

## CRUISE REPORT

F.R.S. "SCOTIA"

12th August-7th September 1955

"Scotia" sailed from Aberdeen on the morning of 12th August and the following day successfully carried out the productivity sampling on the Fladen at 58°20'N 0°30'E. At about 9 p.m. when the last samples were being taken aboard, the Captain was informed of the discovery of a crack in the ship's boiler. It was decided to return to Aberdeen forthwith, where "Scotia" docked on 14th August.

The damage to the boiler proved to be more extensive than was at first realised, and it was not till the 29th August that "Scotia" was again ready to sail. The original programme had to be modified; the lining to the west of Scotland was cancelled and the hydrographic and plankton work on Faroe-Shetland lines was divided into priorities; the cruise time was extended to 5th September. Mr. K. J. H. Andrews (Student) replaced Mr. W. A. Barr (Student) and Mr. C. B. Cowey of Reading joined the ship at Aberdeen on 28th August.

The 13 stations on the Butt of Lewis-Faroe Bank Line (priority 1) were completed by 1st September in very bad weather. At Faroe Bank work was broken off in order to attempt the Enniberg line (priority 3), but an adverse weather report caused "Scotia" to put into Trangisvaag. When September 2 went by without being able to sail, the Enniberg line had to be cancelled. "Scotia" sailed from Trangisvaag on 3rd September and worked the first station on the Nolso-Flugga line (priority 2). It was soon apparent from the adverse forecast received that morning and the rapidly rising wind, that the completion of this line would not be possible. "Scotia" steamed back to Fugle Fjord and remained there till the evening of the 4th September. As the 6 p.m. forecast promised no improvement in the weather, and time was running out, it was decided to sail immediately but to work as many stations as possible on the line to Flugga. As it turned out, all the remaining stations on this line were completed in rather difficult conditions before the predicted gale overtook us. "Scotia" made the passage back to Aberdeen via the east side of Shetland and docked on the 7th September, 1955.

HYDROGRAPHY

Surface temperatures over the Continental Shelf N.W. of the Butt of Lewis and over Faroe Bank were 14.5°C and 11.4°C respectively; over the deep water between these two shelves, where the main Atlantic current is encountered an average value of 12.5°C existed. South of the Wyville-Thompson Ridge the temperature at 100m was 9.9°C and at 1000m 7.9°C. A thermocline of 3° existed between the 40m and 80m depths. Norwegian Sea Water with a temperature of -0.45°C was registered at 600m to the immediate south of Faroe Bank.

In the Faroe-Shetland Channel surface temperatures increased from 11.8°C east of Faroe to 13.3°C off Flugga, while negative temperatures ranging from -0.3°C to -0.8°C were recorded from 800m to the bottom, 1250m. Between 500m and 700m, the region where Atlantic and boreal waters met, a steep temperature gradient of 6° was recorded.

Dissolved oxygen values were directly associated with the two kinds of water - Atlantic water with temperatures ranging from 14°C to 7°C had values of 5.5 c.c./L to 5.9 c.c./L while boreal water had an almost constant value of 6.6 c.c./L. The lowest oxygen value of 5.1 c.c./L was recorded at 150m depth on the edge of the Continental Shelf just north of the Butt of Lewis and again N.W. of Flugga.

Owing to the existence of the thermocline the upper layers showed considerable depletion of phosphate - 0.95µ gm.-a. PO<sub>4</sub>-P/L was recorded at the Butt of Lewis and at Flugga; these values gradually increased to 0.4µ on reaching Faroese waters. Cold Norwegian sea water was slightly richer in phosphate than the main body of Atlantic water, the values being 0.99µ and 0.84µ respectively.

Water samples were collected at two stations on the Butt of Lewis-Faroe Bank line for Dr. Redfield of Woods Hole Laboratory; drift bottles were liberated at 13 stations. At 61°08'N 2°10'W the repeat station sampling was carried out in full.

#### PLANKTON

Galanus was abundant at two centres, one off the Butt of Lewis and the other east of Faroe. Between these and also between Faroe and Shetland the plankton was oceanic in character but in distinct communities, with differences between the Scottish and Faroese ends of the lines, and differences between the Faroe-Butt and Faroe-Shetland lines. On the Faroe-Butt line Arachnactis was very common with a few Salpa fusiformis and Galetta at the southerly end and with abundant Lensia, Meganyctiphanes and Euchaeta at the northerly end and in the deeper and colder water. On the Faroe-Shetland line Arachnactis was also present but in lesser quantity while salps were extremely abundant to the immediate north of Shetland. Lensia and Meganyctiphanes were again dominant at the Faroe end of the line. Aurelia was common to the east of Faroe.

Phytoplankton was most abundant near the centre of both lines.

R. B. BURNS  
30th September, 1955

#### CIRCULATION

Mr. Wall, M.A.F.	Dr. Lucas
Mr. M. Graham	Dr. Wood
Dr. J. N. Carruthers	Dr. Tait
Mr. W. K. Rose	Dr. Fraser
Captain D. T. MacCallum	Dr. Rae
Mr. F. S. Russell	Mr. Parrish
Mr. K. M. Rae	Mr. Saville
Dr. G. Reay	Mr. Steele
Dr. E. Leloup	Scientific Staff on Board
Dr. A. Taning	Mr. Andrews
Mr. U. Stefansson	Mr. Barr
Mr. G. Rolletsen	Mr. Cowey
Captain Bruce	Fishery Officers
Captain A. M. Finlayson	File
Mr. Johnstone	Mr. Gordon
Mr. Jappy	Library 2
Mr. T. C. Jones, W.F.A.	Spare 4
Mr. G. S. Gault, W.F.A.	