

CONFIDENTIAL: Not to be quoted without reference to the Laboratory

S16

2SR56

## CRUISE REPORT

F.R.S. "SCOTIA"

2nd - 18th April, 1956

After being delayed for two days due to the illness of the 2nd engineer and the need to obtain a replacement 'Scotia' sailed from Aberdeen on the afternoon of the 2nd April and proceeded north to carry out the section along 61°01'N. This section and the next one to the south of it were carried out in very bad weather conditions before the ship docked at Lerwick on the morning of the 7th April. Sailing from Lerwick was delayed until the afternoon of the 9th due to unfavourable weather and to two sick members of the crew having to be put ashore; the ship eventually sailed short-handed. 'Scotia' was continuously at sea thereafter until she docked at Aberdeen on the evening of the 17th April, having completed all but thirteen of the scheduled stations.

Hydrography

Surface and bottom temperatures were comparable with those obtained on the equivalent cruise in 1955 and rather below the Provisional Long Term Mean as issued by the Service Hydrographique. Surface temperatures ranged from 4.18°C in the north-eastern part of the area to 7.50°C east of Shetland and a surface temperature of 8.30°C was recorded north of Flugga. Over the area as a whole temperature varied little with depth except over the Norwegian Deeps, where a warmer water layer was sandwiched in between colder water above and below it. Bottom temperatures varied from 4.11°C in the south east to 7.62°C north of Flugga. In addition to the normal salinity samples a large number of samples for chemical analysis and culture work were taken. Productivity experiments using the C<sub>14</sub> technique were also carried out over the Norwegian Deeps.

Plankton

The richest phytoplankton occurred in two distinct patches. The first lying between 59°N and 61°N extended from 2°E eastwards over the Norwegian Deeps with *Skeletonema* as the dominant form. The other patch in which *R. styliformis* was dominant was situated over the Fisher Bank. Over the area as a whole the standing crop of zooplankton was rather small. *Calanus*, *S. elegans* and *Oikopleura* made up the bulk of all the collections; the last, chiefly small specimens, being unusually widespread and numerous. Although *S. elegans* was the dominant chaetognath over most of the area *S. setosa* was also noted in considerable numbers over the Fisher Bank extending westwards to 1°E and also over the Viking Bank. *Meganyctiphanes norvegica* occurred at all stations over the Norwegian Deeps. The only exotic observed in the samples was *Galettta australis* which was taken at two stations on the 61°01'N section and in the passage between Orkney and Fair Isle.

The programme of plankton sampling at three depths by means of modified indicators was not a success. Due to the large number of sheaves over which the wire had to pass between the winch and the water the indicator stops attached to the wire were soon damaged. Moreover the distance between the winchman and the person operating the samplers made the accurate control necessary extremely difficult. A sampler with an attached clamp, so that only the wire is wound onto the winch, and thus allowing the plankton winch to be used, is required to make this scheme feasible. Consecutive samples, using a single sampler with its own diving plane, were taken over the greater part of the area and a normal indicator sample at every station for the Edinburgh Laboratory.

## General

The echo-sounder was run continuously until the 13th, when it developed a defect and its use was discontinued. The turbidity meter was towed at full speed for several hours and behaved satisfactorily. A number of samples were taken for blue fluorescence measurements and a few duplicate chlorophyll samples for red fluorescence measurements. The bad weather encountered during most of the cruise prevented analysis at sea. Good results were however obtained in harbour using a constant voltage unit on the ships power supply. Values for blue fluorescence showed considerable variation in the area sampled. Further analysis is being carried out and the results compared with those given by the standard technique.

Alan Saville

1st May, 1956

## Circulation

Mr. Wall	Mr. T. C. Jones
Mr. M. Graham	Mr. G. S. Gault
Dr. J. N. Carruthers	Dr. Graham
Mr. Leonard	Dr. Lucas
Captain D. T. MacCallum	Dr. Wood
Mr. F. S. Russell	Dr. Tait
Mr. K. M. Rae	Dr. Fraser
Dr. G. Reay	Dr. Rae
Dr. E. Leloup	Mr. Parrish
Dr. A. V. Tåning	Mr. Saville
Dr. J. Ancellin	Mr. Steele
Prof. A. Bückmann	Mr. Gordon (2)
Dr. B. Havinga	Scientific Staff on board
Dr. A. R. Molander	Library (2)
Captain Bruce	File
Mr. Chisholm	Spare (4)
Capt. A. M. Finlayson	Fishery Officers
Mr. Jappy	Dr. Furnestin