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CRUISE REPORT

F. R. S. "SCOTIA"

March 1952

"Scotia" sailed from Aberdeen on Wednesday, 5th March at 0900 hours in poor weather. On reaching the first station C13c conditions were found to be unworkable and deteriorating. Shelter was sought at Cromarty where the ship lay at anchor until Saturday 8th. At 10.00 hours "Scotia" left for the Butt of Lewis. A heavy swell was encountered there and it was decided to delay the start until next day. Fairly good conditions were found on Monday 10th and the first six stations had been completed when a wireless message requesting Dr. Johnston to return home immediately was received. After landing Dr. Johnston at Stornoway and picking up Mr. McInnes as relief scientist the cruise continued under the charge of Mr. Davidson. The Butt of Lewis-Faroe line was resumed at 11.20 hours on March 13th and completed on the 14th. An immediate start was made on the Faroe Survey and all stations north of 62°00'N excepting Nos. 32 and 33 were completed. Deteriorating weather conditions on the 17th forced "Scotia" to take shelter in Klakksvik. Work was resumed at stations 37 - 40 on the 20th after which a start was made to the Faroe-Shetland line. At 18.45 hours on the next day work had to be abandoned at A21a owing to weather. Drift bottles were released at stations on the way to Mid Yell where the ship anchored. Lerwick was entered on the 23rd. Leaving Lerwick next day the four accumulated temperature stations were worked on the passage to Aberdeen which was reached on the 26th at 00.30 hours.

Hydrography

Surface temperatures over the area were normal for the season. At the Butt of Lewis the surface temperature was 6.7° and at the next three stations the value increased progressively to a maximum ca. 9.1° at XX17a and decreased thereafter to 7.4° at VV21d. In the deep water to the south-east of the Wyville Thomson Ridge temperatures were ca. 8° except 7° at WW18d 1000m. On the N.W. side the deep bottom temperatures ranged from 2.4° at WW19c, 650m. to -0.6° at WW20c, 900m.

In the Faroe Survey area, temperatures were uniform with depth; perimeter stations had temperatures close to 7° decreasing to ca. 5.6° towards land. On the Faroe-Shetland line the surface temperatures ranged from 6.4° at Faroe to 7.5° at A21b where the line had to be abandoned. Bottom temperatures were -0.9° at A21a, 1200m. and -0.8° at A21b, 1335m.

Chemistry

The free phosphate distribution throughout the cruise showed uniformity with depth. Concentrations ca. 0.6  $\mu$ g-at/l at the Butt of Lewis increased to ca. 0.9 at XX17a and ca. 1.0 at VV20b. To the north-west on the Butt of Lewis-Faroe line, throughout the Faroe survey, and on the part-completed Faroe-Shetland line, values were ca. 1.0 - 1.1. In general the amount of free phosphate was somewhat higher than usual. Oxygen and total phosphate analyses are not yet completed.

The opportunity was taken during this cruise of passing a large quantity of filtered sea water through an absorption train consisting of cellulose, alumina and charcoal columns. An analysis of organic residues eluted from the columns is envisaged.

Plankton

Collections on the whole were sparse with very little indication of diatom growth. One-metre net collections from the Butt of Lewis-Faroe Bank were poor; Aglantha was predominant. Over the Lewis Shelf collections contained large numbers of eggs, particularly of saithe, although haddock eggs were also numerous. Calanus hyperboreus was present at WW19d and Pleuromamma robusta at XX17a. Collections were richer over Faroe Bank and northwards

with Calanus as the dominant organism.

In the Faroe region collections were generally poor. Fish eggs were distributed to the north and east of the islands with the greatest concentrations over the Nolso and Fuglo Banks. Saithe, cod and haddock eggs were all represented.

On the Faroe-Shetland line rich collections of Calanus were taken along with small numbers of Limacina. Crustaceans were poorly represented at stations between Shetland and Aberdeen though moderate numbers of cod or haddock eggs were found. At C14d and C13c large specimens of Sagitta elegans and small sandeels were numerous.

#### Trawling

Of the 22 trawls required in the programme 15 were done. Fishing was light especially during daylight on the Faroe plateau. One trawl (XX24d) produced 15 fish in the small mesh and another (WW23b) contained 7 fish, of which 6 were in the cod-end. About 50% of the adult haddock caught were spent or ripe and running - a number of the ovaries were preserved for fecundity estimations in the Laboratory.

R. JOHNSTON  
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2nd April, 1952.

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