..	..	..	..	..	..	1.0	0.05
20	23.50	..	..	..	..	..	..	..	..	..	..	2.0	2.35
..	..	..	..	..	..	..	..	20	5.00	10	1.00	8.0	1.35
..	..	..	..	..	..	..	..	..	..	10	0.50	2.0	0.15
20	0.50	..	..	..	..	10	0.50	20	0.50	..	..	7.0	0.25
..	..	..	..	20	0.50	..	..	..	..	..	..	4.0	0.10
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.50
..	..	10	0.50	..	..	10	0.50	..	..	10	0.50	6.0	0.30
..	..	..	..	..	..	..	..	10	0.50	..	..	1.0	0.05
..	..	..	..	..	..	..	..	..	..	10	—	1.0	—
10	2.00	..	..	..	..	10	4.00	10	3.00	..	..	5.0	1.60
55.00		21.50		41.00		18.50		35.50		81.50		34.65	

Table 5. The *Halcampoides*-zone
Hurry Inlet. Off Konstabel Pynt. Soft clay. 6-7-1933. 10 samples taken with

	St. 98 24 m		St. 99 23 m		St. 100 24 m		St. 101 24 m	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
* <i>Halcampoides purpurea</i> (STUD.) ad.	105	343.00	85	255.00	75	225.00	105	349.00
* <i>Halcampoides purpurea</i> (STUD.) juv.	25	1.50	15	5.00	10	4.50	..	..
<i>Myriotrochus rinki</i> STEENSTRUP	..	..	..	..	..	..	..	..
<i>Eupyrgus scaber</i> LÜTKEN	..	..	5	0.50	5	0.50	..	..
<i>Ophiocten sericeum</i> (FORBES) ad.	15	1.50	..	..	5	3.00	..	..
<i>Ophiocten sericeum</i> (FORBES) juv.	..	..	15	1.00	10	0.50	..	..
<i>Nereidae</i>	5	0.50	15	1.50	..	..	5	2.00
<i>Nephtys ciliata</i> (MÜLL.)	5	2.00	10	5.00	15	22.00	..	..
<i>Lumbriconereis</i> sp.	..	..	..	..	5	53.50	..	..
<i>Terebellidae</i>	5	0.50	5	1.00	15	2.00	15	0.75
<i>Owenia fusiformis</i> DELLE CHIAJE	..	..	..	..	..	..	..	..
Other <i>Polychaeta</i>	260	5.50	170	5.00	140	6.50	90	2.00
<i>Nemertini</i>	..	..	..	..	..	..	..	..
<i>Alcoynidium disciforme</i> SMITT	..	..	..	..	..	..	..	..
<i>Natica groenlandica</i> (BECK)	5	8.00	..	..	..	..	..	..
* <i>Nucula tenuis</i> MTG.	20	2.00	25	1.50	15	0.75	5	0.25
<i>Leda pernula</i> MÜLL.	..	..	15	0.50	5	0.25	..	..
<i>Portlandia arctica</i> (GRAY)	..	..	..	..	10	2.00	5	0.25
<i>Portlandia lenticula</i> (MØLLER)	..	..	20	0.50	..	..	..	..
<i>Portlandia frigida</i> (TORELL)	..	..	..	..	..	..	..	..
<i>Arca glacialis</i> GRAY	..	..	..	..	..	..	..	..
<i>Modiolaria laevigata</i> (GRAY) juv.	..	..	10	0.50	..	..	..	..
<i>Modiolaria nigra</i> (GRAY)	5	9.00	..	..	..	..	..	..
<i>Pecten groenlandicus</i> CHEMN.	..	..	..	..	..	..	..	..
<i>Astarte banksi</i> LEACH	..	..	..	..	..	..	..	..
<i>Astarte borealis</i> (CHEMN.)	..	..	..	..	..	..	..	..
* <i>Axinus flexuosus</i> (MTG.)	160	4.50	185	5.50	170	5.00	180	5.50
* <i>Macoma calcaria</i> (CHEMN.)	15	6.50	10	3.00	20	1.00	15	1.00
<i>Macoma moësta</i> DESH.	..	..	..	..	..	..	..	..
<i>Mya truncata</i> L. ad.	..	..	..	..	..	..	..	..
<i>Saxicava arctica</i> L.	5	21.00	..	..	..	..	..	..
<i>Næra obesa</i> LOVÉN	..	..	..	..	..	..	..	..
<i>Philomedes globosus</i> LILJEB.	625	9.50	625	10.00	625	10.00	625	10.00
<i>Diastylis</i> sp.	5	0.50	5	0.25	..	..	10	1.00
<i>Leucon</i> sp.	..	..	..	..	..	..	..	..
<i>Amphipodae</i>	..	..	..	..	5	0.25	..	..
<i>Gammaracanthus</i> sp.	..	..	5	1.00	..	..	..	..
<i>Ascidiae</i>	..	..	..	..	5	—	..	..
Total weight of sample per sq.m in gr...	415.50		296.75		336.75		371.75	

of the *Macoma-calcaria*-community.

the $\frac{1}{8}$ sq.m bottom sampler. Typical animals marked with an asterisk.

St. 102 22 m		St. 103 23 m		St. 104 23 m		St. 105 21 m		St. 106 24 m		St. 107 23 m		Average number and weight per sq.m	
Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight in gr
60	187.50	130	395.00	125	375.00	95	275.00	..	..	155	345.00	93.5	275.15
30	4.00	25	3.50	20	5.00	50	17.50	25	3.50	30	3.00	23.0	4.75
10	0.50	..	..	..	..	..	..	..	..	..	..	1.0	0.05
..	..	..	..	..	..	5	0.50	..	..	..	..	1.5	0.15
..	..	..	..	5	0.50	5	2.50	10	4.50	..	..	4.0	1.20
20	0.50	..	..	..	..	20	1.00	..	..	10	0.25	7.5	0.33
..	..	..	..	..	..	..	..	10	6.00	5	1.00	4.0	1.10
..	..	15	24.50	5	16.00	5	9.50	..	..	..	..	5.5	7.90
..	..	5	8.50	..	..	5	37.50	..	..	5	44.50	2.0	14.40
25	1.25	45	2.25	..	..	10	1.00	30	2.00	120	7.00	27.0	1.78
60	29.00	..	..	..	..	..	..	..	..	10	5.00	7.0	3.40
300	9.50	200	6.00	90	3.00	150	5.00	225	6.75	300	6.50	188.5	5.63
..	..	..	..	..	..	5	0.50	5	0.75	..	..	1.0	0.13
..	..	..	..	..	..	5	—	..	..	..	..	0.5	—
..	..	..	..	..	..	5	7.50	5	3.00	..	..	1.5	1.85
25	2.50	60	2.50	25	3.00	45	3.50	50	2.25	35	1.50	30.5	1.98
..	..	5	0.25	5	0.25	..	..	10	0.50	..	..	4.0	0.18
5	0.25	..	..	5	0.25	..	..	10	0.50	10	1.00	4.5	0.43
10	0.25	..	..	..	..	..	..	5	0.25	5	0.25	4.0	0.13
..	..	5	0.25	..	..	30	0.25	..	..	5	0.25	4.0	0.08
..	..	5	9.50	5	10.00	..	..	..	..	..	..	1.0	1.95
5	0.25	..	..	..	..	..	..	..	..	..	..	1.5	0.08
..	..	..	..	5	11.00	10	17.50	40	7.00	10	29.50	7.0	7.40
..	..	..	..	..	..	5	0.25	..	..	..	..	0.5	0.25
5	8.00	5	8.00	..	..	20	45.50	..	..	..	..	3.0	6.15
..	..	..	..	..	..	..	..	..	..	5	49.00	0.5	4.90
105	3.50	295	8.50	150	4.50	305	9.00	115	3.50	200	6.30	186.5	5.60
5	0.25	10	0.50	15	5.00	25	6.50	15	6.50	10	20.25	14.0	5.05
..	..	5	0.50	..	..	5	2.00	5	1.50	..	..	1.5	0.40
..	..	..	..	..	..	..	..	..	..	5	28.00	0.5	2.80
..	..	..	..	..	..	..	..	..	..	..	..	0.5	2.10
5	0.25	..	..	..	..	..	..	..	..	..	..	0.5	0.03
625	10.00	265	10.00	625	10.00	625	10.00	625	10.00	500	10.00	612.0	10.00
10	0.25	5	0.25	5	1.05	10	0.25	..	..	15	0.25	6.5	0.38
..	..	..	..	..	..	..	..	..	..	5	0.25	0.5	0.03
5	0.25	15	1.05	..	..	15	0.25	..	..	5	0.25	4.5	0.20
..	..	..	..	..	..	..	..	..	..	..	..	0.5	0.10
..	..	..	..	..	..	5	1.00	5	1.00	..	..	1.5	—
258.00		481.05		434.55		453.50		59.50		559.05		368.04	

Table 6. Transitional zone between the
Off Cape Hooker. 15-7-1933. Sand with clay. 10 samples taken with the $\frac{1}{10}$ sq.m bottom sampler.
comm. marked

	St. 158 14 m		St. 159 13 m		St. 160 14 m		St. 161 13 m	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
<i>Halcampoides purpurea</i> (STUD.).....	10	1.00	..	..	..	..	..	..
<i>Eupyrgus scaber</i> LÜTKEN	10	1.00	..	..	..	..	..	..
* <i>Ophiocten sericeum</i> (FORBES)	..	..	40	4.00	10	2.00	10	1.00
<i>Ophiura robusta</i> AYRES.....	20	5.00	..	..	..	..	..	..
<i>Nereis zonata</i> MGRN.	..	..	..	..	..	..	..	..
<i>Brada</i> sp.	..	..	..	..	..	..	10	1.00
<i>Lumbriconereis</i> sp.	..	..	..	..	..	..	10	3.00
<i>Sabellidae</i>	..	..	..	..	..	..	..	..
<i>Maldanidae</i>	..	..	..	..	..	..	50	1.00
<i>Polynoidae</i>	10	1.00	..	..	..	..	..	..
<i>Axionice flexuosa</i> (GRUBE)	10	0.50	..	..	..	..	20	0.50
† <i>Owenia fusiformis</i> DELLE CHIAJE.....	..	..	190	53.00	40	29.00	70	16.00
Other <i>Polychaeta</i>	90	5.50	110	5.00	170	10.00	150	3.00
<i>Priapulus caudatus</i> (LAM.)	..	..	..	..	..	..	10	1.00
Other <i>Gephyrea</i>	10	1.00	..	..	..	..	..	..
<i>Margarita cinerea</i> (COUTHOUY)	..	..	..	..	..	..	..	..
<i>Natica groenlandica</i> (BECK)	..	..	..	..	10	1.00	10	1.00
<i>Bela trevelyana</i> TURT.	..	..	..	..	..	..	..	..
<i>Buccinum sericatum</i> HANCOCK.....	..	..	..	..	..	..	..	..
<i>Rissoa</i> sp.....	10	0.50	..	..	..	..	..	..
<i>Cylichna reinhardti</i> (MØLLER).....	..	..	..	..	..	..	..	..
<i>Utriculus pertenuis</i> (MIGH.)	..	..	..	..	..	..	..	..
* <i>Leda pernula</i> MÜLL.....	..	..	..	..	..	..	..	..
<i>Portlandia arctica</i> (GRAY)	..	..	..	..	10	0.50	..	..
<i>Dacrydium vitreum</i> (HOLB.)	20	0.50	..	..	..	..	..	..
<i>Modiolaria laevigata</i> (GRAY).....	..	..	10	1.00	..	..	..	..
<i>Modiolaria nigra</i> (GRAY) ad.	..	..	20	9.80	..	..	20	92.00
<i>Modiolaria nigra</i> (GRAY) juv.	50	1.00	40	3.00	20	1.50	110	5.50
<i>Pecten groenlandicus</i> CHEMN.	..	..	..	..	..	..	..	..
<i>Astarte banksi</i> LEACH ad.	..	..	20	13.00	30	2.00	..	..
<i>Astarte banksi</i> LEACH juv.	20	2.00	..	..	..	..	..	..
<i>Astarte borealis</i> (CHEMN.) ad.	..	..	..	..	..	..	..	..
<i>Axinus flexuosus</i> (MTG.)	50	1.00	130	2.00	20	5.00	120	2.00
* <i>Macoma calcaria</i> (CHEMN.) ad.	20	3.00	..	..	..	..	20	2.00
* <i>Macoma calcaria</i> (CHEMN.) juv.	..	..	40	1.00	..	..	..	..
<i>Macoma moësta</i> (DESH.)	..	..	..	..	..	..	..	..
† <i>Venus fluctuosa</i> GOULD ad.	..	..	..	..	..	..	..	..
† <i>Venus fluctuosa</i> GOULD juv.	20	1.00	..	..	20	1.00	100	4.00
<i>Cardium ciliatum</i> FABRICIUS	10	2.00	..	..	10	28.00	..	..
<i>Cardium groenlandicum</i> (CHEMN.) ad.	10	87.00	..	..	20	171.00	..	..
<i>Cardium groenlandicum</i> (CHEMN.) juv.	30	4.00	10	3.00	..	..	50	2.00
<i>Mya truncata</i> L. juv.	..	..	10	1.00	..	..	..	..
<i>Saxicava arctica</i> L.....	..	..	..	..	..	..	..	..
<i>Lyonsia arenosa</i> MØLL.	10	4.00	..	..	20	3.50	..	..
† <i>Thracia truncata</i> TURT. ad.	10	19.50	10	5.00	..	..	..	..
† <i>Thracia truncata</i> TURT. juv.	10	0.50	10	1.00	..	..	..	..
† <i>Pandora glacialis</i> (LEACH)	..	..	..	..	..	..	10	1.00
<i>Philomedes globosus</i> LILJEB.....	60	0.50	250	2.00	250	2.00	80	1.00
<i>Diastylis</i> sp.....	10	1.00	10	1.50	..	..	..	..
<i>Amphipodae</i>	..	..	10	3.00	20	0.50	..	..
<i>Gammaracanthus</i> sp.....	10	4.00	..	..	..	..	..	..
<i>Sclerocrangon</i> sp.....	..	..	10	3.00	..	..	10	2.00
<i>Nymphon</i> sp.....	..	..	..	..	..	..	..	..
<i>Ascidiae</i>	20	6.00	30	3.00	10	3.00	40	4.00
<i>Cottus</i> sp.	..	..	..	..	..	..	..	..
Total weight of sample per sq.m in gr...	152.00		114.30		260.00		143.00	

Venus-community and the Macoma-community.
Animals typical for the Venus-comm. marked with a cross, animals typical for the Macoma-
with an asterisk.

St. 162 12 m		St. 163 14 m		St. 164 14 m		St. 165 13 m		St. 166 13 m		St. 167 14 m		Average number and weight per sq.m	
Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight in gr
..	..	..	..	..	..	..	..	10	0.50	..	..	2.0	0.15
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.10
30	4.00	30	7.00	..	..	20	3.00	..	..	10	0.50	15.0	2.15
..	..	..	..	..	..	..	..	10	2.00	10	8.00	4.0	1.50
..	..	..	..	..	..	..	..	..	..	10	0.50	1.0	0.05
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.10
..	..	..	..	10	1.00	..	..	..	..	..	..	2.0	0.40
..	..	..	..	10	11.00	..	..	..	..	..	..	1.0	1.10
50	1.00	..	..	..	..	..	..	..	..	70	3.00	17.0	0.50
10	1.00	..	..	..	..	..	..	..	..	..	..	2.0	0.20
20	1.00	..	..	10	0.50	..	..	..	..	..	..	6.0	0.25
30	9.00	80	6.00	200	5.00	150	50.00	60	12.00	200	45.00	112.0	22.50
450	6.00	100	3.00	..	..	110	6.00	60	2.00	100	3.00	133.0	4.35
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.10
10	9.00	..	..	..	..	..	..	..	..	..	..	2.0	1.00
20	7.00	..	..	..	..	..	..	..	..	..	..	2.0	0.70
10	2.00	..	..	10	0.50	..	..	..	..	..	..	4.0	0.45
..	..	..	..	..	..	10	0.50	..	..	..	..	1.0	0.05
10	29.00	..	..	..	..	..	..	..	..	..	..	1.0	2.90
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
10	0.50	..	..	10	0.50	10	0.50	10	0.50	..	..	4.0	0.20
..	..	..	..	..	..	..	..	..	..	10	0.50	1.0	0.05
..	..	20	8.00	..	..	10	1.00	10	1.00	..	..	4.0	1.00
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
..	..	..	..	..	..	..	..	..	..	..	..	2.0	0.05
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.10
40	120.00	80	347.00	40	205.00	10	45.00	50	209.00	60	11.00	32.0	112.70
120	9.00	40	3.00	70	5.00	20	1.00	70	2.00	..	..	54.0	3.10
..	..	..	..	10	1.00	10	1.00	..	..	..	..	1.0	0.10
..	..	..	..	10	1.00	20	5.00	..	..	10	3.00	9.0	2.40
30	3.00	10	1.00	..	..	10	1.00	10	1.00	..	..	7.0	0.70
..	..	..	..	..	..	10	157.00	..	..	..	..	1.0	15.70
140	2.00	140	2.00	100	2.00	40	1.00	220	3.00	140	2.00	110.0	2.20
10	2.00	20	4.00	..	..	10	1.00	..	..	..	..	8.0	1.20
20	0.50	..	..	30	2.00	..	..	..	..	..	..	9.0	0.35
..	..	..	..	..	..	..	..	10	1.00	..	..	1.0	0.10
10	4.00	30	12.00	..	..	..	..	40	11.00	..	..	8.0	2.70
110	8.00	140	5.00	10	0.50	30	0.50	30	1.00	20	1.00	48.0	2.20
10	1.00	10	0.50	10	152.00	90	137.00	10	3.00	..	..	8.0	32.35
..	..	10	16.00	..	..	..	..	20	4.00	..	..	6.0	27.80
90	15.00	90	22.00	10	25.00	..	..	..	..	..	..	28.0	7.10
..	..	..	..	10	0.50	10	25.00	10	0.50	30	9.00	7.0	3.60
..	..	..	..	..	..	..	..	..	..	10	0.50	1.0	0.05
..	..	..	..	..	..	..	..	..	..	..	..	3.0	0.75
10	16.00	..	..	..	..	..	..	..	..	..	..	3.0	4.05
20	1.00	..	..	..	..	10	0.50	..	..	..	..	5.0	0.30
..	..	10	1.00	10	1.00	20	1.00	10	1.00	20	1.00	8.0	0.60
240	2.00	220	2.00	170	2.00	130	1.00	60	0.50	170	2.00	163.0	1.50
..	..	10	0.50	..	..	..	..	10	0.50	..	..	4.0	0.35
..	..	10	1.00	10	0.50	..	..	..	..	..	..	5.0	0.50
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.40
..	..	..	..	..	..	..	..	..	..	..	..	2.0	0.50
10	1.00	..	..	..	..	..	..	..	..	..	..	1.0	0.10
30	4.00	20	3.00	20	15.00	10	2.00	50	5.00	20	7.00	25.0	5.20
..	..	..	..	..	..	10	36.00	..	..	..	..	1.0	3.60
258.00		444.00		440.00		349.00		260.50		97.00		272.25	

Table 7. The *Venus*-
Off Cape Hope. Sand. 29-6-1933. 10 samples taken with the $\frac{1}{8}$ sq.m

	St. 14 9 m		St. 15 9 m		St. 16 12 m		St. 17 9 m	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
* <i>Myriotrochus rinki</i> STEENSTRUP	5	0.50	10	3.00	10	14.00	5	0.50
<i>Terebellides</i> sp.	..	..	..	..	..	..	5	1.00
Other <i>Polychaeta</i>	500	95.00	125	25.00	175	35.00	130	25.50
<i>Natica groenlandica</i> (BECK)	..	..	..	..	..	..	..	..
* <i>Bela tenuicostata</i> (M. SARS)	20	0.50	20	1.00	..	..	..	..
<i>Bela violacea</i> (MIGH.)	..	..	..	..	..	..	..	..
<i>Bela trevelyana</i> (TURT.)	5	0.50	..	..	5	0.25	..	..
<i>Bela</i> sp.	..	..	5	0.25	..	..	..	..
<i>Buccinum hydrophanum</i> HANCOCK	..	..	..	..	..	..	..	..
<i>Cylichna reinhardti</i> (MØLLER)	10	1.00	10	0.75	5	0.25	..	..
* <i>Astarte banksi</i> LEACH	160	65.00	435	75.00	115	42.50	155	41.00
* <i>Astarte borealis</i> (CHEMN.) ad.	95	345.00	145	245.00	70	275.00	105	230.00
* <i>Astarte borealis</i> (CHEMN.) juv.	885	195.00	870	295.00	580	125.00	370	105.00
<i>Astarte elliptica</i> BROWN	10	6.00	10	3.50	..	..	..	..
<i>Axinus flexuosus</i> (MTG.)	50	0.50	..	..	25	0.50	15	0.50
* <i>Venus fluctuosa</i> GOULD	375	29.50	275	61.00	295	31.00	210	35.00
<i>Mya truncata</i> L. juv.	..	..	..	..	..	..	..	..
<i>Cyrtodaria kurriana</i> DUNKER	10	0.25	10	0.50	..	..	10	0.50
<i>Saxicava arctica</i> L. juv.	..	..	..	..	5	0.25	..	..
<i>Thracia truncata</i> TURT. ad.	..	..	..	..	..	..	5	4.00
<i>Thracia truncata</i> TURT. juv.	15	0.50	5	0.25	..	..	..	..
<i>Pandora glacialis</i> (LEACH)	..	..	..	..	5	0.25	..	..
<i>Amphipodae</i>	..	..	5	0.25	10	0.50	5	0.50
<i>Sclerocrangon</i> sp.	..	..	..	..	..	..	..	..
Total weight of sample per sq.m in gr...	744.25		710.50		525.50		413.50	

is not usually met with in East Greenland¹⁾. The *Halcompoides*-zone is known from this single locality only, and hence seems to have a very slight distribution. Nor is the zone known from other Arctic seas.

The *Macoma-calcaria*-community in its other modifications, has, however, already previously been recorded from all Arctic seas whence

¹⁾ It is a peculiar fact that the innermost part of Hurry Inlet exhibits great quantities of animals everywhere and corresponding weights, and in addition a soft detrital bottom, while the outer part of the same fjord has a relatively poor animal life (see p. 60).

fluctuosa-community.

bottom sampler. Typical animals marked with an asterisk.

St. 18 20 m		St. 19 20 m		St. 20 20 m		St. 21 15 m		St. 22 A 20 m		St. 22 B 9 m		St. 23 9 m		Average number and weight per sq.m	
Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight in gr
10	12.50	25	11.00	10	5.00	5	7.50	10	15.00	..	..	..	..	8.5	6.25
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.5	0.10
150	27.50	100	20.00	100	20.00	125	25.00	100	25.00	125	25.00	—	..	148.5	29.30
..	..	5	2.00	..	..	..	..	..	..	..	..	..	..	0.5	0.20
10	0.25	25	2.00	5	0.25	15	6.00	5	0.50	5	0.25	5	0.50	10.0	1.00
..	..	..	..	..	..	..	..	..	..	5	0.75	..	..	0.5	0.05
..	..	5	0.50	5	0.25	..	..	10	1.00	..	..	..	..	3.0	0.25
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.5	0.02
..	..	..	..	..	..	..	..	..	..	..	..	5	1.00	0.5	0.10
5	0.50	..	..	..	..	..	..	..	..	..	..	..	..	3.0	0.25
15	14.50	15	3.00	40	12.50	105	28.50	120	51.00	25	15.50	30	20.00	109.0	33.50
20	64.50	20	57.50	60	192.50	25	118.00	25	122.00	40	87.00	25	81.00	49.5	165.00
195	30.00	305	40.00	160	35.00	380	172.50	715	107.50	105	54.50	325	43.00	397.0	110.00
5	9.50	..	..	..	..	15	12.50	..	..	..	..	..	..	4.0	3.65
5	0.25	..	..	5	0.25	..	..	5	0.25	..	..	..	..	10.0	0.20
95	5.00	120	15.00	130	14.95	95	21.00	160	26.50	55	11.00	125	10.00	176.0	21.30
5	0.25	5	0.25	..	..	..	..	..	..	..	..	10	0.25	2.0	0.05
..	..	5	0.25	15	0.25	..	..	..	..	..	..	5	0.25	5.0	0.20
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.5	0.02
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.5	0.50
..	..	5	0.25	5	0.25	..	..	..	..	..	..	..	..	3.0	
..	..	..	..	..	..	..	..	5	0.25	..	..	..	..	1.0	0.25
..	..	5	0.50	5	0.25	..	..	10	1.00	5	0.50	15	1.00	5.5	0.40
..	..	..	..	..	..	..	..	..	..	..	..	5	0.50	0.5	0.05
164.75		152.25		281.45		391.00		349.90		194.40		157.50		372.64	

bottom samples are available. A similar fusion of the different zones within the community as was observed within the Scoresby Sound fjord area is also known from other Arctic localities, e. g. the Barents Sea (ZENKEWITSCH 1927) and the Spitzbergen banks (IDELSON 1930, p. 44).

2. The *Venus-fluctuosa*-community.

(Tables 7, 8, 10, 11. Pl. 2).

(Depths from c. 7 m to 20—30 m).

In its purest, most typical, and at the same time quantitatively richest form this animal community was found on the sandy bottom at

Table 8. The *Venus*-
Hurry Inlet. East coast, 1 mile from the mouth. Sand. 5-7-1933. 10 samples taken

	St. 86 14 m		St. 87 15 m		St. 88 15 m		St. 89 15 m	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
* <i>Myriotrochus rinki</i> STEENSTRUP	15	5.00	..	..	35	11.50	20	6.00
<i>Stephanasterias albula</i> (STIMPSON)	..	..	..	..	..	..	..	..
<i>Gattyana cirrosa</i> (PALL.)	..	..	..	..	..	..	..	..
<i>Terebellides</i> sp.	..	..	..	..	..	..	..	..
Other <i>Polychaeta</i>	85	5.50	40	2.00	105	8.30	60	4.75
<i>Bryozoa</i>	..	..	10	6.50	15	7.50	15	5.50
<i>Margarita groenlandica</i> (CHEMN.) ad.	..	..	..	..	..	..	..	..
<i>Margarita cinerea</i> (COUTHOU)	..	..	..	..	..	..	..	..
<i>Margarita helicina</i> (PHIPPS)	..	..	..	..	..	..	..	..
<i>Natica groenlandica</i> (BECK)	..	..	..	..	..	..	..	..
<i>Bela tenuicostata</i> (M. SARS)	..	..	..	..	..	..	10	0.50
<i>Bela trevelyana</i> (TURT.)	..	..	..	..	..	..	..	..
<i>Bela</i> sp.	..	..	10	0.25	..	..	..	..
<i>Buccinum sericatum</i> HANCOCK	..	..	..	..	..	..	..	..
<i>Philine ossian-sarsi</i> FRIELE	..	..	..	..	5	0.25	..	..
<i>Modiolaria laevigata</i> (GRAY)	..	..	10	0.50	..	..	5	0.50
<i>Pecten groenlandicus</i> CHEMN.	..	..	..	..	..	..	..	..
<i>Astarte banksi</i> LEACH	5	0.25	..	..	..	..	..	..
<i>Astarte borealis</i> (CHEMN.) ad.	..	..	15	73.00	..	..	..	..
<i>Astarte borealis</i> (CHEMN.) juv.	..	..	..	..	..	..	..	..
<i>Astarte elliptica</i> BROWN	..	..	..	..	..	..	..	..
<i>Axinus flexuosus</i> (MTG.)	..	..	..	..	..	..	10	0.25
* <i>Venus fluctuosa</i> GOULD ad.	20	9.00	..	..	5	1.50	..	..
* <i>Venus fluctuosa</i> GOULD juv.	135	2.50	55	0.50	25	0.25	20	0.50
<i>Cardium groenlandicum</i> CHEMN. ad.	..	..	..	..	..	..	..	..
<i>Mya truncata</i> L. juv.	5	0.25	..	..	..	..	..	..
<i>Cyrtodaria kurriana</i> DUNKER juv.	..	..	..	..	..	..	5	0.25
* <i>Thracia truncata</i> TURT. ad.	5	1.00	..	..	..	..	..	..
* <i>Thracia truncata</i> TURT. juv.	..	..	10	1.50	20	0.50	30	1.00
* <i>Pandora glacialis</i> LEACH	10	2.00	5	0.25	..	..	25	1.50
<i>Philomedes globosus</i> LILJEB.	..	..	..	..	..	..	5	0.05
<i>Diastylis</i> sp.	..	..	..	..	5	0.25	..	..
<i>Amphipodae</i>	10	0.50	15	1.50	100	5.00	25	1.00
<i>Hydroidae</i>	10	9.00	..	..	..	..	5	1.50
<i>Ascidiae</i>	10	0.50	10	0.50	5	1.00	40	8.50
Total weight of sample per sq.m in gr...	35.50		86.50		36.05		31.80	

fluctuosa-community.with the $\frac{1}{10}$ sq.m bottom-sampler. Typical animals marked with an asterisk.

St. 90 13 m		St. 91 16 m		St. 92 14 m		St. 93 14 m		St. 94 15 m		St. 95 14 m		Average number and weight per sq.m	
Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight in gr
25	8.00	5	1.50	20	5.50	15	4.50	..	..	5	1.50	13.5	4.20
..	..	..	..	..	..	..	..	5	0.50	..	..	0.5	0.05
..	..	..	..	..	..	..	..	5	1.00	..	..	0.5	0.10
..	..	..	..	..	..	..	..	..	..	5	1.50	0.5	0.15
45	3.25	95	8.00	50	5.00	65	6.50	30	1.25	50	4.50	62.0	5.09
..	..	..	..	..	..	..	..	..	..	..	..	4.0	1.95
..	..	..	..	..	..	..	..	10	4.00	..	..	1.0	0.40
10	7.00	..	..	..	..	..	..	5	0.25	..	..	1.5	0.72
..	..	..	..	..	..	..	..	15	0.50	..	..	1.5	0.05
..	..	..	..	..	..	..	..	..	..	10	1.50	1.0	0.15
5	0.25	5	0.25	5	0.25	5	0.25	..	..	..	..	3.0	0.15
..	..	..	..	..	..	..	..	10	0.50	10	0.25	2.0	0.07
..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.02
5	0.50	..	..	..	..	..	..	..	..	..	..	0.5	0.05
..	..	..	..	..	..	..	..	..	..	..	..	0.5	0.02
..	..	..	..	..	..	..	..	5	0.25	..	..	2.0	0.13
..	..	5	0.25	5	0.25	..	..	..	..	5	0.25	1.5	0.07
..	..	..	..	..	..	..	..	..	..	..	..	0.5	0.02
..	..	5	4.00	..	..	10	42.00	5	20.50	..	..	3.5	14.00
..	..	10	0.25	..	..	..	..	..	..	5	0.25	1.5	
..	..	5	8.50	..	..	..	..	..	..	..	..	0.5	
..	..	5	0.25	..	..	15	0.25	..	..	5	0.25	3.5	0.10
15	4.00	10	2.00	15	1.50	10	3.00	5	1.00	5	0.50	8.5	2.25
20	0.50	75	1.50	15	0.25	75	1.00	..	..	70	1.50	49.0	0.85
..	..	5	79.00	5	80.00	..	..	..	..	5	129.00	1.5	28.80
10	0.50	..	..	5	0.25	5	0.25	..	..	10	0.50	3.5	0.18
..	..	..	..	..	..	..	..	..	..	..	..	0.5	0.02
..	..	5	1.00	..	..	5	3.50	..	..	..	..	1.5	1.15
30	1.00	30	0.50	5	0.25	30	0.50	35	0.50	15	0.25	20.5	
..	..	5	0.50	5	0.25	10	0.75	..	..	..	..	6.0	0.52
..	..	..	..	..	..	5	0.25	..	..	..	..	1.0	0.05
5	0.25	5	0.25	5	0.25	..	..	..	..	..	..	2.0	0.10
60	2.00	35	2.00	20	1.00	30	2.00	40	0.75	10	0.50	34.0	1.63
..	..	15	2.50	..	..	..	..	10	5.00	20	7.50	6.0	2.55
10	3.50	40	11.00	15	12.00	10	4.50	30	3.00	10	1.50	18.0	4.60
30.75		123.25		106.75		69.45		38.00		151.25		71.04	

Table 9.

Coast near Cape Hope. Very shallow water. 27-6-1933. 6 samples taken with the $\frac{1}{10}$ sq.m bottom-sampler.

	St. 1 5½ m		St. 2 4½ m		St. 3 3½ m		St. 4 3¼ m		St. 5 3¾ m		St. 6 3 m		Average num- ber and weight per sq.m	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight in gr
<i>Nereis zonata</i> MGRN. .	..	..	10	1.00	..	..	..	..	..	..	..	..	2.0	0.17
<i>Maldanidae</i>	40	0.20	..	..	..	..	..	..	..	..	..	..	7.0	0.03
Other <i>Polychaeta</i>	100	1.50	20	4.00	140	2.00	70	1.00	?	0.50	200	3.00	106.0	2.00
<i>Margarita groenlandica</i> (CHEMN.).....	..	..	30	1.00	..	..	..	..	..	..	..	..	5.0	0.17
<i>Bela violacea</i> (MIGH.)	10	3.00	..	..	..	..	..	..	..	..	..	..	2.0	0.50
<i>Rissoa jan-mayeni</i> FRIELE	..	..	10	—	..	..	..	..	..	..	..	..	2.0	—
<i>Cylichna</i> sp.....	10	1.50	..	..	..	..	..	..	..	..	..	..	2.0	0.15
<i>Modiolaria laevigata</i> (GRAY)	..	..	60	3.00	..	..	..	..	..	..	..	..	10.0	0.50
<i>Axinus flexuosus</i> (MTG.)	..	..	..	..	..	..	10	0.50	..	..	..	..	2.0	0.08
<i>Saxicava arctica</i> L. juv.	..	..	20	3.00	..	..	..	..	..	..	..	..	3.0	0.50
<i>Amphipodae</i>	..	..	20	—	10	—	10	0.50	..	..	50	5.00	15.0	2.75
<i>Gammaracanthus</i> sp...	20	2.00	..	..	10	1.00	..	..	..	..	..	..	5.0	0.50
Total weight of sample per sq.m in gr	8.20		12.00		3.00		2.00		0.50		8.00		7.45	

Cape Hope, at 9—20 m depth. The principal type animal, as will appear from the name of the zone, is *Venus fluctuosa* (at Cape Hope 176 specimens, 21.30 gr per sq.m). The most important accompanying animals characteristic of the community are *Thracia truncata* (at Cape Hope 3.5 specimens, 0.50 gr per sq.m) and *Pandora glacialis* (at Cape Hope 1 specimen, 0.25 gr per sq.m, inside the mouth of Hurry Inlet 6 specimens, 0.20 gr per sq.m), or *Cyrtodaria kurriana* (at Cape Hope 5 specimens, 0.20 gr per sq.m, inside the mouth of Hurry Inlet 0.5 specimens, 0.02 gr per sq.m). In table 7, showing the *Venus-fluctuosa*-community by Cape Hope, the most typical animals seem to be *Astarte borealis* (450 specimens, 275 gr per sq.m) and *Astarte banksi* (109 specimens, 33 gr per sq.m), but the results known from the Franz Joseph Fjord area from previous years show that *Astarte borealis* is not so much associated with a special animal community as with a special depth. This animal is for instance very common in the shallow water zone of the *Macoma-calcaria*-community (THORSON 1933, table 1, pl. 1). That

Table 10. Very poor *Venus*-community.The mouth of Hurry Inlet. Sand, stones, algae. 30-6-1933. 6 samples with the $\frac{1}{10}$ sq.m bottom-sampler.

	St. 26 38 m		St. 33 28 m		St. 34 16 m		St. 38 21 m		St. 39 14 m		St. 40 21 m		Average number a. weight per sq.m	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight in gr
<i>Hexactinellidae</i>	..	..	..	..	10	5.00	..	..	..	..	..	..	2.0	0.83
<i>Myriotrochus rinki</i> STEEN- STRUP	..	..	10	13.00	..	..	..	..	10	4.00	30	22.00	8.0	6.50
<i>Asterias</i> sp.	..	..	10	13.00	..	..	..	..	..	..	..	..	2.0	2.20
<i>Nereis zonata</i> MGRN.	..	..	..	..	10	1.00	..	..	..	..	..	..	2.0	0.17
<i>Polynoidae</i>	..	..	..	..	10	1.00	..	..	..	..	..	..	2.0	0.17
Other <i>Polychaeta</i>	40	1.00	..	..	80	6.00	640	32.00	120	35.00	70	20.00	158.0	15.70
<i>Margarita groenlandica</i> (CHEMN.)	..	..	..	..	10	14.00	..	..	..	..	10	0.50	3.0	2.42
<i>Natica groenlandica</i> (BECK)	..	..	10	13.00	10	14.00	..	..	..	..	..	..	3.0	4.50
<i>Bela trevelyana</i> (TURT.) juv.	..	..	..	..	10	0.80	..	..	..	..	10	1.00	3.0	0.30
<i>Bela tenuicostata</i> (M. SARS)	..	..	..	..	..	..	10	0.50	..	..	..	..	2.0	0.08
<i>Cylichna</i> sp.	..	..	..	..	10	0.50	..	..	..	..	..	..	2.0	0.08
<i>Leda pernula</i> MÜLL.	..	..	10	3.00	..	..	..	..	..	..	..	..	2.0	0.50
<i>Modiolaria laevigata</i> (GRAY) ad.	..	..	10	35.00	20	15.00	..	..	90	12.00	..	..	20.0	10.33
<i>Astarte banksi</i> LEACH ad.	170	38.00	300	34.00	..	..	..	..	50	1.00	..	..	87.0	12.17
<i>Astarte banksi</i> LEACH juv.	..	..	..	..	20	0.10	..	..	..	..	30	0.50	8.0	0.10
<i>Astarte borealis</i> (CHEMN.) ad.	..	..	10	45.00	..	..	..	..	..	..	..	..	2.0	7.50
<i>Astarte elliptica</i> BROWN...	20	3.00	10	1.00	..	..	..	..	..	..	..	..	5.0	0.66
<i>Axinus flexuosus</i> (MTG.) ..	..	..	..	..	10	0.50	..	..	60	0.50	40	0.50	18.0	0.15
<i>Venus fluctuosa</i> GOULD. ad.	..	..	40	13.00	..	..	..	..	..	..	10	1.00	8.0	2.33
<i>Saxicava arctica</i> L. juv. ...	..	..	..	..	30	1.00	..	..	40	4.00	..	..	12.0	0.83
<i>Pandora glacialis</i> (LEACH).	..	..	..	..	10	1.00	..	..	..	..	..	..	2.0	0.17
<i>Philomedes globosus</i> LILJEB.	..	..	30	0.50	..	..	..	..	150	1.50	..	..	30.0	0.33
<i>Diastylis</i> sp.	10	0.50	10	0.50	..	..	..	..	..	..	20	1.00	7.0	0.33
<i>Caprella</i> sp.	10	0.50	..	..	..	..	..	..	..	..	..	..	2.0	0.08
<i>Amphipodae</i>	..	..	..	..	50	5.00	100	13.00	50	1.00	70	1.50	45.0	3.42
<i>Ascidiae</i>	..	..	..	..	..	..	..	..	..	..	10	1.00	2.0	0.17
Total weight of sample per sq.m in gr	43.00		168.00		64.90		45.50		58.00		47.00		72.02	

Astarte borealis is not especially related to the *Venus*-community is further confirmed by table 8 (only 5 specimens, 14 gr per sq.m). *Astarte banksi* seems to show habits corresponding entirely to those of *Astarte borealis*, only *Astarte banksi* is more common at greater depths.

In the *Venus*-community the following Polychaeta further seem to be typical accompanying animals: *Scoloplos* (*Aricia*) *armiger*¹), *Euchone analis*, and *Phyllodoce* sp.²). Even the Holothurioid *Myriotrochus rinki* is rather frequent here (by Cape Hope 9 specimens, 6.25 gr per sq.m), but as this animal is frequent even in the *Macoma-calcaria*-community, it seems to be a shallow water ubiquist.

In the sandy bottom locality by Cape Hope mentioned here, whence also the diagrammatic representation in pl. 2 is taken, the *Venus-fluctuosa*-community seems to attain its quantitative maximum. In order to investigate the vertical distribution of the community six samples (table 9) were taken in quite shallow water (3—5.5 m) near Cape Hope. Table 9 shows that at these depths the *Venus*-community is not yet developed. The table further shows that at the same depth *Lamellibranchiata* and *Gastropoda* (sedentary forms) play only a very small role in proportion to the *Polychaeta* and the *Crustacea*, which are extremely mobile and migratory forms. Exactly the same results were obtained at depths from 2 to 6 m as regards the *Macoma-calcaria*-community (THORSON 1933, p. 16). Thus the inner vertical limit of the *Venus*-community seems to lie at 7—8 m depth. The outward vertical limit of this community was not definitely ascertained, since in the localities investigated it passed into areas with a stony bottom, where the bottom sampler could not work. The *Venus*-community seems to have its greatest development at depths below 20 m; table 10 shows, however, that *Venus fluctuosa* still occurs at a depth of 28 m.

In the above-mentioned sandy bottom locality at Cape Hope the *Venus-fluctuosa*-community seems to have reached its quantitative maximum. As regards weight, too, the *Venus*-community in this locality represents a maximum of all the animal communities occurring on level sea bottom in the East Greenland fjords. Its total weight of animals is on an average c. 370 gr per sq.m, a weight which is otherwise not normally exhibited by any other East Greenland level bottom community³). Even the weights given in table 8 are much lower (total weight of animals per sq.m c. 70 gr), and finally table 10 shows a number of samples in which the *Venus*-community can just be distinguished. That there is no question here of a transitional zone, but merely of a "pure"

¹) In the *Macoma-calcaria*-community this form is replaced by *Aricia cuvieri*.

²) As the weights of these species are very inconsiderable, they are included in table 7 under *Polychaeta* sp.

³) See, however, the *Halcampoides*-zone of the *Macoma-calcaria*-community p. 25.

Venus-community, is obvious from the fact that *Macoma calcaria* as well as *Ophiecten sericeum* (both type animals for the *Macoma-calcaria*-community) are entirely absent. If nevertheless the weights of the samples in table 10 are relatively considerable, this is mainly due to the shallow water ubiquitous *Astarte borealis* and *Astarte banksi*.

The occurrence of the *Venus-fluctuosa*-community seems to be exclusively limited to a pure sandy bottom. During the investigations of the previous years in the Franz Joseph Fjord area no extensive areas of sandy bottom of importance were encountered, and accordingly the animal community in question was not met with either. Thus this community is so far known from the Scoresby Sound complex only, and even here it has only been observed in the outer districts near the open sea. From Cape Hope it extends into the mouth of Hurry Inlet (thus it was found to be present 1—2 miles inside the mouth), but does not penetrate very far up this Inlet, and at Konstabel Pynt it is entirely ousted by the *Macoma-calcaria*-community (table 5). It occurs, however, along the south coast of Jameson Land, where it appears in its most typical form nearest the sea, while towards the interior of the fjords it is gradually mixed with the *Macoma-calcaria*-community. The presence of such a mixed zone is distinctly seen from table 6. In this table the animals typical of the *Venus*-community are marked with a cross (†) — while those typical of the *Macoma*-community are marked with an asterisk. Of representatives of the *Venus*-community, *Venus fluctuosa*, *Thracia truncata*, and *Pandora glacialis* may still be found here in considerable quantities while the *Macoma*-community is just as numerous represented by *Macoma calcaria* and *Ophiecten sericeum*. The more important accompanying animals of the two communities also seem to be fairly equally represented. In addition this mixed zone distinctly displays the very large number of species typical of the mixed zones, such zones receiving a considerable contingency of species from each of the two zones mixed. Hence the number of species must be greater in the mixed zones than in the "pure" animal communities between which the mixed zones form the connecting link. At the same time the

Table 11.

	Jameson Land off Cape Leslie gr	Cape Hooker gr	Cape Hope gr
<i>Venus fluctuosa</i>	—	4.90	21.30
<i>Macoma calcaria</i>	5.70	1.53	—
<i>Pecten groenlandicus</i>	1.45	0.10	—
<i>Ophiecten sericeum</i>	2.40	2.15	—

Table 12. Transitional zone between the *Macoma*-community
Off Cape Hooker. 3-7-1933. 12 samples taken

	St. 63 65 m		St. 64 67 m		St. 65 60 m		St. 66 69 m		St. 67 67 m	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight
<i>Halcampoides purpurea</i> (STUD.).....	5	22.50	..	..	..	..	5	22.50	5	2.50
Other <i>Actinia</i>										
<i>Myriotrochus rinki</i> STEENSTRUP	..	..	5	1.25	..	..	..	..	..	..
<i>Eupyrgus scaber</i> LÜTKEN	10	1.50	5	1.50	..	..	..	..	..	..
<i>Trochoderma elegans</i> THÉEL	25	0.50	115	1.00	..	..	5	0.25	..	..
<i>Ophiocten sericeum</i> (FORBES)	30	1.00	35	3.00	5	0.75	30	2.50	20	3.50
<i>Nephtys ciliata</i> (MÜLL.).....	10	2.00	5	3.00	5	1.50	5	3.50	10	18.50
* <i>Owenia fusiformis</i> DELLE CHIAJE.....	200	61.50	230	70.00	95	30.50	110	25.00	150	55.00
<i>Terebellides stromi</i> SARS	..	..	5	1.50	..	..	..	..	..	..
<i>Phyllodoce</i> sp.	..	..	..	..	..	..	5	22.00	..	..
<i>Aricia</i> sp.	..	..	..	..	..	..	30	—	..	..
Other <i>Polychaeta</i>	5	1.00	25	0.50	10	0.50	55	1.50	35	13.50
<i>Gephyrea</i>	..	..	..	..	..	..	..	..	..	..
<i>Balanoglossus</i> sp.	..	..	..	..	..	..	..	..	..	..
<i>Nemertini</i>	..	..	..	..	..	..	..	..	..	..
<i>Natica groenlandica</i> (BECK)	5	0.25	..	..	5	0.25	5	0.25	..	..
<i>Buccinum hydrophanum</i> HANCOCK	10	2.00	..	..	..	..	..	..	..	..
<i>Raphitoma amoena</i> SARS.....	..	..	5	1.75	..	..	..	..	..	..
<i>Rissoa jan-mayeni</i> FRIELE	50	1.00	65	1.00	20	0.25	20	0.25	15	0.25
<i>Cylichna reinhardti</i> (MØLL.)	..	..	..	..	..	..	..	..	5	1.00
<i>Philine</i> sp.	..	..	..	..	..	..	..	..	5	0.50
<i>Nucula tenuis</i> MTG.	20	1.50	20	7.75	10	3.00	..	..	..	..
<i>Leda pernula</i> MÜLL.....	20	10.25	20	4.25	..	..	5	4.00	..	..
<i>Portlandia arctica</i> (GRAY)	..	..	5	0.75	10	2.50	5	0.50	..	..
<i>Portlandia lenticula</i> (MØLLER)	20	1.00	10	0.50	..	..	..	..	10	0.50
<i>Portlandia frigida</i> (TORELL)	..	..	25	1.25	15	0.50	10	0.25	10	0.50
<i>Arca glacialis</i> GRAY	5	12.50	5	6.00	..	..	5	1.00	..	..
<i>Dacrydium vitreum</i> (HOLB.)	70	1.75	25	0.50	5	0.25	15	0.25	..	..
<i>Modiolaria nigra</i> (GRAY).....	..	..	..	..	..	..	..	..	..	..
<i>Pecten groenlandicus</i> CHEMN.	20	1.00	10	0.50	..	..	15	1.00	5	0.25
<i>Astarte crenata</i> GRAY	..	..	..	..	..	..	..	..	..	..
<i>Axinus flexuosus</i> (MTG.)	170	2.25	195	5.00	75	1.50	90	2.50	20	0.50
<i>Macoma calcaria</i> (CHEMN.)	..	..	10	22.00	15	1.00	25	8.25	15	1.00
<i>Macoma moësta</i> (DESH.)	15	3.00	..	..	..	..	..	..	..	..
<i>Cardium ciliatum</i> FABRICIUS	..	..	5	6.00	..	..	..	..	..	..
<i>Mya truncata</i> L. juv.	..	..	..	..	..	..	..	..	5	0.50
<i>Thracia truncata</i> TURK	..	..	..	..	..	..	..	..	..	..
<i>Pandora glacialis</i> (LEACH)	..	..	..	..	5	1.50	..	..	..	..
<i>Neæra obesa</i> LOVÉN	..	..	..	..	..	..	..	..	..	..
<i>Philomedes globosus</i> LILJEB.	125	1.25	120	1.25	45	0.50	25	0.25	10	0.25
<i>Diastylis</i> sp.	20	4.00	..	..	25	3.25	15	4.00	20	4.00
<i>Amphipodæ</i>	15	0.50	..	..	..	..	..	..	..	..
<i>Arcturus</i> sp.	..	..	..	..	5	1.00	..	..	5	0.25
<i>Munnopsis typica</i> M. SARS	..	..	..	..	..	..	..	..	5	1.00
<i>Tanaidæ</i>	..	..	5	1.00	..	..	..	..	..	..
Total weight of sample per sq.m. in gr...	132.05		141.25		48.55		99.75		103.50	

and the *Arca*-community with *Owenia fusiformis*.
with the $\frac{1}{8}$ sq.m bottom-sampler.

St. 68 57 m		St. 69 67 m		St. 70 64 m		St. 71 72 m		St. 72 62 m		St. 73 68 m		St. 75 67 m		Average number and weight per sq.m	
Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight in gr
5	25.00	..	..	5	7.50	10	1.00	5	66.00	..	..	5	42.50	4.00	15.80
5	1.50	..	..	..	..	..	..	..	..	5	0.25	..	..	1.00	0.25
10	1.50	..	..	5	0.50	..	..	..	..	..	..	..	..	2.50	0.42
..	..	25	0.25	..	..	..	..	..	..	..	..	20	0.50	16.00	0.20
55	8.50	..	..	20	1.00	5	1.00	15	2.00	10	1.00	10	1.00	20.00	2.10
..	..	5	5.50	..	..	..	..	5	2.50	..	..	..	..	3.50	3.08
210	83.50	75	43.00	225	101.00	270	106.50	25	7.50	350	132.00	35	13.50	164.00	60.75
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.50	0.13
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.50	1.80
5	—	..	..	5	—	..	..	..	..	..	..	..	..	3.50	—
10	0.50	100	29.00	5	3.50	..	..	20	0.50	15	4.00	25	0.50	29.00	4.57
..	..	..	..	..	..	5	3.00	..	..	..	..	..	..	0.50	0.25
10	1.50	..	..	10	1.00	5	0.50	..	..	..	..	..	..	2.00	0.25
..	..	5	10.00	..	..	..	..	..	..	..	..	5	2.00	1.00	1.00
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.50	0.06
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.00	0.17
..	..	..	..	..	..	..	..	..	..	..	..	5	0.25	1.00	0.17
..	..	..	..	20	0.25	10	0.25	50	0.50	..	..	35	0.50	24.00	0.35
..	..	..	..	10	1.00	..	..	5	0.50	..	..	..	..	1.50	0.20
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.50	0.04
5	2.00	..	..	..	..	20	3.00	10	2.00	..	..	..	..	7.00	1.60
30	5.00	5	2.00	5	0.50	15	15.00	5	4.00	..	..	5	10.50	9.00	4.63
5	2.50	5	2.50	..	..	20	8.50	..	..	5	0.50	..	..	4.50	1.48
10	0.25	15	0.25	..	..	..	..	10	0.25	..	..	..	..	6.00	0.23
10	0.25	..	..	15	0.50	20	0.50	15	0.25	..	..	..	..	10.00	0.33
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.50	1.63
10	0.25	..	..	..	..	..	..	5	0.25	35	0.75	5	0.25	14.00	0.35
5	12.50	..	..	..	..	..	..	5	1.50	..	..	..	..	1.00	1.17
5	1.00	35	2.50	..	..	..	..	..	..	15	1.00	10	0.50	9.50	0.65
..	..	..	..	..	..	..	..	5	0.50	..	..	..	..	0.50	0.04
205	4.00	50	1.00	170	2.00	125	2.50	35	0.50	..	..	55	1.00	99.00	1.81
20	1.25	..	..	10	1.85	10	1.00	10	2.00	..	..	5	0.25	10.00	3.21
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.50	0.25
..	..	..	..	..	..	..	..	5	8.50	..	..	..	..	1.00	1.20
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.50	0.04
5	11.00	..	..	..	..	..	..	..	..	..	..	..	..	0.50	0.92
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.50	0.13
5	0.25	..	..	..	..	..	..	..	..	..	..	..	..	0.50	0.02
40	0.40	..	..	15	0.25	40	0.50	60	0.50	10	0.25	..	..	41.00	0.49
15	1.50	15	1.75	10	2.00	10	2.00	..	..	15	2.00	10	1.00	13.00	2.13
..	..	..	..	..	..	..	..	5	0.25	..	..	10	0.50	2.50	0.10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.00	0.10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.50	0.08
..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.50	0.08
164.15		97.75		122.85		145.25		100.00		141.75		74.75		114.26	

great number of species must cause the weights of the individual type animals of the various communities to be less in the mixed zone than in the community in which the particular forms are type animals. This is illustrated by table 11. A comparison of the three localities mentioned there will be justifiable, since all of them occur along the same stretch of coast, at the same depth, etc., and hence must be taken to occur on the whole under the same ecological conditions (the distance from the sea, however, forms an exception since exactly the development of the sandy bottom community at Cape Hope must be put in relation to the nearness of the open sea).

The four type animals mentioned in the table all of them show greater weights within the communities in which they are type animals (as to *Macoma calcaria*, *Pecten groenlandicus*, and *Ophiocten sericeum*, Cape Leslie, as to *Venus fluctuosa*, Cape Hope) than in the transitional zone by Cape Hooker¹). At the outset this would seem quite logical and natural, but it deserves to be mentioned here since the available material furnishes a beautiful example of this phenomenon.

While, then the shallow water zone at Cape Hooker (10—20 m depth) was a typical transitional zone between the *Venus*-community and the *Macoma*-community, the influence of the *Venus*-community at greater depths by Cape Hooker (60—70 m) seems to have entirely vanished (table 12), since here we find the same typical transitional zone between the *Macoma-calcaria*-community and the *Arca-Astarte-crenata*-community as in localities in which the *Venus*-community is entirely absent. While thus all the type animals of the *Venus*-community are absent already at this depth, it is quite obvious that here the bottom is not made up of "pure clay" but of "sandy clay", since the Polychaete *Owenia fusiformis* suddenly appears in great quantities (164 specimens, 60 gr per sq.m), a phenomenon which was never observed either in the *Macoma*-community or in the *Arca-Astarte-crenata*-community in places where these communities occurred on "pure" clay bottom. The said Polychaete in fact turned out to be directly associated with a sandy bottom, its tubes being made up of coarse sand grains cemented together.

It is a peculiar fact that in boreal waters, too, an animal community is found in which a species of the genus *Venus* is the type animal. Thus from the Danish waters the *Venus-gallina*-community (PETERSEN 1913, p. 9, and 1918, p. 11, pl. 3) with *Venus gallina* and *Tellina fabula* as characteristic animals is known. This community agrees well, also ecologic-

¹) An exception is formed by the other type animal of the *Venus*-community, *Thracia truncata* (Cape Leslie 0 gr, Cape Hooker 4.35 gr, Cape Hope 0.50 gr), this form attaining its greatest weight in the transitional zone. In contrast to the above-mentioned forms, this great weight, however, is merely due to two very big specimens, and thus *not* to an even distribution in the samples.

ally, with the Arctic *Venus-fluctuosa*-community, since like the latter it is strictly limited to a sandy bottom. As regards the weights, too, the Arctic *Venus*-community in its quantitatively best development is very nearly on a level with the boreal *Venus*-community. Thus in various localities in the Kattegat the *Venus-gallina*-community exhibits weights ranging from 281 to 720 gr per sq.m (PETERSEN 1913, Appendix, pp. 10—11), while the Arctic *Venus*-community by Cape Hope showed weights of 372 gr.

The *Venus-fluctuosa*-community has not been met with in other Arctic seas. Its intimate association with a sandy bottom, shallow water, sheltered coasts, etc., and at the same time its need of the open sea near by, sufficiently account for its limited distribution. From the Barents Sea (ZENKEWITSCH 1927) as well as from the Kanin Peninsula (ZENKEWITSCH 1930) investigations made on sandy bottom are recorded (THORSON 1933, p. 46); however, in the Barents Sea these sandy areas were inhabited by the *Macoma-calcaria*-community, and by the Kanin Peninsula the fauna associated with the sand displayed a far more boreal character (thus *Cyprina islandica* was one of the leading species there) than is the case in East Greenland.

3. The *Portlandia-arctica*-community.

Table 13. Plate 3.

Depths from 10—15 m to 50—60 m.

This community occurred in its purest, most typical, form four miles outside the mouth of Schuchert River, at depths ranging from 29 to 46 m, on a bottom of light grey mud (table 13). The only actual type animal is *Portlandia arctica* (90 specimens, 21.40 gr. per sq.m; all the other animals of the community together weighed 18.40 gr per sq.m). In addition *Myriotrochus rinki* frequently occurs (9 specimens, 6.40 gr per sq.m), but it is also of common occurrence in the other shallow water communities. Apart from *Myriotrochus*, none of the other accompanying animals play a part of any importance.

The above-mentioned locality, Schuchert River, is the only place whence the "pure" *Portlandia*-community is known. This locality suggests, however, that the community is especially associated with the brackish water off river mouths (Schuchert River is the largest river within the Scoresby Sound district). However, dredge-hauls are available from a number of other localities, which distinctly show the occurrence of the community. Thus a dredge-haul from the Nordbugt, Nordvest Fjord, taken at a depth of 10 to 18 m, on July 24, 1933, on light grey clay, contained the following animals: 108 *Portlandia arctica*, 37 *Mya truncata*, 29 *Saxicava arctica*, 22 *Pecten groenlandicus*, 2 *Cardium ciliatum* juv., 3 *Cardium groenlandicum*, 1 *Axinus flexuosus*, 2 *Lyonsia*

Table 13. The *Portlandia*
Off the delta of Schuchert River. Soft, grey clay. 23-7-1933. 11 sample

	St. 190 30 m		St. 191 29 m		St. 192 30 m		St. 193 29 m	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
<i>Halcampoides purpurea</i> (STUD.).....	..	..	..	..	10	2.00	..	..
* <i>Myriotrochus rinki</i> STEENSTRUP	..	..	..	..	30	20.00	..	..
<i>Ophiocten sericeum</i> (FORBES)	..	..	..	..	..	..	..	..
<i>Lumbriconereis</i> sp.	..	..	..	..	..	..	..	..
Other <i>Polychaeta</i>	..	..	..	..	..	..	..	..
<i>Turbellaria</i>	..	..	..	..	..	..	..	..
<i>Alcyonidium disciforme</i> SMITT	10	0.50	..	..	..	..	10	0.50
<i>Siphonodentalium vitreum</i> (M. SARS).....	..	..	..	..	..	..	..	..
* <i>Portlandia arctica</i> (GRAY) ad.	40	6.50	50	14.00	10	6.00	60	12.00
* <i>Portlandia arctica</i> (GRAY) juv.	20	1.00	..	..	..	..	20	1.00
<i>Arca glacialis</i> GRAY.....	10	0.50	..	..	..	..	..	..
<i>Axinus flexuosus</i> (MTG.)	10	0.50	..	..	..	..	..	..
<i>Pandora glacialis</i> LEACH.....	..	..	..	..	..	..	..	..
<i>Foraminifera</i>	10	—	..	..	..	..	..	..
Total weight of sample per sq.m in gr...	9.00		14.00		28.00		13.50	

arenosa, 1 *Macoma calcaria*, 27 *Ophiocten sericeum*, in addition to several other species in small numbers. Another dredge-haul from the same locality, from the same kind of bottom and made on the same day, yielded: 280 *Portlandia arctica*, 69 *Pecten groenlandicus*, 4 *Cardium ciliatum*, 2 *Saxicava arctica*, 1 *Mya truncata*, 1 *Macoma calcaria*, 125 *Ophiocten sericeum*, etc.

Thus either of these two dredges showed a distinct *Portlandia*-community with a great dominance of *Portlandia arctica* proper. Ecologically the locality agrees closely with Schuchert River. In the Nordbugt, too, a large river debouches, carrying a material which lends to the water a milky appearance and covers the bottom with a layer of loose, light-grey clay.

This community was found in still another locality within the Scoresby Sound area, viz. in Charcot Harbour at Milne Land. The head of this cove was filled up by a large glacier. The river issuing from the latter carried in suspension a material which made the water milky

arctica-community.

with the $\frac{1}{10}$ sq.m bottom-sampler. Typical animals marked with an asterisk.

St. 194 29 m		St. 195 29 m		St. 196 33 m		St. 197 30 m		St. 198 33 m		St. 199 29 m		St. 200 46 m		Average number and weight per sq.m	
Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight in gr
..	..	..	..	..	..	10	1.00	..	..	..	..	..	..	2.0	0.30
..	..	..	..	20	10.00	20	13.00	10	13.00	..	..	10	8.00	8.0	6.00
10	1.00	..	..	..	..	..	..	..	..	10	1.50	..	..	2.0	0.20
..	..	..	..	..	..	..	..	..	..	10	39.00	..	..	1.0	3.50
..	..	..	..	..	..	..	..	10	0.50	..	..	10	0.50	2.0	0.09
..	..	..	..	..	..	..	..	..	..	10	41.00	..	..	1.0	3.70
..	..	..	..	..	..	..	..	10	0.50	..	..	..	..	3.0	0.14
..	..	..	..	..	..	..	..	..	..	..	..	10	2.00	1.0	0.20
60	21.00	60	21.50	70	20.00	20	7.00	150	45.50	70	24.00	80	24.00	61.0	18.30
..	..	30	3.00	10	0.50	..	..	30	2.00	60	3.50	60	1.50	21.0	1.10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05
10	2.00	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.20
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	—
24.00		24.50		30.50		21.00		61.50		109.00		36.00		33.83	

throughout the bay. The bottom material was loose, light-grey mud. A dredge-haul here made at 15—20 m depth rather far from the mouth of the river on August 26, 1933, yielded: 14 *Portlandia arctica*, 5 big *Axinus flexuosus*, 7 *Saxicava arctica*, 2 *Cardium ciliatum*, 2 *Thracia truncata*, 6 *Ophiosten sericeum*, 1 *Nemertin* sp.

These different finds having shown which ecological factors are required by the community in question, it is of interest to examine whether it might be found in the Franz Joseph Fjord area, whence it has not hitherto been recorded. With this object in view a dredge-haul was made opposite the river mouth in the Nordfjord in the Franz Joseph Fjord area on August 7, 1933, at 10—25 m depth, on loose, light-grey clay: 20 *Portlandia arctica*, 3 *Mya truncata*, 1 *Venus fluctuosa*, 1 *Macoma calcaria*, 1 *Cardium ciliatum* juv., 1 *Philine ossian-sarsi*, 2 *Ophiosten sericeum*, 1 *Priapulius bicaudatus*, 3 *Alcyonidium disciforme*.

Here, too, the *Portlandia-arctica*-community is distinctly recognisable, and the same applies to the following bottom samples taken

in the Nordfjord with the $\frac{1}{10}$ sq.m bottom sampler in August, 1932:

1.5—2 miles from Waltershausen Glacier.	Nordfjord off the Danish house.
Depth 120 m. Fine, grey clay.	Depth 8 m. Very fine, grey clay.
<i>Portlandia arctica</i> , 14 spec., 6.65 gr	<i>Portlandia arctica</i> , 19 spec., 7.90 gr
<i>Portlandia lenticula</i> , 4 spec., 0.10 gr	<i>Lyonsia arenosa</i> , 1 spec., 0.85 gr
<i>Axinus flexuosus</i> , 30 spec., 0.95 gr	<i>Venus fluctuosa</i> , 1 spec., 0.52 gr
<i>Amphipodae</i> , 1 spec., 0.09 gr	<i>Mya truncata</i> , 1 spec., 0.18 gr
	<i>Cylichna</i> sp., 2 spec., 0.05 gr
	<i>Harmothoë</i> sp., 1 spec., 0.05 gr
	<i>Polychaeta</i> sp., 2 spec., 0.40 gr
	<i>Nemertini</i> , 1 spec., 0.10 gr
	<i>Amphipodae</i> , 1 spec., 0.04 gr

The association of this community with river mouths, glacier rivers, etc. having thus been established, the frequent occurrence of *Portlandia arctica* in the deeper *Ophiecten*-zone (*Macoma*-community) in the interior of Franz Joseph Fjord and the Isfjord is more readily understood (THORSON, 1933, p. 34). Both the localities investigated in these fjords were situated at the mouths of rivers and at the same time near the heads of the fjords, where large glaciers descended. Thus here, too, the ecological observations are in close agreement with conditions in the other localities in which this community has been observed.

In deeper water, or at greater distances from the river mouths, the *Portlandia-arctica*-community passes evenly into the surrounding communities, and this was also the case in the Nordbugt in Nordvest Fjord. While the two dredge-hauls made in this locality near the mouth of the river showed a typical *Portlandia*-community, as shown above, ten bottom samples taken at a depth of 25—30 m at greater distances from the river bore evidence of a typical transitional zone between the *Portlandia*- and the *Macoma*-communities (table 6).

The *Portlandia-arctica*-community in its "pure" form has never been observed in any other Arctic sea. However, the frequent occurrence of *Portlandia arctica* in the Storfjord, Spitzbergen (BROTZKY 1930, p. 60; cf. THORSON 1933, p. 15) greatly recalls the transitional zone between the *Portlandia*-community and the *Macoma*- or *Arca-Astarte-crenata*-communities as it occurs in the inner East Greenland fjords.

Associated, as it is, with fairly shallow water and very peculiar ecological conditions, the *Portlandia-arctica*-community is the animal community most limited in areal distribution within the East Greenland fjords. Accordingly its quantitative importance within the fjords is very slight.

4. The *Arca-Astarte-crenata*-community.

(Tables 14, 15, 16, 17, 18, and 19).

(Depth from c. 40—50 m to at least 550 m).

As in Franz Joseph Fjord, this community is of frequent occurrence at great depths throughout the Scoresby Sound fjord complex. It makes its appearance already at depths of some 30—40 m (tables 14, 15, and 16), and seems to attain its maximum between 75 m and 200 m depth (tables 17 C and 18 B¹⁾). The type animals are *Arca glacialis* and *Astarte crenata*, but the community is so poor that even the type animals are so sparsely represented as not to occur in every sample. In some places, e. g. in the area of Hall Fjord (table 18B), *Arca glacialis* seems to be entirely absent, while *Astarte crenata* is of common occurrence. In the Nordbugt, Nordvest Fjord, quite the contrary is the case (table 19), *Astarte crenata* being here entirely absent, while *Arca glacialis* is fairly common. Often, therefore, the occurrence of one or more of the typical accompanying animals of this community must aid in determining whether the individual sample is from the *Arca-Astarte-crenata*- or from the *Foraminifera*-community (see p. 52). Such accompanying animals typical of the *Arca-Astarte-crenata*-community are for instance the Polychaete *Onuphis conchylega* and the brittle-star *Ophiopleura borealis*. Further, big *Foraminifera* are very sparse in this "pure" *Arca-Astarte-crenata*-community, often they are entirely absent. In the inner part of the Scoresby Sound fjord complex the Holothuroid *Trochoderma elegans* seems to occur in large numbers (table 19) throughout the community, but on account of its small size its weight is of no great importance.

In the outer district of the Scoresby Sound fjord the community in question, besides in its "pure" form, frequently occurs mixed with the *Foraminifera*-community. The mixing of the two communities is so intense in many localities that it is perfectly impossible to keep them distinct, and the areas where the communities occur mixed together, are of far wider distribution in the outer district than the areas inhabited by the "pure" *Arca-Astarte-crenata*- or the "pure" *Foraminifera*-communities (table 17 A). Within these mixed areas it is quite impossible to tell which of the two communities' type animals are the dominants.

In the Hall Fjord area conditions are different. Here, too, it is true, both the two above-mentioned communities occur, but distinctly apart; mixed zones do not occur. It seems as if the *Arca-Astarte-crenata*-community here keeps to the deep areas south of the 400 m threshold between Cape Leslie and Jameson Land (see the bathymetrical chart (pl. 6) and the map of the stations (pl. 4)), while the large basin north-

¹⁾ Tables 17 and 18 are found after the text.

Table 14. The *Arca-Astarte-crenata*-community.

East side of Hurry Inlet. Off Konstabel Pynt. Date 7-7-1933. Clay. Depth 31—46 m. Average number and weight per sq.m based upon 10 samples taken with the $\frac{1}{8}$ and $\frac{1}{10}$ sq.m Petersen-bottom-sampler. Typical animals marked with an asterisk.

	Number	Weight in gr
* <i>Halcampoides purpurea</i> (STUD.) ad.	2.0	3.35
* <i>Halcampoides purpurea</i> (STUD.) juv.	1.5	0.10
Other <i>Actiniae</i>	1.5	0.60
<i>Myriotrochus rinki</i> STEENSTRUP	2.5	2.00
<i>Eupyrgus scaber</i> LÜTKEN	2.0	0.15
<i>Trochoderma elegans</i> THÉEL	6.5	0.10
* <i>Ophiocten sericeum</i> (FORBES)	10.5	1.08
<i>Terebellides</i> sp.	4.0	0.28
<i>Nereis</i> sp.	1.5	1.08
* <i>Nephtys ciliata</i> (MÜLL.)	10.0	12.90
<i>Eumenia</i> sp.	2.0	0.20
Other <i>Polychaeta</i>	190.0	42.00
<i>Gephyrea</i> sp.	2.0	0.05
<i>Nemertini</i>	4.5	0.66
<i>Bela trevelyana</i> TURT.	2.0	0.10
<i>Rissoa jan-mayeni</i> FRIELE	1.0	0.05
<i>Siphonodentalium vitreum</i> (M. Sars)	0.5	0.03
<i>Chaetoderma</i> sp.	1.0	0.10
* <i>Nucula tenuis</i> (MTG.)	28.5	2.10
<i>Leda pernula</i> MÜLL.	2.5	2.08
<i>Portlandia arctica</i> (GRAY)	1.5	0.75
<i>Portlandia lenticula</i> (MØLLER)	5.5	0.13
<i>Portlandia frigida</i> (TORELL)	3.5	0.10
<i>Portlandia intermedia</i> (M. Sars)	2.0	0.08
* <i>Arca glacialis</i> GRAY	6.0	9.45
<i>Arca pectunculoides</i> SCACCHI	1.0	0.10
<i>Dacrydium vitreum</i> (HOLB.)	0.5	0.03
<i>Modiolaria laevigata</i> (GRAY)	3.0	1.30
<i>Pecten groenlandicus</i> CHEMN.	1.5	0.08
* <i>Astarte banksi</i> LEACH	21.5	28.95
* <i>Axinus flexuosus</i> (MTG.)	23.5	0.65
<i>Macoma calcaria</i> (CHEMN.)	1.0	4.20
<i>Saxicava arctica</i> L.	1.0	1.40
<i>Philomedes globosus</i> LILJEB.	5.0	—
<i>Diastylis</i> sp.	7.5	0.46
<i>Amphipodae</i>	4.5	0.43
<i>Arcturus</i> sp.	0.5	0.05
<i>Tanaidæ</i>	2.0	0.30
Total weight per sq.m...	..	117.47

Table 15. Transitional zone between the *Macoma*-community and the *Arca-Astarte-crenata*-community.

The west coast of Jameson Land off the Bjørneøer. Date 26-7-1933. Hard clay. Depth 29—31 m. Average number and weight per sq.m based upon 10 samples taken with the $\frac{1}{10}$ sq.m Petersen-bottom-sampler. Typical animals marked with an asterisk.

	Number	Weight in gr
<i>Halcampoides purpurea</i> (STUD.)	1.0	0.10
Other <i>Actinia</i>	2.0	1.55
<i>Myriotrochus rinki</i> STEENSTRUP	3.0	0.45
<i>Eupyrgus scaber</i> LÜTKEN	1.0	0.10
* <i>Trochoderma elegans</i> THÉEL	10.0	0.25
* <i>Ophiocten sericeum</i> (FORBES)	27.0	1.25
Other <i>Ophiuroidea</i>	3.0	0.05
<i>Nephthys ciliata</i> (MÜLL.)	1.0	5.50
<i>Harmothoe</i> sp.	1.0	0.10
<i>Maldanidae</i>	1.0	0.50
Other <i>Polychaeta</i>	105.0	8.60
<i>Nemertini</i>	7.0	1.95
<i>Bryozoa</i>	+	+
<i>Natica groenlandica</i> (BECK)	1.0	0.30
<i>Bela trevelyana</i> TURT.	1.0	0.10
<i>Rissoa jan-mayeni</i> FRIELE	2.0	0.10
* <i>Leda pernula</i> MÜLL.	4.0	1.10
* <i>Portlandia arctica</i> (GRAY)	7.0	3.35
<i>Portlandia lenticula</i> (MØLLER)	2.0	0.15
* <i>Arca glacialis</i> GRAY	3.0	1.20
<i>Dacrydium vitreum</i> (HOLB.)	1.0	0.05
<i>Modiolaria laevigata</i> GRAY	1.0	0.05
<i>Pecten groenlandicus</i> CHEMN.	1.0	0.05
<i>Astarte borealis</i> CHEMN.	1.0	0.60
<i>Axinus flexuosus</i> (MTG.)	6.0	0.25
<i>Macoma calcaria</i> (CHEMN.)	1.0	0.05
<i>Saxicava arctica</i> L.	1.0	2.10
<i>Thracia truncata</i> TURT.	1.0	0.20
* <i>Necera obesa</i> LOVÉN	5.0	0.20
<i>Philomedes globosus</i> LILJEB.	4.0	..
<i>Diastylis</i> sp.	12.0	1.30
<i>Amphipodae</i>	8.0	0.35
<i>Gammaracanthus</i> sp.	1.0	0.10
<i>Isopodae</i>	4.0	0.25
<i>Hydroidae</i>	25.0	2.85
* <i>Ascidiae</i>	203.0	25.75
Total weight per sq.m. ...	..	60.85

Table 16. Transition from the *Macoma*-community to the *Arca*-community.

Off Cape Leslie. Date 22-7-1933. Glittering clay. 92—54 m depth. Average number and weight per sq.m based upon 10 samples taken with the $\frac{1}{10}$ sq.m. Petersen-bottom-sampler.

	Number	Weight in gr
<i>Myriotrochus rinki</i> STEENSTRUP.....	1	0.50
<i>Ophiocten sericeum</i> (FORBES).....	2	0.35
<i>Lumbriconereis</i> sp.....	1	1.90
Other <i>Polychaeta</i>	45	2.10
<i>Gephyrea</i>	4	0.15
<i>Alcyonidium disciforme</i> SMITT	1	0.10
<i>Portlandia intermedia</i> M. SARS	1	0.05
<i>Portlandia lenticula</i> MØLL.....	14	0.55
<i>Portlandia frigida</i> TORELL.....	1	0.02
<i>Portlandia arctica</i> (GRAY)	6	0.35
<i>Arca glacialis</i> GRAY	1	0.10
<i>Dacrydium vitreum</i> (HOLB.).....	4	0.10
<i>Axinus flexuosus</i> MTG	23	0.30
<i>Macoma calcaria</i> CHEMN.....	6	0.50
<i>Cardium ciliatum</i> FABRICIUS.....	1	0.10
<i>Mya truncata</i> L.	10	1.45
<i>Saxicava arctica</i> L.	21	23.80
<i>Næra obesa</i> LOVÉN	1	0.02
<i>Cylichna</i> sp.	6	0.25
<i>Siphonodentalium vitreum</i> (M. SARS)	1	0.10
<i>Amphipodae</i>	8	0.50
<i>Themisto</i> sp.....	1	0.30
<i>Philomedes globosus</i> LILJEB.	3	0.05
<i>Molgulidae</i>	64	9.60
Total weight per sq.m....	..	43.24

west of the threshold is almost exclusively inhabited by the *Foraminifera*-community. Thus south of the threshold the *Arca-Astarte-crenata*-community dominates entirely, and here, between Cape Stevenson and Cape Leslie, extends outward to the greatest depths of the area, viz. 550 m. However, at such great depths the community is exceedingly poor. Altogether it would seem that the *Arca-Astarte-crenata*-community follows the deep channel running along the south coast of Scoresby

Table 19. The *Arca-Astarte-crenata*-community.

The Nordbugt, Nordvest Fjord. 24-7-1933. Samples taken with the $\frac{1}{10}$ and $\frac{1}{5}$ sq.m bottom-sampler. Typical animals marked with an asterisk.

	Sts. 223—229. 56—67 m. Average number and weight per sq.m based upon 7 samples with the $\frac{1}{10}$ sq.m grab 24-7-1933		Sts. 218—221 and 232. 107—112 m Average number and weight per sq.m based upon 5 samples with the $\frac{1}{10}$ sq.m grab 24-7-1933		Sts. 222, 230, 231, 233, 234. 153—163 m. Average number and weight per sq.m based upon 5 samples with the $\frac{1}{10}$ sq.m grab 24-7-1933		Sts. 235—238. 325—339 m. Average number and weight per sq.m based upon 4 samples with the $\frac{1}{5}$ and $\frac{1}{10}$ sq.m grab 24-7-1933	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
<i>Foraminifera</i>	..	..	..	..	..	..	1.5	0.08
* <i>Trochoderma elegans</i> THÉEL	17.0	0.36	4.0	0.10	8.0	0.30	26.5	0.25
<i>Myriotrochus rinki</i> STEENSTRUP ..	1.5	0.07	..	..	..	..	..	..
<i>Ophiocten sericeum</i> (FORBES)	..	..	2.0	0.20	..	..	..	..
<i>Ophiopleura borealis</i> DAN. & KOR.	1.5	10.93	..	..	2.0	0.40	..	..
<i>Nephtys ciliata</i> (MÜLL.)	..	..	2.0	2.60	..	..	3.5	0.42
<i>Onuphis conchylega</i> (SARS)	1.5	0.57	..	..	4.0	1.60	..	..
<i>Polynoidae</i>	1.5	0.14	..	..	..	..	..	..
<i>Asychis biceps</i> (M. SARS)	..	..	..	..	..	..	18.5	0.92
Other <i>Maldanidae</i>	1.5	0.07	14.0	0.90	20.0	0.40	..	..
<i>Lumbriconereis</i> sp.	1.5	1.94	..	..	..	..	..	..
Other <i>Polychaeta</i>	34.0	0.79	44.0	2.40	42.0	1.90	76.5	1.17
<i>Gephyrea</i>	..	..	..	..	6.0	0.30	..	..
<i>Balanoglossus</i> sp.	10.0	1.14	2.0	0.20	..	..	1.5	0.08
<i>Alcyonidium</i> sp.	..	..	..	..	8.0	—	..	..
Other <i>Bryozoa</i>	+	+	+	+	..	..	..	..
<i>Bela trevelyana</i> (TURT.)	..	..	2.0	0.10	..	..	..	..
<i>Philine</i> sp.	1.5	0.14	..	..	..	..	..	..
<i>Cylichna</i> sp.	1.5	0.07	..	..	..	..	1.5	0.08
<i>Siphonodentalium vitreum</i> (M. SARS)	5.5	0.79	..	..	8.0	0.90	1.5	0.08
<i>Chaetoderma</i> sp.	..	..	..	..	2.0	0.10	..	..
<i>Portlandia arctica</i> (GRAY)	..	..	..	..	2.0	0.20	8.5	0.83
<i>Portlandia intermedia</i> M. SARS ...	8.5	0.21	..	..	..	..	..	..
<i>Portlandia lenticula</i> MØLL.	15.5	0.43	..	..	6.0	0.30	..	..
<i>Portlandia frigida</i> TORELL.	1.5	0.07	2.0	0.10	..	..	..	..
* <i>Arca glacialis</i> GRAY	27.0	38.43	2.0	1.80	4.0	0.80	3.5	0.58
<i>Arca pectunculoides</i> SCACCHI	1.5	0.07	..	..	..	..	11.5	0.33
* <i>Axinus flexuosus</i> (MTG.)	50.0	1.14	44.0	1.30	36.0	0.70	38.0	0.50
<i>Macoma moësta</i> (DESH.)	1.5	0.14	..	..	..	..	..	..
<i>Neæra obesa</i> LOVÉN.	..	..	..	..	..	..	3.0	1.00
<i>Amphipodae</i>	3.0	0.21	..	..	..	..	1.5	0.20
<i>Tanaidae</i>	..	..	..	..	4.0	0.20	1.5	0.20
<i>Molgulidae</i>	27.0	1.94	10.0	0.80	18.0	12.80	23.0	4.33
Other <i>Ascidia</i>	1.5	0.29	..	..	..	..	..	..
<i>Lycodes</i> sp.	..	..	2.0	—	..	..	..	..
Average weight per sq.m in gr...	59.84		10.50		20.90		11.05	

Sound, until cut off by the 400 m threshold extending between Cape Leslie and Jameson Land.

This, however, is not to be understood to mean that the *Arca-Astarte-crenata*-community has its inner limit here, in the fjord area. In the innermost parts of Scoresby Sound, beyond the Hall Fjord district, e. g. in the Nordbugt (Nordvest Fjord) the *Arca-Astarte-crenata*-community prevails at all depths from 60 to at least 340 m (table 19¹). The *Foraminifera*-community is entirely absent here.

As already mentioned, the weights of the *Arca-Astarte-crenata*-community are very small. The greatest weights were found at the smallest depths (below 200 m). Thus the samples from c. 40 m depth, Hurry Inlet, east side, off Konstabel Pynt, showed an average weight of 117 gr per sq.m (table 14).

At greater depths in the outer district the weights range between 3.5 and 36.0 gr per sq.m, but approximating most nearly to the latter figure (table 17 C). At greater depths in the Hall Fjord area the weights of the available material range from 1.5 to 100 gr per sq.m, but seem mostly to group themselves round 20—25 gr per sq.m (table 18 B). Finally the Nordbugt, Nordvest Fjord, shows the following weights for four series of samples from different depths, viz. per sq.m: c. 60 gr, c. 20 gr, c. 11 gr, and c. 10 gr, as will be seen, very small weights, too (table 19).

The wide distribution of this community at great depths within the Scoresby Sound fjord district, and its small weights, agree perfectly with the observations formerly made in the Franz Joseph Fjord area (SPÄRCK 1933, p. 33), and admits of the inference that the fish food, and consequently the stock of fish in the fjords, at any rate in deeper water, is extremely sparse.

5. The *Foraminifera*-community.

Tables 17 and 18.

Depth from 50 to at least 550 m.

This community, which is already known from the Franz Joseph Fjord (SPÄRCK 1933, p. 29), is of frequent occurrence in the outer and middle portions of the Scoresby Sound fjord district. The type animals are different species of *Foraminifera*, i. a. belonging to the species *Rhabdamina cornuta* and *Miliolina bucculenta* but other genera also occur. In addition to the *Foraminifera*, the *Polychaeta* are especially dominant in this community, for instance the Polychaete *Asychis biceps* plays no inconsiderable part, more especially in the outer part of the fjord complex nearest to the open sea. In its "pure" form this community is rather

¹ In the Nordbugt, Nordvest Fjord, no samples were taken at greater depths than 340 m, but in view of the experience gained in Hall Fjord and Franz Joseph Fjord, this community may be expected to occur, though in a very depauperated modification, outward to the greatest depths.

rare in the outer district of Scoresby Sound. As already mentioned under the *Arca-Astarte-crenata*-community, a mixed community between the *Arca-Astarte-crenata*-community and the *Foraminifera*-community occurs in the outer district, but occasionally the *Foraminifera*-community may here be quite unmixed, and in such localities the *Foraminifera* may be present in astonishingly large weights (e. g. off Cape Hooker, at 220 m, station 81, table 17 B, where the *Foraminifera* alone weighed 83 gr per sq.m). Table 17 B refers to localities with such "pure" *Foraminifera*-communities in the outer part of the Scoresby Sound district. As already mentioned, the mixed zone between the *Arca-Astarte-crenata*-community and the *Foraminifera*-community plays a far more important role in respect of area in this part of the fjord complex than either of the "pure" communities of which it is composed (table 17A).

Within the Hall Fjord district conditions are different. Here the mixed zone is entirely absent, and in the deep water northwest of the 400 m threshold between Cape Leslie and Jameson Land the *Foraminifera*-community is exclusively prevalent (see map of the stations, pl. 4). Here, too, the weights of the *Foraminifera* are fairly considerable in several localities (e. g. off Cape Leslie, at 233—284 m, c. 50 gr. per sq.m; off the Bjørne Islands, at 270—337 m, c. 30 gr per sq.m; table 18 A). However, generally the weight of the *Foraminifera* ranges from 10 to 15 gr per sq.m. Thus the *Foraminifera*-community seems to attain its greatest development and distribution in the Hall Fjord district, that is, in the middle section of the Scoresby Sound fjord complex.

In the innermost parts of the fjords (Nordbugt, Nordvest Fjord, table 19) the community is entirely replaced by the *Arca-Astarte-crenata*-community, which agrees perfectly with the conditions in the Franz Joseph Fjord area (SPÄRCK 1933). The rich development of the *Foraminifera*-community in the middle district of Scoresby Sound (Hall Fjord) and the more scattered occurrence of the latter community mixed with the *Arca-Astarte-crenata*-community in the outer district of Scoresby Sound, near the open sea, does not seem to suggest that in Scoresby Sound the *Foraminifera*-community is "associated with the open sea" to such a great extent as the results of the investigations from Franz Joseph Fjord would appear to indicate (SPÄRCK 1933).

In spite of the relatively great weights which the *Foraminifera* present in this community, the total weight per sq.m is very slight, all other animal groups being very sparsely represented in the community. The outer district of Scoresby Sound forms an exception, since here we find the *Foraminifera*-community with various Echinoderms (e. g. *Ctenodiscus crispatus*) and Polychaetes (e. g. *Asychis biceps*) as accompanying animals, by which the weight is considerably increased. From four different localities in the outer district weights of 138,

91, 88, and 32 gr per sq.m respectively are known for this community. In the Hall Fjord area the weights average about 30—40 gr per sq.m, which means that the *Foraminifera*-community presents a higher average weight than the *Arca-Astarte-crenata*-community. However, the *Foraminifera*-community cannot either be said to be of any importance as fish food, so that this phenomenon may be extended to apply to all depths exceeding 100 or 200 m in the Franz Joseph Fjord as well as in the Scoresby Sound fjord areas.

B. The Epifaunistic Zones.

Within the Scoresby Sound fjord area we find the same epifaunistic zones as in the Franz Joseph Fjord area (THORSON 1933, p. 53), and they do not deviate essentially in their composition from those of the northern fjord area. In addition there occurred in the Scoresby Sound district, near the open sea, an epifauna which has not formerly been known from East Greenland. Only a brief summary of the various epifaunas will be given here¹).

1. The *Desmarestia*-epifauna. In the outer parts of the fjord complex, with the exception of the head of Hurry Inlet, this community is only of slight importance, and only in the inner fjords does it begin to play a prominent part. Thus the epifauna was observed at Danmark Island and at Røde Island in Røde Fjord, but in none of the localities investigated did it attain a distribution and luxuriance comparable to that of the Franz Joseph Fjord area (e. g. the Solitærbugt, Cape Hedlund, and Dusén Fjord). The proportion of the type animals was also in all essentials the same as in the Franz Joseph Fjord area. Thus *Margarita groenlandica* and *Modiolaria laevigata* dominated in all the dredge-hauls taken in this vegetation. Since this epifauna is only developed in calm, shallow-watered clay-bottom localities in the inner fjords, and nearly all the inner fjords of the Scoresby Sound complex are bounded by quite perpendicular mountain walls without any foreshore, it is evident that the areal distribution of this zone within the Scoresby Sound fjord complex is very limited, and that the *Desmarestia* vegetation does not by far play the same role as a producer of detritus as it does within the Franz Joseph Fjord district.

2. The *Fucus*-epifauna, in contrast to the preceding epifauna, is just as frequent in the outer as in the inner parts of the fjord area, where from a depth of 1 or 2 m to about 30 m it borders all the rocky shores throughout the fjord complex. The type animals are, in addition to the forms known from the *Desmarestia*-epifauna, *Stephanasterias albula*, *Ophiura robusta*, and *Strongylocentrotus droebakiensis*, varying

¹) A deep-water-epifauna, corresponding entirely to that of the Franz Joseph Fjord, even was found within the Scoresby Sound fjord area, and will not be entered more closely here.

somewhat in composition and number according to the situation of the locality, exactly as in the Franz Joseph Fjord area (THORSON 1933, p. 56). In places where the *Fucus* vegetation occurred off river mouths or in other places with especially brackish surface water, Echinoderms as well as molluscs were generally absent from depths less than 3—4 m, and the *Fucus* vegetation was here only populated by large numbers of *Amphipoda* (*Gammaracanthus* sp.). This for instance was the case in the Nordbugt, Nordvest Fjord. As appears from the topography of the Scoresby Sound fjord complex, the *Fucus*-epifauna has a fairly wide areal distribution, associated, as it is, with rocks and stones, and very probably it is here of essential importance as a producer of detritus.

3. The Red-Algae-epifauna in Scoresby Sound corresponds entirely to that of the Franz Joseph Fjord area (THORSON 1933, p. 58). The type animals associated with the zone also are the same within both fjord systems (*Antedon*, *Tectura rubella*, *Lepeta coeca*, *Bryozoa*, etc.). It should, however, be pointed out that *Pecten islandicus*, which in the Franz Joseph Fjord area was found to be associated with this zone, was not found in the Scoresby Sound fjord complex. It may, however, have been overlooked. The red algae epifauna is distributed throughout the fjord, without covering any large continuous areas. Near the open sea (Cape Tobin, Cape Hope) it attains a more vigorous development than farther towards the interior of the fjords. The red algae vegetation often occurs mixed with the *Fucus* vegetation, which in many places is again mixed with *Laminaria*. The importance of the red algae vegetation as a producer of detritus must be very slight within the Scoresby Sound fjord complex.

4. The *Saxicava*-epifauna of the level sea floor (THORSON 1933, p. 61) seems to be less widely distributed in the Scoresby Sound fjord area than in the Franz Joseph Fjord district. *Saxicava*, it is true, was rather frequently met with, but never in such quantities as are known for instance from Ella Island, Musk-ox Fjord, etc., and altogether it seems to be of little importance in Scoresby Sound.

5. The *Ophiacantha*-epifauna. In Amdrup Harbour between the colony of Scoresby Sound and Cape Tobin, that is, in a sheltered bay quite close to the open sea, an epifauna was encountered which has not hitherto been recorded from the East Greenland fjords. This epifauna was attached to *Fucus*, *Laminaria*, and, partly, to red algae, and its type animal was the brittle-star *Ophiacantha bidentata*, which here occurred in very considerable number, while otherwise it is of rather scattered and sparse occurrence throughout the fjord area. Since, then, we are here confronted with a special epifauna, the results of some dredge-hauls from this locality will be briefly recorded. They were all taken in Amdrup Harbour on July 27 and 28, 1933:

- 3—4 m. *Fucus*: 12 *Ophiacantha bidentata*, 1 *Stephanasterias albula*, 9 *Margarita groenlandica*, 5 *Margarita helicina*, 1 *Buccinum sericatum*, 48 *Modiolaria laevigata*, 7 *Polynoidae*.
- 6—10 m. *Fucus*, *Laminaria*: 150 *Ophiacantha bidentata*, 4 *Solaster papposus* juv., 60 *Margarita groenlandica*, 4 *Margarita helicina*, 2 *Bela pyramidalis*, 1 *Buccinum sericatum*, 225 *Modiolaria laevigata*. Further a large number of clay bottom lamel-libranchs.
- 22—26 m. *Laminaria*, red algae: 6 *Ophiacantha bidentata*, 2 *Stephanasterias albula*, 2 *Strongylocentrotus* dr., 41 *Margarita groenlandica*, 32 *Margarita helicina*, 1 *Buccinum groenlandicum*, 1 *Buccinum hydrophanum*, 3 *Modiolaria laevigata*, 4 *Spongia*, and a number of clay bottom animals.
- 33—33 m. *Laminaria*, red algae: 2 *Ophiacantha bidentata*, 21 *Ophiocten sericeum*, *Balanus* sp., *Spongia*, *Bryozoa*, *Ascidia*, and a large number of clay bottom animals, among which especially 3 specimens of *Yoldia hyperborea* are remarkable.

Ophiacantha bidentata occurs in all the dredge-hauls, in one haul even in a number of 150; it must thus be typical of the place. One dredge-haul further contained three living specimens of *Yoldia hyperborea*¹⁾, a species which has not formerly been recorded from East Greenland, much less so from the East Greenland fjords, although the latter are now so thoroughly investigated that the species could hardly have been overlooked.

The sudden appearance of *Ophiacantha bidentata* as a type animal as well as the occurrence of *Yoldia hyperborea*, both of which are known from only one locality in East Greenland, viz. Amstrup Harbour, would seem to suggest that we are here concerned with animal forms which in East Greenland are especially associated with calm bays at the outer coast or at any rate near the open sea. Since, on account of the difficult working conditions, dredge hauls or bottom samples were never taken in shallow water at the outer coast proper, our estimate can only be based on this single locality.

A review of the available literature concerning Arctic animal communities from the Spitzbergen area, the Kanin Peninsula, and the Barents Sea (IDELSON, 1930, BROTZKY, 1930, ZENKEWITSCH, 1927) shows that the zone has not been met with in any of these places. A comparison with conditions in the White Sea, however, leads to quite different results. (ZENKEWITSCH, 1927). While as regards clay bottom communities and epifaunas the White Sea shows no resemblance what-

¹⁾ *Yoldia hyperborea* so is attached to the clay bottom, and *Ophiocten sericeum* to the vegetation, but both of them living on the same locality.

ever to conditions in the East Greenland fjords, we find here an animal community which is evidently identical with the animal community of Amdrup Harbour. In the reports on the investigations of the White Sea, *Ophiacantha bidentata* and *Yoldia hyperborea* are stated to be the type animals of the area, precisely as in Amdrup Harbour. However, in contrast to the Spitzbergen seas and the East Greenland fjords, the White Sea is of a distinctly boreal type. Thus for instance its summer temperatures are much higher than those of the other waters mentioned. This agrees fairly well with the fact that within East Greenland the zone is known from Amdrup Harbour only, which is situated near the open sea. There is some reason to suppose that the ecological conditions along the outer coast of East Greenland will differ from those of the inner fjords, where the climate is highly continental (the fjords are ice-covered nine months of the year), and thus as regards, for instance, the temperature of the water, food conditions, etc., approximate to conditions in the White Sea. However, this cannot be proved at present, hydrographical observations for a whole year not being available from the coast of East Greenland, but the fact that a fauna is encountered in Amdrup Harbour which is almost identical with that of the White Sea, renders it probable that calm, sheltered localities along the outer coast of Northeast Greenland are inhabited by a fauna of a more boreal type than the fauna of the interior part of the fjords.

C. The Relation between the Distribution of Bottom-Animals and the Ecological Conditions.

An account having thus been given of the animal communities of the Scoresby Sound fjord area, it will be reasonable to employ the fairly considerable quantitative material now available from the area for an investigation of the distribution of the weights and their relation to the ecological conditions within the district. As will be already evident from the discussion of the animal communities, the communities typical of shallow water, viz. the *Macoma*- and the *Venus*-communities, will, as a rule, always present much higher weights per sq.m than the communities of greater depths. Hence there is every reason to suppose that the shallow water along the coasts may contain larger quantities of food for the bottom animals than the water masses at the greater depths. This seems all the more probable since the Benthos-vegetation and the Phytoplankton, that is, the producers of organic matter, occur almost exclusively at these small depths, and because the shallow water near the coast exhibits positive summer temperatures and a more favourable condition of photosynthesis, and accordingly offers better growth conditions for the Phytoplankton than the cold water at greater depths, which again

means that considerably greater quantities of food are available for the bottom animals in the shallow water than at greater depths. It seems, however, as if the bottom animals of shallow water may themselves utilise by far the greater part of the nutriment produced on the spot. This is indicated by the considerable fall in weight that is noticeable at the transition from the coastal zone to deeper water. Thus throughout the area the weights at about 100 m depth are reduced to about 50 per cent., or even less, of the weights found at depths of some 10—20 m within the same part of the district (see, however, Hurry Inlet, p. 60) (fig. 1).

Another factor that must be assumed to play a certain part, too, in the distribution of the weights of the bottom animals within the fjord area, is the situation of the locality in relation to the open sea. As regards the shallow water, it is distinctly observable that the fauna is far more luxuriant and weightier near the open sea than in the interior of the fjords. This will appear from a number of curves based on a considerable numerical material. The curves in fig. 1 indicate the average weight per sq.m at various depths in five sections through the Scoresby Sound fjord district. The five sections were all measured in June or July, 1933, and the weights found are as follows:

Section 1, off Cape Hope (very near the open sea)¹).

15 m ($^{10}/_5$) 372.64 gr per sq.m
 140 m ($^{15}/_5$) 112.60 gr per sq.m
 340—380 m ($^4/_5$) 40.90 gr per sq.m
 530 m ($^2/_5$) 15.80 gr per sq.m

Section 2, off Cape Hooker (about 60 km from the open sea).

15 m ($^{10}/_{10}$) 272.25 gr per sq.m
 65 m ($^{12}/_5$) 114.26 gr per sq.m
 140 m ($^6/_5$) 30.00 gr per sq.m

Section 3, in the mouth of Hurry Inlet (the outer part of the section, outwards from 140 m, coincides with the section off C. Hope).

15 m ($^{10}/_5$) 71.04 gr per sq.m
 14—28 m ($^6/_{10}$) 72.02 gr per sq.m
 55 m ($^{11}/_{10}$) 48.50 gr per sq.m

Section 4, Jameson Land off the Bjørne Islands (c. 150 km from the open sea).

30 m ($^{10}/_{10}$) 60.85 gr per sq.m
 68—148 m ($^6/_{10}$) 10.70 gr per sq.m

¹) The designation ($^{10}/_5$) means that the weight per sq.m in this locality is based upon 10 samples taken with the $^{1}/_5$ sq.m bottom sampler. In the same way ($^6/_{10}$) means 6 samples taken with the $^{1}/_{10}$ sq.m bottom sampler, etc.

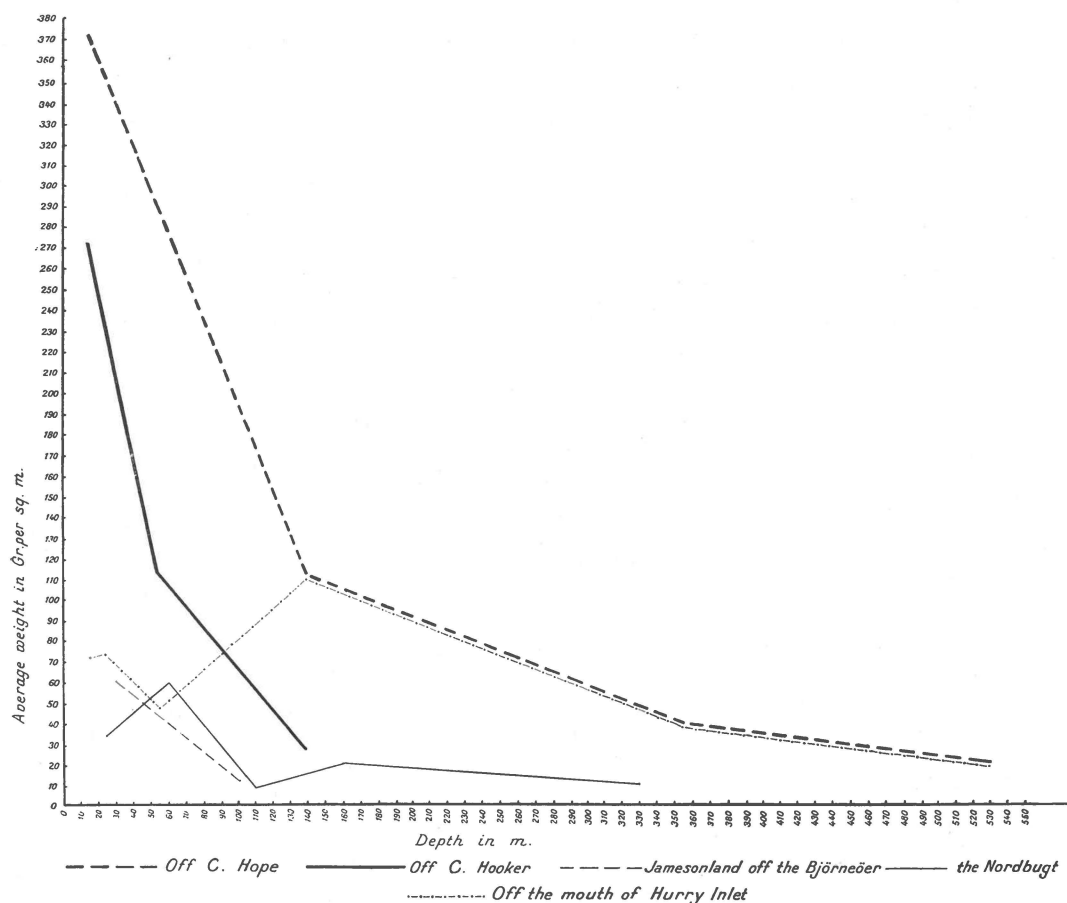


Fig. 1. Curves showing the average weight per sq.m. of bottom samples taken at different depths in various sections through the Scoresby Sound fjord area.

Section 5, in the Nordbugt, Nordvest Fjord (c. 250 km from the open sea).

30 m ($10/10$) 34.65 gr per sq.m

50—60 m ($7/10$) 60.00 gr per sq.m

100—110 m ($5/10$) 10.50 gr per sq.m

350—360 m ($2/10$ — $2/5$) 12.00 gr per sq.m

If to begin with the section from Hurry Inlet is disregarded, the following main features will be noticed: The section off Cape Hope, near the open sea, exhibits by far the greater weights at all depths. The section off Cape Hooker (about 60 km farther towards the interior of the fjord) even shows fairly great weights at all depths. In absolute contrast to these sections are the sections from Jameson Land off the Bjørne Islands and the Nordbugt, Nordvest Fjord (150 and 250 km respectively from the open sea). The weights are here so inconsiderable that at no

depths do they reach the figures for the two first sections, and as the available curves are based on a rather comprehensive numerical material, there is every indication that the distance from the open sea is a factor of essential importance for the amount of nutriment and consequently for the number of bottom animals of the fjord complex. This also agrees well with the analyses made by A. KROGH of organic matter found in the bottom material of Franz Joseph Fjord (SPÄRCK 1933, pp. 17—18), in which he shows that the bottom material of the outer coast contains larger quantities of organic matter than the bottom material from the inner parts of the fjords.

If we look upon the curve for Hurry Inlet, it will be seen to agree very poorly with the four other sections. Since Cape Hope and Hurry Inlet are situated very close together, only one section was measured in deep water in this part of Scoresby Sound (southward from the mouth of Hurry Inlet), a section in which the shallow water series from the mouth of Hurry Inlet as well as the shallow water series off Cape Hope should continue. Considering that the shallow water samples from Cape Hope (372 gr per sq.m) link up beautifully with the 113 gr per sq.m at 140 m depth, the three shallow water series from the mouth of Hurry Inlet (depths 15 m, c. 20 m, and 55 m) with their low weights (71, 72 and 48 gr per sq.m respectively) seem very peculiar. And they are all the more remarkable since the samples from 140 m depth, although situated within the same section, exhibit really considerable weights (113 gr).

In reality, however, this is easily explained. Although Hurry Inlet is so close to Cape Hope, that is, near the open sea, the influence of the sea seems to be minimal. Hurry Inlet, whose greatest depth is 140 m (at the mouth 90 m), receives afflux from several large rivers, and the gales so frequent in this fjord nearly always blow from the north, out through the Klitdal. These factors together cause a strong current to run out of the fjord, and during the stay of s.s. "Godthaab" in Hurry Inlet in the summer of 1933 I believed to note that the tide was inconsiderable. Thus in Hurry Inlet the water masses coming from the open sea seem to be of quite subordinate importance compared with the water streaming out of the inlet itself. As this outward-going stream is mainly due to an afflux of fresh water, it will probably be especially strong in the uppermost water layers, that is, its influence on the animals will be greatest at the lowest depths (in this case the stations at 15 and 20 m depth). For the locality at 55 m depth (table 20), the water streaming out of the inlet seems to be of less importance. At any rate, other factors, too, have been added, this locality exhibiting a pure *Macoma*-community (*Macoma calcaria*, *Pecten groenlandicus*, *Leda pernula*, *Ophiocten sericeum*), which, however, is exceptionally poor in

Table 20. Very poor *Macoma*-community.

Off the mouth of Hurry Inlet. Sandy clay. 30-6-1933. 55—57 m depth. Average number and weight per sq.m based upon 11 samples taken with the $\frac{1}{10}$ sq.m Petersen-bottom-sampler.

	Number	Weight in gr
<i>Myriotrochus rinki</i> STEENSTRUP.....	4	7.36
<i>Ophiocten sericeum</i> (FORBES).....	13	2.04
<i>Nephtys ciliata</i> (MÜLL.).....	3	1.36
<i>Harmothoe</i> sp.....	1	0.09
Other <i>Polychaeta</i>	66	11.27
<i>Nematoda</i>	2	0.05
<i>Natica affinis</i> GMELIN.....	1	0.90
<i>Cylichna</i> sp.....	1	0.05
<i>Utriculus</i> sp.....	1	0.05
<i>Nucula tenuis</i> MGT.....	3	0.13
<i>Leda permula</i> MÜLL.....	2	0.68
<i>Modiolaria laevigata</i> GRAY.....	2	0.14
<i>Pecten groenlandicus</i> CHEMN.....	10	2.10
<i>Astarte banksi</i> LEACH.....	8	1.90
<i>Axinus flexuosus</i> MTG.....	33	0.63
<i>Macoma calcaria</i> (CHEMN.).....	1	4.45
<i>Macoma moësta</i> (DESH.).....	2	0.45
<i>Mya truncata</i> L.....	1	0.09
<i>Amphipodae</i>	7	0.60
<i>Diastylis</i> sp.....	5	0.54
<i>Philomedes globosus</i> LILJEB.....	213	2.23
<i>Sclerocrangon</i> sp.....	1	4.36
<i>Ascidiae</i>	1	0.13
Total weight per sq.m...	..	41.60

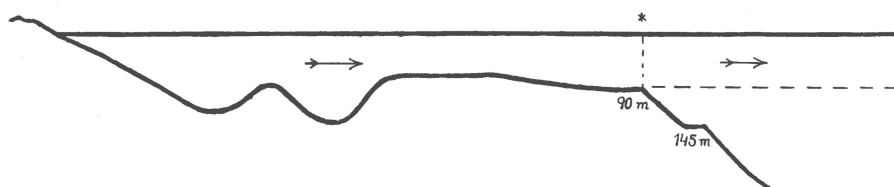


Fig. 2. Vertical longitudinal section through Hurry Inlet from the head of the fjord to its mouth (marked with an asterisk). The arrow indicates the direction of the current.

specimens. Further, the bottom in this place is very unsuitable for the *Macoma*-community, being made up of clayey sand. According to the nature of the bottom, the locality should be inhabited by the *Venus*-community, but for this the depth, 55 m, is too great. The result is a *Macoma*-community, depauperated on account of the nature of the bottom, and with very small weights. All the three localities mentioned here are directly exposed to the influence of the water streaming out of Hurry Inlet, and accordingly exempted from the influence of the open sea, and this factor and as regards the 55 m stations, other factors, too, cause the weights to be lower than might be expected considering the nearness of the sea.

Contrasting with this we have the series of samples from 140 m depth with its great weights. Fig. 2 shows the water streaming out of Hurry Inlet and the three »poor« stations are situated within the area of this current. The weighty 140 m series, however, occurs below the level of the stream (see fig. 2), so that the influence of the open sea may here fully assert itself, and at the same time the bottom is ideal for the community (mixed *Arca*- and *Foraminifera*-community) that inhabits it, and consequently we have here a rich fauna with great weights.

It is thus unquestionable that the samples from Hurry Inlet exhibit quite special conditions, while the four sections taken along the straight coast line from the open sea to the interior of the fjords (the section off Cape Hope, off Cape Hooker, Jameson Land off the Bjørne Islands, and the Nordbugt, Nordvest Fjord) are fully representative and in a nearly schematically distinct way show the effect of the open sea on the weight of the bottom fauna¹).

After the weights of the bottom animals within the various parts of the fjord district have thus been accounted for, it seems natural to examine how these weights are distributed over the groups of marine animals at different depths and in the various areas within the fjord complex. In this connection two animal groups are especially dominant, viz. the *Lamellibranchiata* and the *Polychaeta*. Fig. 3 shows the distribution of these two groups in regard to weight at different depths at Cape Hope and Cape Hooker in the outer part of the district²). The weights for every point of the curves have been calculated as a weight percentage of the total animal weight per sq.m. The curves show an immense dominance for the *Lamellibranchiata* in shallow water in both

¹) In support of this may further be adduced the fact known from Franz Joseph Fjord, that the weight of living bottom animals in the *Foraminifera*-community decreases towards the interior of the fjords (SPÄRCK 1933, p. 26).

²) In figs. 3 and 4 the curves for each locality are based on the same number of samples as employed for fig. 1.

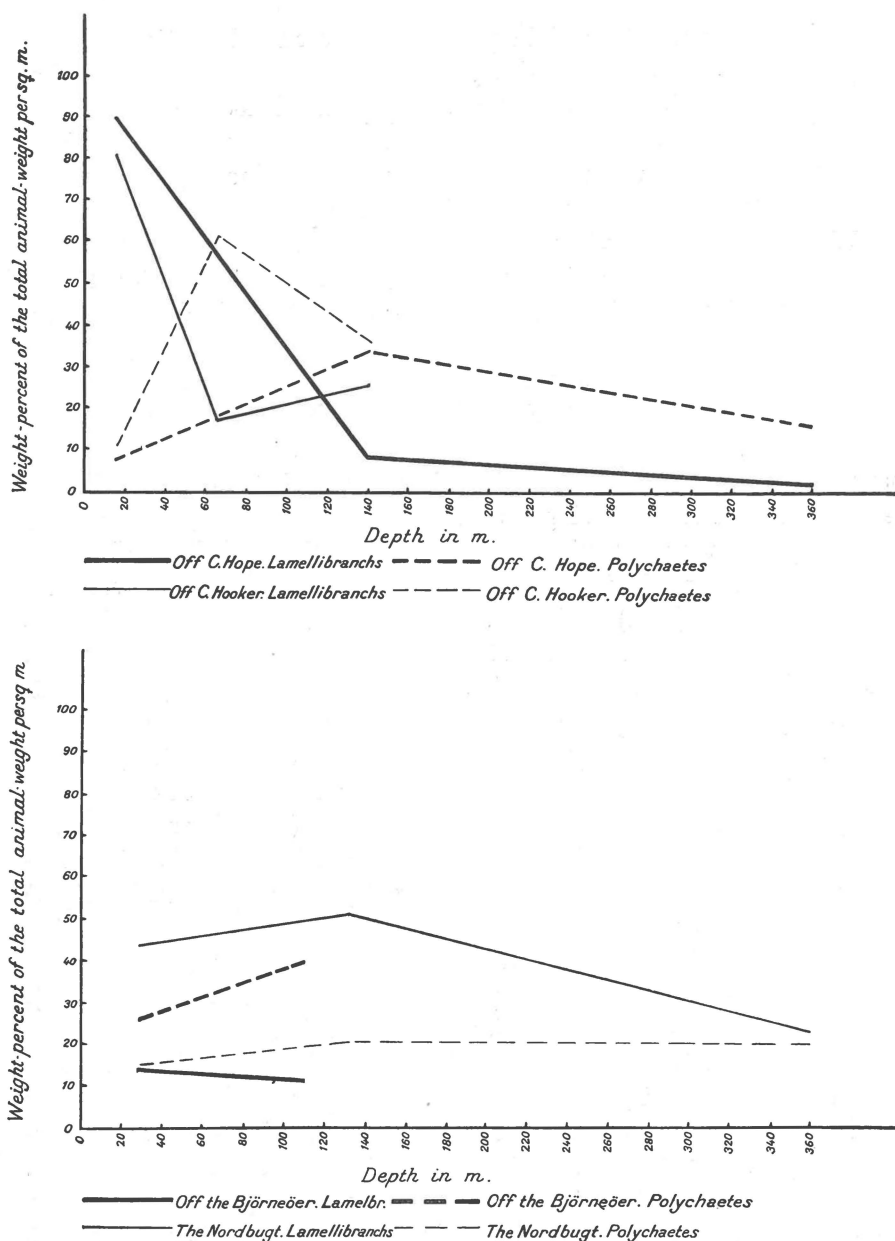


Fig. 3 and 4. Curves showing the average weight per sq.m. of lamellibranchs and polychaetes for all bottom-animals at different depths the outer district (Fig. 3) and the inner district (Fig. 4.)

localities, while the weight percentage of the *Polychaeta* is here extremely slight. However, at greater depths conditions are quite reversed, since here the *Polychaeta* dominate greatly over the *Lamelli-*

branchiata as regards the weight percentage. In such localities the two animal groups seem to be decidedly vicareous, since the curves for *Lamellibranchiata* and *Polychaeta* for the individual localities move in opposite directions (when one curve descends, the other ascends) to such an extent that the two curves for the same locality are almost symmetrical pictures of each other (see fig. 3).

While, then, these phenomena have been fully cleared up as regards the outer fjord districts, the same regularity does not seem to prevail in the interior of the fjords. Fig. 4 shows the distribution as to weight of the two animal groups at Jameson Land off the Bjerne Islands and in the Nordbugt in Nordvest Fjord, calculated and recorded in the same way as in fig. 3. A similar regularity to that of the outer district does not seem to be observable here, but the reason is probably that the weights in the inner ramifications of the fjord are so small that scattered occurrences of single specimens of various big forms may completely alter the whole picture (for instance a single big *Lamellibranch* or *Polychaete* may shift the average weight for a whole series of samples to another weight level), while the material from the outer district was far too comprehensive to be affected by such accidental circumstances. As to the inner district it is thus impossible to say anything at present. Very probably, however, a larger material would show the same conditions as are so distinctly displayed in the outer district. Evidence hereof is found in certain observations from the Franz Joseph Fjord district. In the *Macoma*-community at Ella Island (at a distance from the open sea almost corresponding to that of the Hall Fjord area) an absolute dominance of *Lamellibranchs* (79 to 90 per cent. of the total weight) was observed in all the zones from the coast outward to about 45 m depth, while the weight percentage of the *Polychaeta* was very small (6—14 per cent., of the total weight) (THORSON 1933, p. 49 and fig. 3), a feature which seems to be typical of all Arctic shallow water zones (ZENKEWITSCH 1927, p. 30). SPÄRCK (1933, p. 25) further states that in the *Macoma*-community of Franz Joseph Fjord the *Lamellibranchiata* constitute over 50 per cent. of the weight, in the *Arca-Astarte-crenata*-community (i. e. in deeper water) only about 30 per cent. of the weight. Thus all the observations from the Franz Joseph Fjord area seem to point to the same state of affairs as is known from the outer district of Scoresby Sound, and which may possibly be extended to comprise the inner parts of the fjord system too, viz. that the *Lamellibranchiata* dominate in weight everywhere in shallow water, whereas the *Polychaeta* dominate everywhere at greater depths.

V. SUMMARY

1. This work is a direct continuation of the investigations carried out in 1931—32 in the Franz Joseph Fjord complex (cf. SPÄRCK 1933, THORSON 1933), and is based on the observations from the "Godthaab"'s voyage in the fjord area of Scoresby Sound in the summer of 1933. All the 270 quantitative bottom samples were taken with the $\frac{1}{10}$ or the $\frac{1}{5}$ sq.m Petersen-bottom-sampler, and were supplemented by dredging. Further planktonic and hydrographical stations as well as bathymetrical measurements by means of the echo sounding apparatus and the metre-wheel were regularly taken.

2. Bathymetry. The shallow-watered thresholds (less than 200 m depth) characteristic of the Franz Joseph Fjord area are entirely absent from Scoresby Sound (see pl. 6). Here the bathymetry corresponds perfectly to the topography of the landscape. The greatest depths of the outer district occur at the south coast. The middle district contains two basins from 500 to 600 m deep separated by a threshold with a depth of 400 m. Further, a threshold occurs at Danmark Island and another at the Bjerne Islands. The inner fjord ramifications have cut through crystalline formations and are very deep, all over 900 m; Nordvest Fjord with depths of up to 1450 m is the deepest fjord in the world. Scoresby Sound and Franz Joseph Fjord agree in that the depths of the fjords are relatively small near the open sea and greatest at the heads of the fjords.

3. Hydrography. In Scoresby Sound there are in the summer three distinctly separated water layers, viz. an upper layer, generally only some few metres thick, with a positive temperature and reduced salinity (the fjord water); below this, down to a depth of 300—400 m, occurs a layer of water with negative temperatures (0° to -1.69°) and a higher salinity (32.30 to 34.80 per mille) (the Polar Current water); and below this again a layer of water with positive temperatures (0° to 1.50°) and a constant salinity (34.69 to 34.95 per mille). The thresholds occurring within the fjord complex do not reach the upper limit of this warm bottom water, and the difference of the water in the basins separ-

ated by thresholds is not, therefore, very great. There is some reason to suppose that the warm bottom water decreases considerably in winter, while in the spring and summer warm bottom water is sucked into the fjord as a reaction stream to the outward going surface stream of water originating from the melting of the ice. It must be assumed that a threshold of a depth of from 250 to 350 m extends outside the mouth of the fjord, which prevents the cooler water below the warm layer from penetrating into the fjord.

4. Animal communities.

A. Communities of the clay bottom. (SPÄRCK 1933, THORSON 1933).

1. The *Macoma-calcaria*-comm., widely distributed in shallow water, absent near the open sea. *Pectinaria granulata*, a type animal of this comm. in Franz Joseph Fjord, entirely absent in Scoresby Sound. The *Halcampoides*-zone (table 5, pl. 1) with over 100 *Halcampoides* per sq.m has not been described previously.
2. The *Venus-fluctuosa*-comm. (table 7. pl. 2), not formerly described. Type animals: *Venus fluctuosa*, *Thracia truncata*, *Pandora glacialis*. Weights up to 370 gr per sq.m. Associated with sandy bottom in shallow water near the open sea. Unknown from other Arctic localities.
3. The *Portlandia-arctica*-community (table 13, pl. 3). Not formerly described. Type animal: *Portlandia arctica*. Weights inconsiderable (c. 40 gr per sq.m). Associated with loose, light-grey, muddy bottom off glaciers and river mouths. Not known from other Arctic localities.
4. The *Arca-Astarte-crenata*-community (SPÄRCK 1933, p. 25). A deep-water comm. In the outer district mostly mixed with the *Foraminifera*-comm. Absolutely dominant south of Cape Leslie, but absent from Hall Fjord. Only deep-water comm. in Nordvest Fjord. Small weights. Of minimal importance as fish food.
5. The *Foraminifera*-comm. (SPÄRCK 1933, p. 30). A deep-water comm. In the outer district mixed with the *Arca-Astarte-crenata*-comm. Entirely dominant in Hall Fjord, completely absent from the inner fjords. Somewhat greater weights than the preceding community, but still of minimal importance as fish food.

B. The epifaunistic zones (THORSON 1933, p. 53).

1. The *Desmarestia*-epifauna with its usual type animals occurs only in the inner fjord areas, and even there not very frequently. The *Desmarestia* vegetation is here of far less importance as a detritus producer than in Fr. Joseph Fjord.
2. The *Fucus*-epifauna with its usual type animals. Common every-

where along the coast. The *Fucus* vegetation is therefore an important detritus producer.

3. The red-algae-epifauna. Distribution and type animals in the main as in Franz Joseph Fjord. *Pecten islandicus* not found, but has probably been overlooked.
4. The *Saxicava*-epifauna. Of very limited distribution.
5. The *Ophiacantha*-epifauna. Not formerly described from East Greenland. Type animals: *Ophiacantha bidentata* and *Yoldia hyperborea* (the latter new to East Greenland). Only known from Amdrup Harbour near the open sea. Is perfectly identical with the epifauna described by ZENKEWITSCH (1927) from the White Sea. Probably an epifauna particularly associated with the open sea. Occurs probably along the whole Liverpool Coast, whence shallow water investigations are lacking.

C. Distribution and ecology. The greatest animal weights were found in shallow water. At 100 m depth the weights are reduced to below 50 per cent. of the weights at 10—20 m depth. Of great importance for the weights is the position of the locality in relation to the open sea. This is illustrated in fig. 1, p. 59. The two sections: from C. Hope (near the open sea) and C. Hooker (c. 60 km from the open sea) show far greater weights than the two other sections (150 and 250 km respectively from the open sea). The two dominating animal groups are the *Lamellibranchiata* and the *Polychaeta*. The *Lamellibranchiata* dominate as to weight percentage in shallow water, the *Polychaeta* in deep water (see fig. 3, p. 63).

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Table 17. The outer district. Deep-water communities.

	Samples taken in the mixed <i>Foraminifera</i> - and <i>Arca</i> -community														The unmixed <i>Foraminifera</i> -community								The unmixed <i>Arca-Astarte-crenata</i> -comm.					
	Section from Cape Tobin to Cape Brewster 11-7-33. 1/5 sq.m bottom-sampler						Off the mouth of Hurry Inlet. 28/6—1/7-33. 1/5 sq.m grab						Hurry Inlet off Konstabel Pynt. 89—92 m 7-7-33. St. 108—112. Average number and weight per sq.m based upon 5 samples with the 1/5 sq.m grab		Section from Cape Tobin to Cape Brewster. 11-7-33				Off Cape Hooker. 3-7-33				Section from Cape Tobin to Cape Brewster. 11-7-33.				Off Cape Hooker. 140—142 m. Sts. 74, 76, 78, 79, 80, 82. Average number and weight per sq.m based upon 6 samples with the 1/5 sq.m grab. 3-7 33	
	St. 147. 420 m Hard clay. Stones		St. 148. 530 m Soft clay. Gravel		St. 149. 530 m Hard clay. Gravel		St. 9. 250 m Soft clay		St. 10. 245 m Sandy clay		St. 46—57. Average number and weight per sq.m based upon 14 samples with the 1/5 sq.m grab. Depth 140 m		St. 145. 340 m Soft clay. 1/5 m		St. 146. 355 m Clay. 1/5 sq.m		St. 77. 220 m Clay. 1/5 sq.m		St. 81. 220 m Sand, Gravel. 1/5 sq.m		St. 150. 374 m Clay, Gravel. 1/5 sq.m		St. 151. 380 m Clay, Gravel. 1/5 sq.m					
	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight
<i>Rhabdamina cornuta</i>	c. 50.0	1.00	?	?	c. 50.0	1.00	25.0	2.00	500.0	40.00	438.0	28.00	150.0	10.00	125.0	8.00	375.0	8.00	250.0	15.00	500.0	32.50	—	—	—	—	1.0	—
Different <i>Foraminifera</i>	c. 50.0	0.50	?	?	c. 50.0	0.50	250.0	2.50	500.0	5.00	—	—	—	—	—	—	—	—	2000.0	50.00	2000.0	50.00	—	—	—	—	—	—
<i>Miliolina bucculenta</i>	..	..	..	..	..	..	25.0	0.50	500.0	2.00	—	—	—	—	—	—	50.0	0.25	250.0	5.00	65.0	1.50	15.0	0.25	—	—	—	—
<i>Spongia</i>	..	..	..	..	..	..	5.0	0.50	5.0	2.50	1.5	6.00	..	..	5.0	1.50	..	..	..	..	0.5	0.25	5.0	1.00	5.0	35.00	..	..
<i>Halampoides purpurea</i> (STUD.)	..	..	..	..	..	..	:	..	..	..	0.5	0.04	6.0	7.80	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other <i>Anthozoa</i>	..	..	..	..	..	..	..	..	5.0	0.50	1.0	5.45	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.5	2.50
<i>Eupyrgus scaber</i> LÜTKEN	..	..	..	..	..	..	..	..	..	..	0.5	0.04	2.0	0.20	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.08
<i>Ophiocten sericeum</i> (FORBES)	..	..	..	..	..	..	..	..	..	..	4.0	0.50	2.0	0.10	5.0	0.50	..	..	..	..	10.0	1.00	..	..	..	..	1.5	0.33
<i>Ophiura robusta</i> AYRES	..	..	..	..	..	..	..	..	..	..	0.5	0.04	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Ophiacantha bidentata</i> (BRUZ.)	..	..	..	..	..	..	..	..	..	..	1.0	0.48	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Ophiopleura borealis</i> DAN. & KOR.	..	..	..	..	..	..	..	..	5.0	57.50	2.5	8.25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	3.33
<i>Amphiura sundevalli</i> (MÜLL. & TROSCHEL?)	..	..	..	..	..	..	..	..	..	..	1.0	0.08	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other <i>Ophiuroidea</i>	..	..	..	..	..	..	..	..	5.0	0.25	2.0	0.23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.5	0.04
<i>Ctenodiscus crispatus</i> (BRUZ.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5.0	26.00	..	..	..	..	..	..	..	..	..	..	..	..
<i>Hymenaster pellucidus</i> WYV. THOMSON	..	..	5.0	9.00	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Nereis zonata</i> MGRN.	..	..	..	..	..	..	..	..	5.0	0.50	0.5	0.06	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other <i>Nereidae</i>	..	..	..	..	..	..	..	..	..	..	1.0	0.22	4.0	1.80	5.0	0.50	5.0	0.50	..	..	..	..	..	..	..	..	..	..
<i>Nephtys ciliata</i> (MÜLL.)	..	..	..	..	..	..	..	..	5.0	0.50	..	..	24.0	3.20	..	..	..	..	..	..	..	..	..	..	..	..	1.5	0.59
<i>Onuphis conchylega</i> (SARS)	..	..	..	..	..	..	..	..	..	..	15.0	10.14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.80
<i>Owenia fusiformis</i> DELLE CHIAJE	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17.0	2.25	
<i>Brada</i> sp.	..	..	..	..	..	..	..	..	..	..	1.0	1.25	2.0	0.50	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Harmothoe</i> sp.	..	..	..	..	..	..	..	..	..	..	0.5	0.04	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other <i>Polynoidae</i>	..	..	..	..	..	..	..	..	..	..	1.0	0.04	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Lumbriconereis</i> sp.	..	..	..	..	..	..	..	..	..	..	..	..	12.0	23.20	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.41
<i>Terebellidae</i>	..	..	..	..	..	..	..	..	..	..	2.0	0.20	..	..	..	..	..	..	..	..	5.0	0.50	..	..	..	..	..	..
<i>Asychis biceps</i> (M. SARS)	30.0	4.00	55.0	9.00	100.0	15.00	..	..	..	..	5.0	2.86	..	..	40.0	5.25	95.0	13.50	..	..	..	..	10.0	10.0	..	..	..	..
Other <i>Maldanidae</i>	..	..	..	..	..	..	60.0	1.00	55.0	1.00	..	..	..	..	..	..	40.0	1.50	..	..	..	..	..	..	..	..	..	..
Other <i>Polychaeta</i>	10.0	0.75	30.0	1.00	30.0	2.50	15.0	0.25	20.0	3.25	44.5	22.62	64.0	3.50	60.0	2.00	50.0	2.50	10.0	0.50	30.0	2.50	20.0	0.50	10.0	0.50	12.5	1.29
<i>Priapulius bicaudatus</i> DAN.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5.0	45.00	..	..	..	..	..	..	..	..	..	..	..	..
<i>Priapulius caudatus</i> (LAM.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5.0	18.00	..	..	..	..	..	..	..	..
<i>Phascolosoma (margaritaceum)</i> (SARS?)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other <i>Gephyrea</i>	..																											

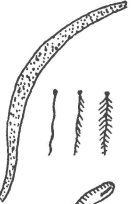
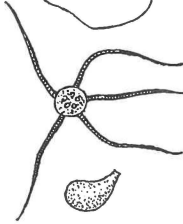
Table 18. The Hall Fjord area. Deep-water communities.

	The unmixed <i>Foraminifera</i> -community														The unmixed <i>Arca-Astarte-crenata</i> -community							
	Section from Cape Leslie to Jameson Land. 21-8-33				W. coast of Jameson Land off the Bjørneøer. 26-7-33				Off Schuchert River. 80—160 m. Sts. 201—205. Average number and weight per sq.m based upon 5 samples with the 1/10 sq.m grab. 23-7-33		Off the Bjørneøer 270—337 m. Sts. 244—247. Average number and weight per sq.m based upon 4 samples with the 1/10 and 1/5 sq.m grab. 25-7-33		N.-W.-area of Hall Inlet. 496—550 m. Sts. 187—189. Average number and weight per sq.m based upon 3 samples with the 1/10 sq.m grab. 22-7-33		Section from Cape Leslie to Jameson Land. 21-8-33				Section from Cape Stevenson to Cape Leslie 24-8-33			
	179—182 m. Sts. 302, 304, 305. Average number and weight per sq.m based upon 3 samples with the 1/5 sq.m grab		233—284 m. Sts. 301, 303. Average number and weight per sq.m based upon 2 samples with the 1/5 sq.m grab		51—91 m. Average number and weight per sq.m based upon 5 samples with the 1/10 sq.m grab. Sts. 256—261		103—148 m. Average number and weight per sq.m based upon 3 samples with the 1/10 sq.m grab. Sts. 263, 264, 265		Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight
	Number	Weight	Number	Weight	Number	Weight	Number	Weight														
<i>Rhabdamina cornuta</i>	c.110.0	c.7.00	c.570.0	c.45.00	c.50.0	c.1.00	c.130.0	c.8.00	c.100.0	2.00	c.350.0	c.20.00	c.750.0	c.16.00	5.0	—	2.5	—	..	..	..	..
Different <i>Foraminifera</i>	c.900.0	c.9.00	c.525.0	c.5.25	—	—	—	—	—	—	c.460.0	c.5.00	—	—	..	..	..	..	..	..	..	..
<i>Miliolina bucculenta</i>	5.0	—	c.30.0	—	—	—	—	—	—	—	c.1100.0	c.5.00	15.0	0.17	..	..	c.100.0	0.50	..	..	36.0	0.38
<i>Spongia</i>	18.0	18.83	20.0	13.25	2.0	0.10	..	..	..	..	2.0	0.20	..	..	..	..	11.5	85.90	..	..	1.0	0.06
<i>Hydroidae</i>	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..
<i>Anthozoa</i> sp.	..	..	2.0	—	..	..	..	..	..	..	..	..	2.0	7.83	..	..	1.0	0.06	2.0	0.25	..	..
<i>Ophiocten sericeum</i> (FORBES)	3.5	0.25	2.5	32.75	..	..	..	..	..	..	..	..	..	..	2.5	17.25	2.5	0.19	6.0	0.30	..	..
<i>Ophiopleura borealis</i> DAN. & KOR.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	7.80	..	..
<i>Ophiacantha bidentata</i> (BRUZ.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.0	0.30	..	..
Other <i>Ophiuroidea</i>	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6.0	0.19	2.0	0.10	2.5	0.19
<i>Nereis zonata</i> MGRN.	3.5	0.17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.50	..	..
Other <i>Nereidae</i>	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Nephtys ciliata</i> (MÜLL.)	3.5	0.17	..	..	2.0	1.50	..	..	..	..	2.0	0.20	2.0	0.17	2.5	0.50	..	..	5.0	0.40	..	..
<i>Onuphis conchylega</i> (SARS)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.13	3.0	4.10	..	..
<i>Owenia fusiformis</i> DELLE CHIAJE	..	..	..	..	2.0	0.80	..	..	2.0	0.50	54.0	6.00	8.0	0.83	..	..	82.5	8.50	..	..	..	..
<i>Harmothoe</i> sp.	..	..	..	..	..	..	3.0	2.00	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Lumbriconereis</i> sp.	5.0	0.17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.06	1.0	0.10	..	..
<i>Sabellidae</i>	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.0	2.20	..	..
<i>Serpulidae</i>	..	..	2.5	0.25	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.13	..	..	..	..
<i>Terebellidae</i>	5.0	0.42	2.5	0.25	..	..	..	..	8.0	0.40	..	..	..	..	2.5	0.25	..	..	..	..	..	..
<i>Asychis biceps</i> (M. SARS)	2.0	0.08	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other <i>Maldanidae</i>	3.5	0.08	..	..	..	..	..	..	38.0	4.80	..	..	87.0	6.25	15.0	1.63	..	..	4.0	0.20	1.0	0.06
Other <i>Polychaeta</i>	22.0	1.08	45.0	2.87	50.0	1.70	50.0	5.16	14.0	0.30	76.0	2.80	..	..	32.5	0.87	24.5	1.00	46.0	3.31	8.5	0.69
<i>Bonellia</i> sp.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10.75	..	..	..	..	..
<i>Phascolion strombi</i> (MONT.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.0	0.20	..	..
Other <i>Gephyrea</i>	2.0	0.08	..	..	..	..	..	..	..	..	2.0	0.20	2.0	0.17	..	..	..	..	18.0	0.95	..	..
<i>Nemertini</i>	2.0	0.17	2.5	0.13	4.0	0.40	..	..	..	..	2.0	0.40	..	..	..	..	2.5	0.31	..	..	..	..
<i>Balanoglossus</i> sp.	..	..	..	..	..	..	..	..	..	..	2.0	0.20	..	..	..	..	..	..	..	..	..	..
<i>Alcyonidium disciforme</i> SMITT	..	..	..	..	6.0	0.60	..	..	2.0	0.40	..	..	..	..	..	..	1.0	0.20	4.0	0.30	..	..
<i>Alcyonidium</i> sp.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.5	0.25	1.0	0.13	1.0	0.60	4.0	0.19
Other <i>Bryozoa</i>	+	+	+	+	+	+	+	+	..	..	+	+	..	..	2.5	0.25	+	+	+	+	+	+
<i>Margarita</i> sp.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.06	1.0	0.10	..	..
<i>Natica groenlandica</i> (BECK)	..	..	..	..	2.0	0.20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Bela trevelyana</i> TURT.	..	..	..	..	2.0	0.20	..	..	..	..	..	..	..	..	..	..	1.0	0.06	..	..	..	..
<i>Sipho</i> sp.	..	..	..	..	..	..	..	..	..	..	..	..	2.0	0.17	..	..	..	..	..	..	..	..
<i>Rissoa jan-mayeni</i> FRIELE	..	..	..	..	2.0	0.10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Siphonodentalium vitreum</i> (M. SARS)	..	..	..	..	..	..	6.5	1.00	2.0	0.20	..	..	3.5	0.25	..	..	..	..	..	..	..	..
<i>Portlandia intermedia</i> M. SARS	..	..	..	..	..	..	..	..	4.0	0.10	..	..	..	..	..	..	..	..	1.0	0.10	..	..
<i>Portlandia frigida</i> TORELL	..	..	..	..	2.0	0.10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Portlandia lenticula</i> MØLL.	..	..	..	..	8.0	0.30	3.0	0.16	8.0	0.30	..	..	..	..	..	..	..	..	..	..	..	..
<i>Arca pectunculoides</i> SCACCHI	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.06	..	..
<i>Arca glacialis</i> GRAY	..	..	..	..	2.0	0.20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Dacrydium vitreum</i> (HOLB.)	..	..	2.5	0.13	2.0	0.10	..	..	..	..	..	..	..	2.5	0.13	..	..	..	1.0	0.05	..	..
<i>Modiolaria nigra</i> (GRAY)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.06	1.0	0.05	..	..
<i>Astarte banksi</i> LEACH	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.5	0.19	3.0	0.95	..	..
<i>Astarte crenata</i> GRAY	2.0	0.17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Acinus flexuosus</i> (MTG.)	13.5	0.25	..	..	24.0	0.50	30.0	0.50	..	..	4.0	0.20	3.5	0.17	15.0	0.38	5.0	0.06	1.0	0.05	..	..
<i>Thracia truncata</i> TURT.	..	..	2.5	0.13	..	..	..	..	..	..	2.0	0.20	..	..	..	..	..	..	2.0	0.05	..	..
<i>Næra obesa</i> LOVÉN	..	..	..	..	..	..	3.0	1.66	..	..	..	..	..	..	5.0	0.13	..	..	..	..	..	..
<i>Tanaidae</i>	2.0	0.08	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.06	..	..	..	..
<i>Isopodae</i>	2.0	0.08	..	..	2.0	0.10	..	..	..	..	..	..	..	..	..	..	1.0	0.06	..	..	..	..
<i>Munnopsis typica</i> M. SARS	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.05	..	..	..	..
<i>Amphipodae</i>	3.5	0.17	..	..	2.0	0.10	6.5	0.17	..	..	..	..	..	2.5	0.13	..	..	..	..	..	..	..
<i>Nymphon</i> sp.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.0	0.13	..	..	..	..
<i>Ascidia gelatinosa</i>	..	..	..	..	2.0	40.80	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Ascidiae</i>	3.5	0.33	2.5	0.13	16.0	18.10	16.5	3.67	..	..	2.0	0.20	2.0	0.17	5.0	0.13	1.0	0.87	..	..	..	..
Total weight per sq.m in gr...	38.58		100.14		68.00		23.82		9.00		40.60		32.18		21.85		100.65		23.02		1.57	

EXPLANATION OF PLATES

Plate I.

The *Halcampoides*-zone (*Macoma-calcaria*-community). Diagram showing the number of the different invertebrates inhabiting 0.25 sq.m of sea-bottom at depths of about 30 m off the Konstabel Pynt in Hurry Inlet. (Table 5).

	<i>Halcampoides purpurea</i> : Ind. 29, W. 70.00 gr.		<i>Myriotrochus rinki</i> : Ind. 1, W. 0.04 gr.
	<i>Macoma calcaria</i> : Ind. 4, W. 1.26 gr.		<i>Terebellidae</i> : Ind. 7, W. 0.45 gr.
	<i>Astarte banksi</i> : Ind. 1, W. 1.74 gr.		<i>Nereidae</i> : Ind. 1, W. 0.27 gr.
	<i>Axinus flexuosus</i> : Ind. 47, W. 1.40 gr.		<i>Nephthys ciliata</i> : Ind. 1, W. 2.00 gr.
	<i>Modiolaria nigra</i> : Ind. 2, W. 1.85 gr.		<i>Owenia fusiformis</i> : Ind. 2, W. 0.85 gr.
	<i>Leda pernula</i> : Ind. 1, W. 0.05 gr.		Other <i>Polychaeta</i> : Ind. 40, W. 1.09 gr.
	<i>Nucula tenuis</i> : Ind. 8, W. 0.49 gr.		<i>Nemertini</i> : Ind. 1, W. 0.12 gr.
	<i>Macoma moesta</i> : Ind. 1, W. 0.20 gr.		<i>Amphipodae</i> : Ind. 1, W. 0.05 gr.
	<i>Portlandia lenticula</i> : Ind. 1, W. 0.03 gr.		<i>Diastylis</i> sp.: Ind. 2, W. 0.09 gr.
	<i>Portlandia arctica</i> : Ind. 1, W. 0.11 gr.		<i>Philomedes globosus</i> : Ind. 153, W. 2.50 gr.
	<i>Ophiocten sericeum</i> : Ind. 3, W. 0.38 gr.		<i>Ascidiae</i> : Ind. 1, W. — gr.
	<i>Eupyrus scaber</i> : Ind. 1, W. 0.08 gr.		<i>Arca glacialis</i> : Ind. 1, W. 1.96 gr.

Total weight c. 87 gr.

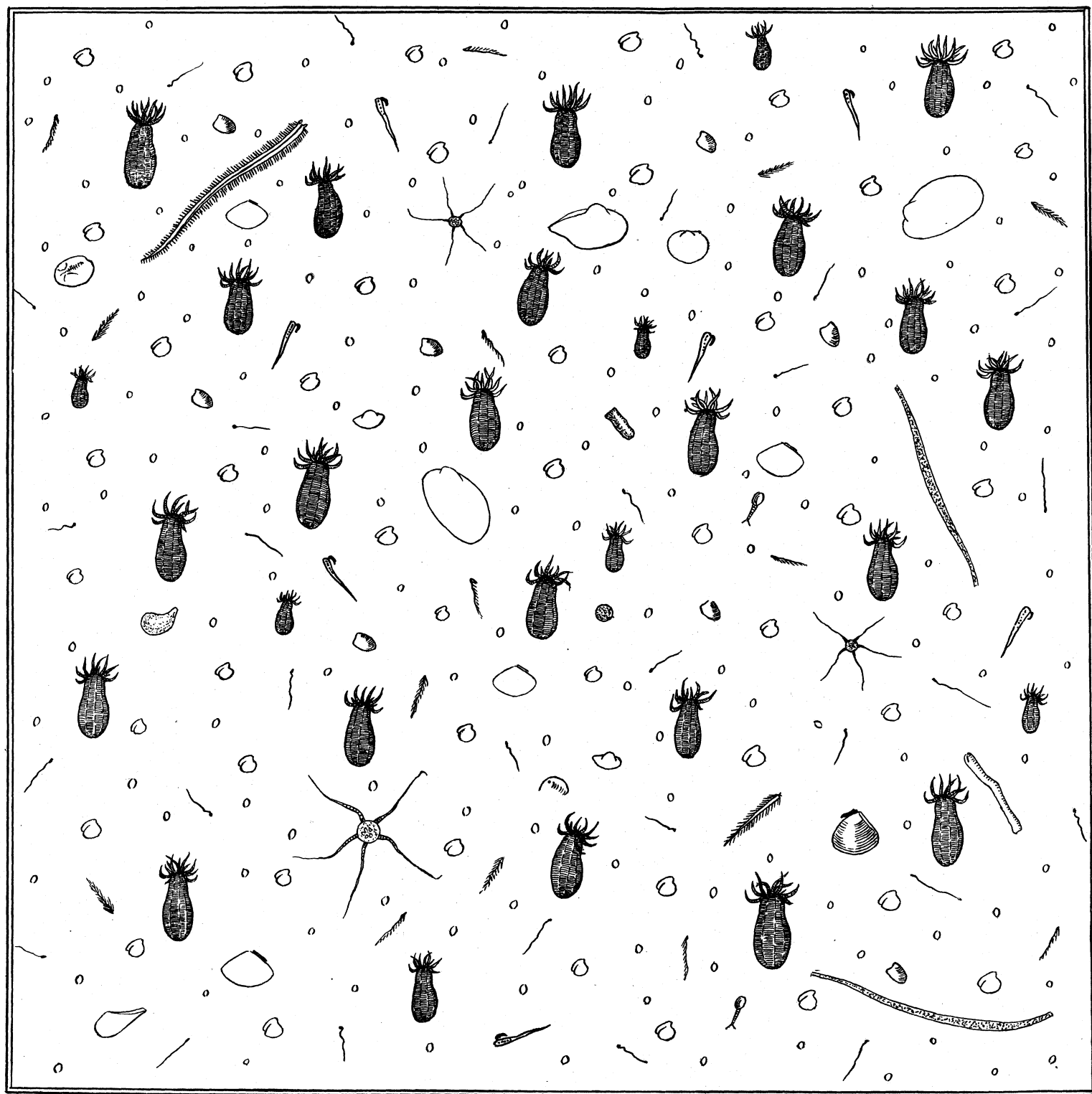


Plate II.

The *Venus-fluctuosa*-community. Diagram showing the number of different invertebrates inhabiting 0.25 sq.m of sea-bottom at depths of from 9 to 20 m off Cape Hope. (Table 7).



Venus fluctuosa: Ind. 44, W. 5.32 gr.



Pandora glacialis: Ind. 1, W. 0.24 gr.



Astarte borealis: { Ind. ad. 13, W. 41.45 gr.
Ind. juv. 99, W. 27.50 gr.



Astarte banksi: Ind. 27, W. 8.37 gr.



Astarte elliptica: Ind. 1, W. 0.91 gr.



Axinus flexuosus: Ind. 3, W. 0.05 gr.



Thracia truncata: Ind. juv. 1, W. 0.05 gr.



Cyrtodaria kurriana: Ind. juv. 1, W. 0.05 gr.



Cylichna reinhardti: Ind. 1, W. 0.07 gr.



Bela sp.: Ind. 3, W. 0.31 gr.



Myriotrochus rinkii: Ind. 2, W. 1.56 gr.



Polychaeta sp.: Ind. 37, W. 7.32 gr.



Amphipoda: Ind. 1, W. 0.10 gr.

Total weight c. 93 gr.

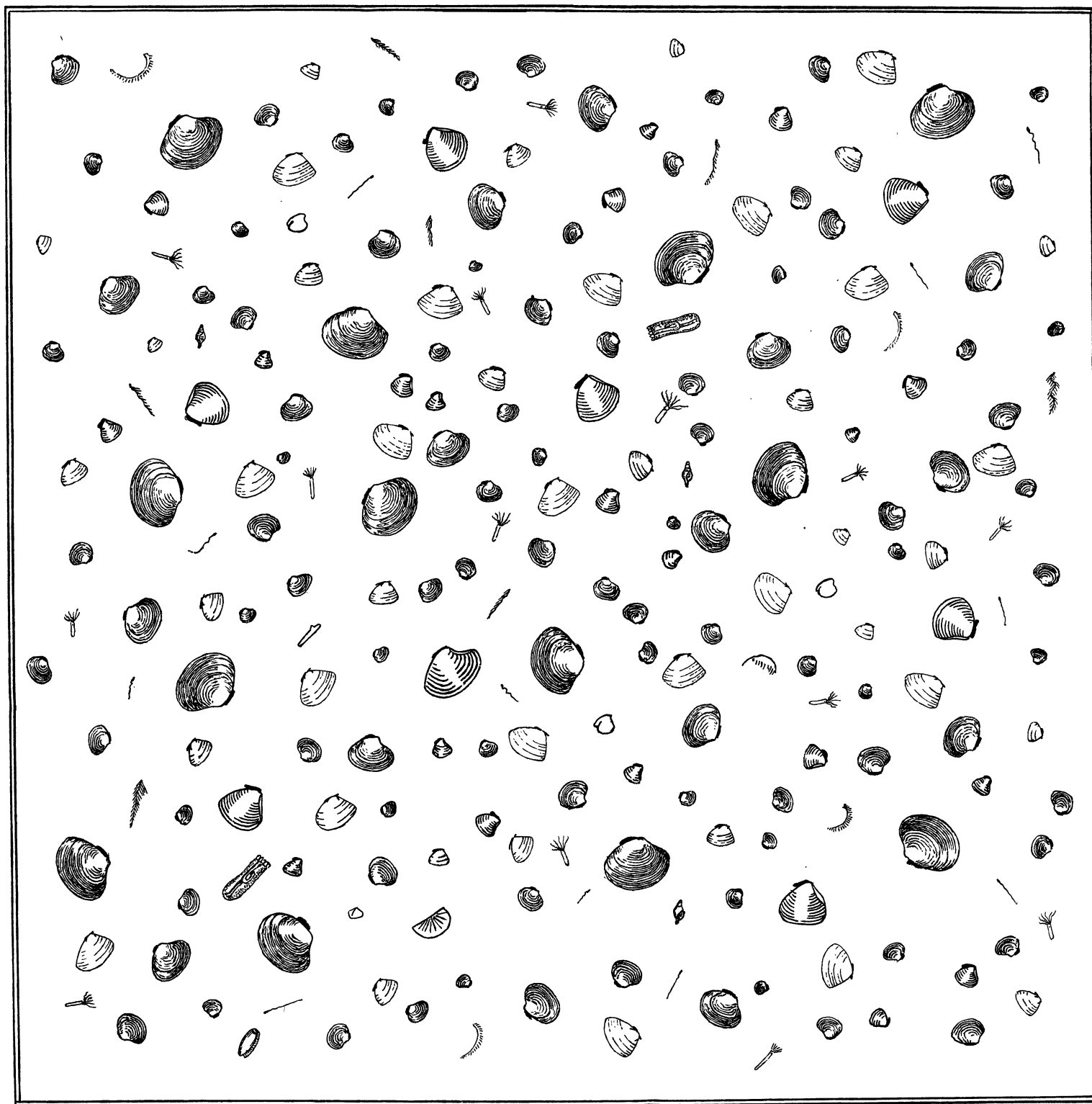


Plate III.

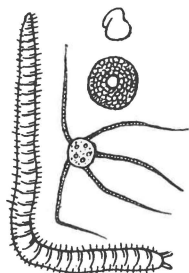
The *Portlandia-arctica*-community. Diagram showing the number of the different invertebrates inhabiting 0.25 sq.m of sea-bottom at depths of about 30 m off the mouth of Schuchert River. (Table 13).



Portlandia arctica: Ind. 20, W. 4.84 gr.



Myriotrochus rinki: Ind. 2, W. 1.50 gr.



Axinus flexuosus: Ind. 1, W. 0.04 gr.

Alcyonidium disciforme: Ind. 1, W. 0.05 gr.

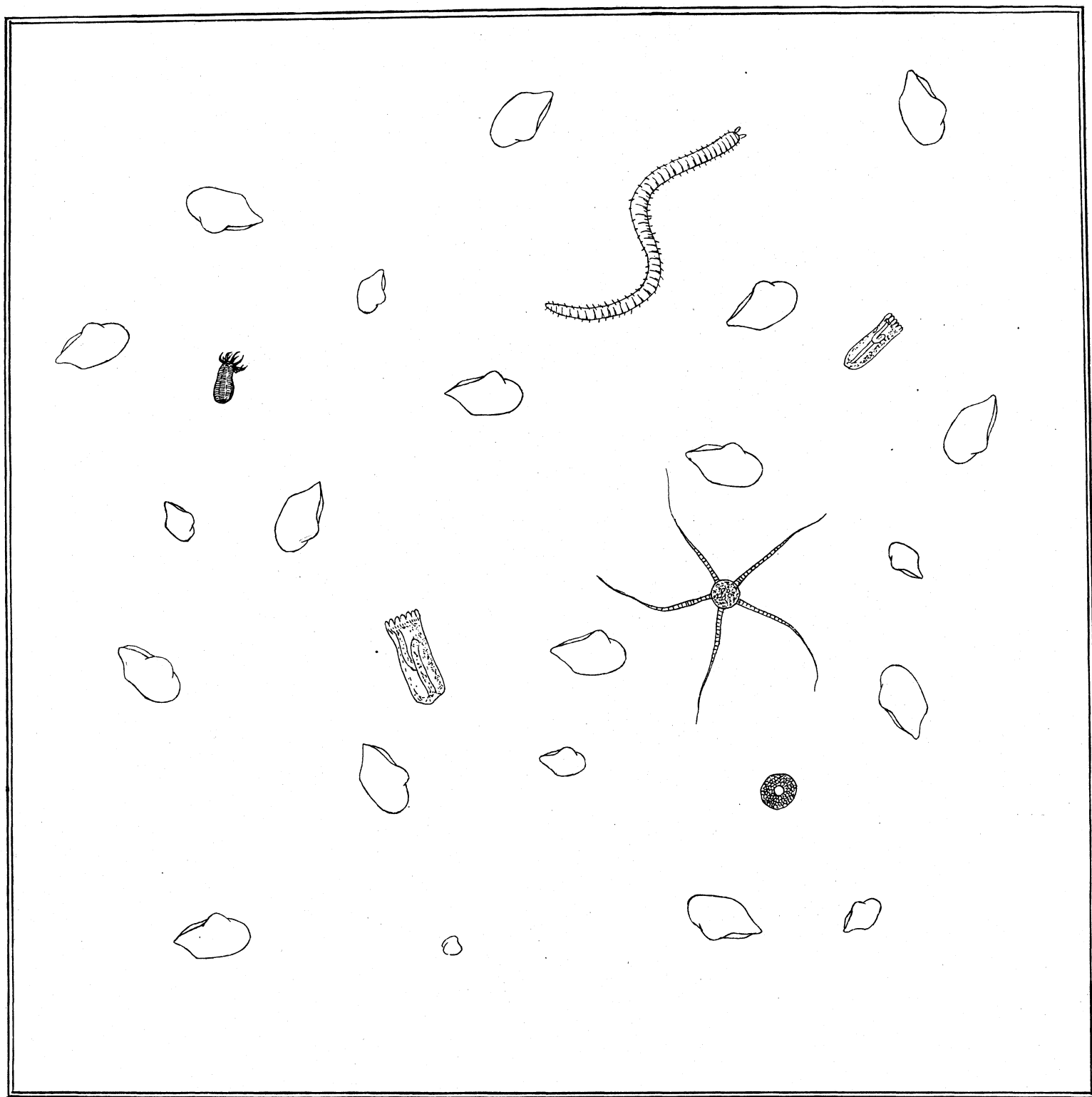
Ophiocten sericeum: Ind. 1, W. 0.10 gr.

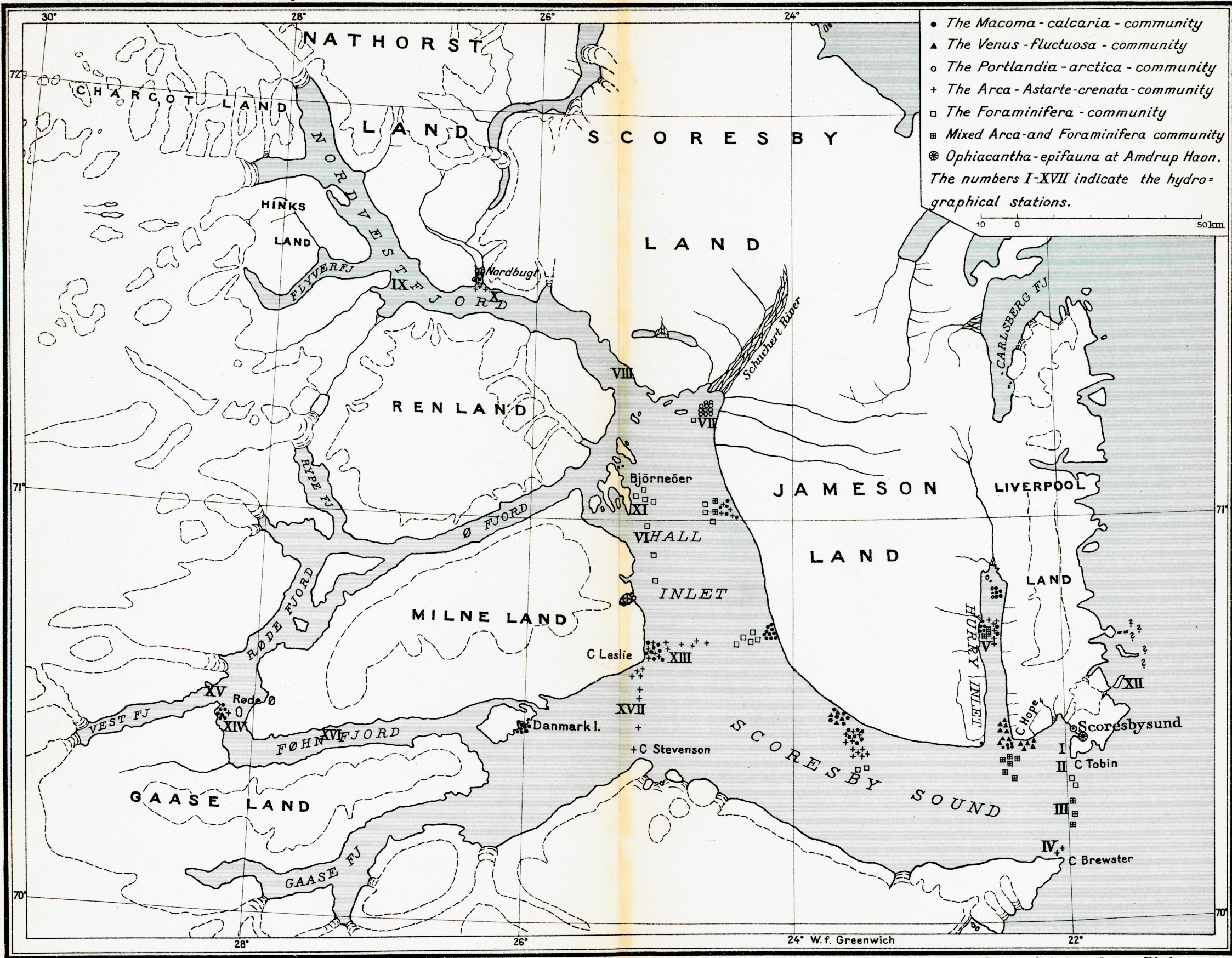
Lumbriconereis sp.: Ind. 1, W. 3.48 gr.



Halcampoides purpurea: Ind. 1, W. 0.14 gr.

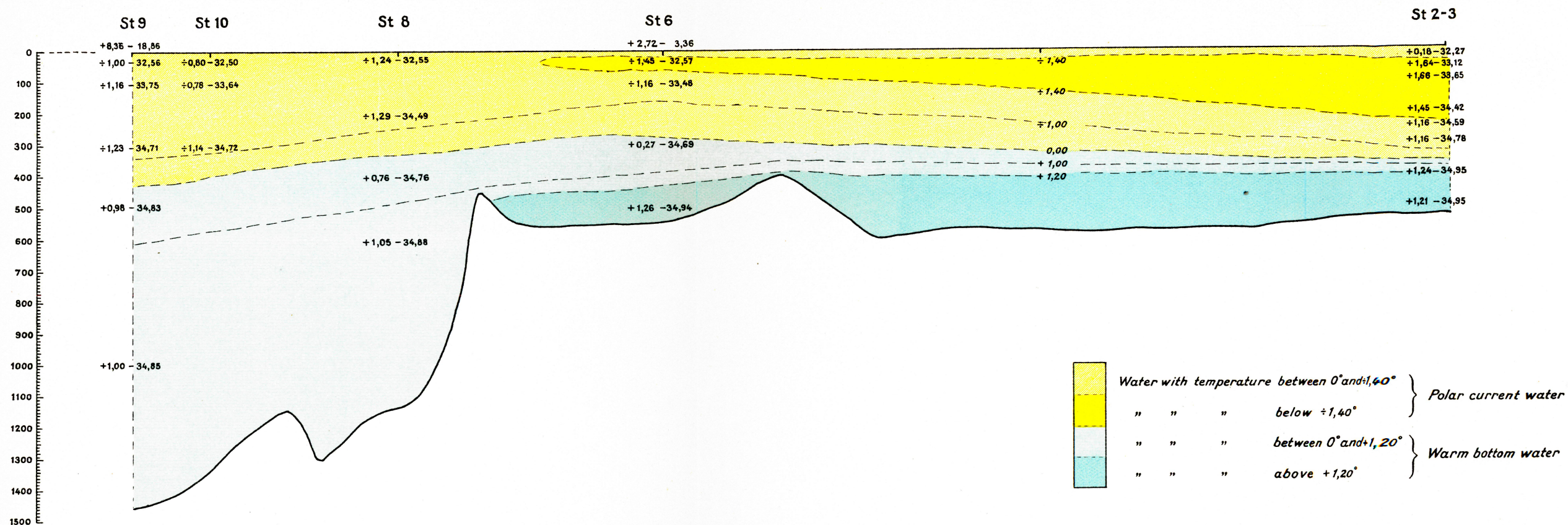
Total weight c. 10 gr.



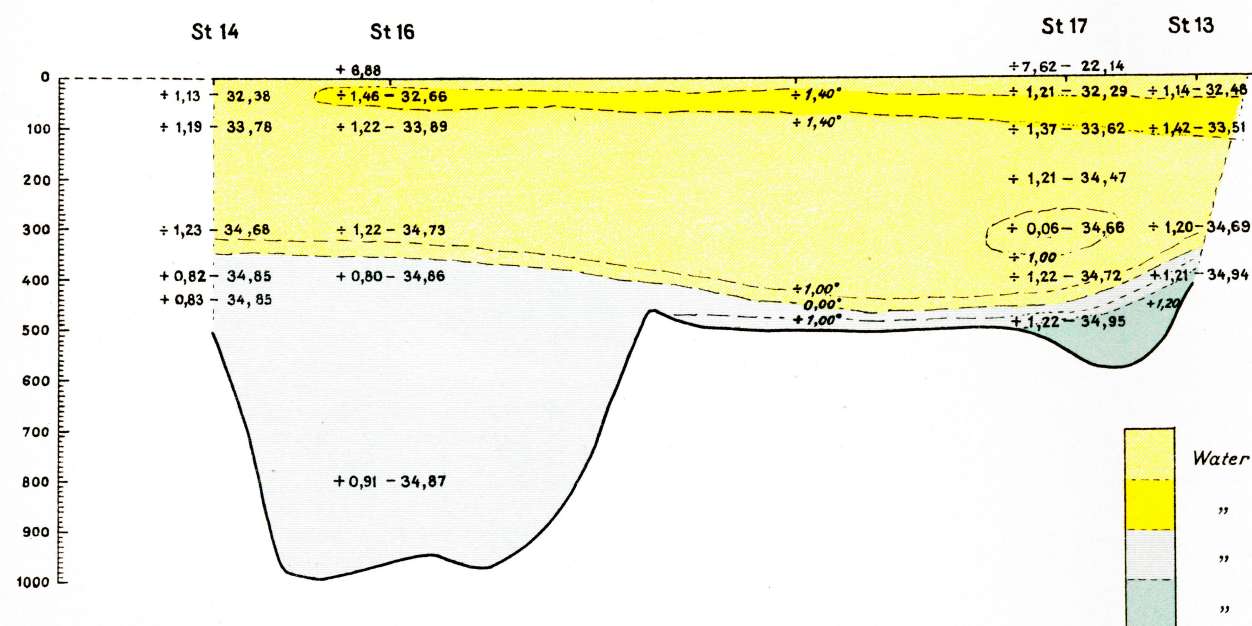


A:

Vertical section from Flyver Fjord to the mouth of Scoresby Sound.



B: Vertical section from Røde Ø to C. Leslie.



C: Vertical section from C. Tobin to C. Brewster.

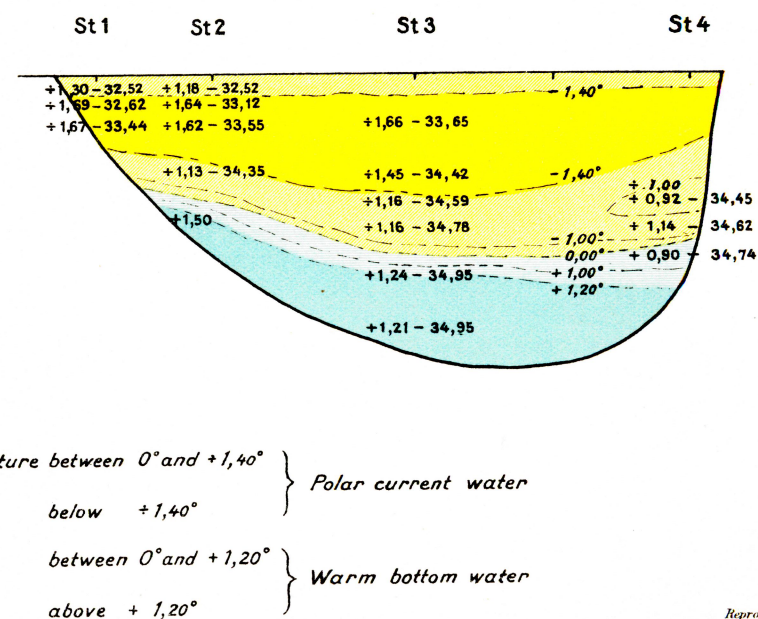
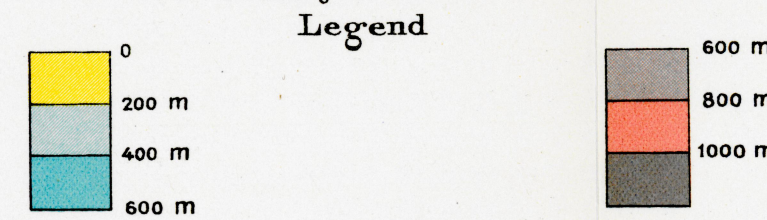


Chart showing
THE BATHYMETRICAL CONDITIONS
in
THE SCORESBY SOUND FJORD COMPLEX
(EAST GREENLAND)

Based upon the soundings taken from *S/S „Godthaab“* during the Danish expedition to East Greenland in the summer of 1833.
Conducted by G. Thorson.

Further the soundings from the *Ryder* and the *Andrup* expeditions have been used (here marked with a circle). The different bathymetrical Zones indicated in colour are based exclusively on the soundings given in the map.

Storford, after a sketch by H. Backlund.
Soundings in metres.



1:550 000

0 10 20 30 40 50 km

