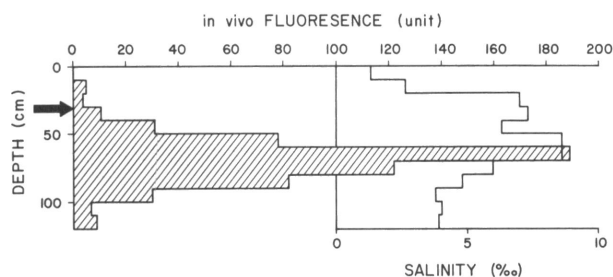


ty in the ice-core. No major peaks of *in vivo* fluorescence were observed at the bottom of the ice.

In addition to the surface monitoring program by Texas A&M, members of the oceanographic unit of the *Burton Island* continued this program from Valparaiso to 15°N. We are grateful for these efforts. We are also indebted to Captain J.M. Fournier and Commander R. Farmer, Lieutenant E. Rollison, and Lieutenant Commander R. Love for their splendid cooperation. We express our gratitude to S. Ackley of CRREL for ice cores and to G.A. Franceschini for making available to us the solar radiation data he collected during the cruise. Kurt Buck, Michael Meyer, and Robert Warner, our three graduate students, deserve much thanks for the success of the on-board program.



**Figure 2.** Vertical profile of *in vivo* fluorescence and salinity of the ice-core taken at Station II (73°07' S, 42°44' W.) in the Weddell Sea. Arrow indicates position of sea-surface.

Observations made and parameters studied during *USCGC Burton Island* cruise in the Weddell Sea (10 February to 15 March 1977).

| Observations/parameters                                            | No. of stations occupied | No. of depths sampled |
|--------------------------------------------------------------------|--------------------------|-----------------------|
| Primary production ( <i>in situ</i> )                              | 13                       | 104                   |
| (simulated <i>in situ</i> )                                        | 7                        | 46                    |
| Chlorophyll ( <i>a</i> , <i>b</i> and <i>c</i> ) and phaeopigments | 20                       | 160                   |
| Phytoplankton cell counts                                          | 20                       | 161                   |
| ATP                                                                | 18                       | 143                   |
| Inorganic nutrients (phosphates, silicates, nitrates)              | 20                       | 161                   |
| Particulate organic carbon (POC) and nitrogen (PON)                | 20                       | 149                   |
| Dissolved organic carbon (DOC)                                     | 20                       | 138                   |
| Ice algae                                                          | 6                        | 95                    |
| Vertical net tows (with 40 $\mu$ m mesh nets)                      | 18                       | 34                    |
| Deep net tows (with 222 $\mu$ m mesh net)                          | 15                       | 18                    |
| Feeding experiments                                                | 7                        | 7                     |
| Chlorophyll <i>a</i> monitoring program                            | 150                      | 300 (surface)         |

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## Foraminiferal species obtained by R/V *Hero* from Deception Island, 1971-1976

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During five successive austral summers, December 1971 through February 1976, R/V *Hero* collected more than 250 bottom samples from Deception Island, South Shetland Islands (Lipps *et al.*, 1972; DeLaca *et al.*, 1973; Lipps and DeLaca, 1974; Temnikow and Lipps, 1975). These samples have been analyzed for their foraminiferal content (Finger, 1976). A preliminary report (Finger, 1975) based solely on the 1974 collection noted the most abundant species inhabiting the island's sunken caldera, Port Foster, and outer submarine slopes. Forty-four genera and 88 species comprise the total fauna compiled from the 5-year collection. Cluster analysis (Finger, 1976) revealed the low-diversity fauna of Port Foster to be represented by *Miliammina arenacea*, *Stainforthia fusiformis*, and *Nonionella bradii*, while the biofacies of *Cribrostomoides jeffreysii*, *Rosalina globularis*, *Pseudoparrella exigua*, *Trochammina ochracea*, *Trifarina angulosa*, *Cibicides lobatulus*, and *Globocassidulina bora* characterizes the biotope surrounding the island. *Trochammina malovens*, another common species, is equally abundant in both environments.

The following species list has been revised and alphabetized. Species designated as rare are those that were never found in concentrations of at least 1 percent of any sample station's assemblage.

- Adercotryma glomeratum* (Brady) = *Lituola glomerata* Brady, 1878.  
*Ammodiscus incertus discoideus* Cushman = *Ammodiscus incertus* d'Orbigny var. *discoideus* Cushman, 1917.  
*Anomalina* sp. (rare)  
*Astacolus hyalacrulus* Loeblich and Tappan, 1953. (rare)  
*Astrononion antarcticus* Parr, 1950. (rare)  
*Astrononion echolsi* Kennett, 1967.

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- Astrononion stelligera* (d'Orbigny) = *Nonionina stelligerum* d'Orbigny, 1839. (rare)
- Brizalina pacifica* (Cushman and McCulloch) = *Bolivina acerosa* (Cushman) var. *pacifica* Cushman and McCulloch, 1942.
- Buccella frigida* (Cushman) emend. Andersen, 1952.
- Bulimina aculeata* d'Orbigny, 1826. (rare)
- Cassidulinoides parkerianus* (Brady) = *Cassidulina parkeriana* Brady, 1881.
- Cibicides lobatulus* (Walker and Jacob) = *Nautilus lobatulus* Walker and Jacob, 1798.
- Cibicides refulgens* de Montfort, 1808.
- Cribr stomoides jeffreysi* (Williamson) = *Nonionina jeffreysi* Williamson, 1858.
- Cribr stomoides* sp.
- Cyclogyra involvens* (Reuss) = *Operculina involvens* Reuss, 1850.
- Discorbinella bertheloti* (d'Orbigny) = *Rosalina bertheloti* d'Orbigny, 1839.
- Eggerella minuta* (Wiesner) = *Verneulina minuta* Wiesner, 1931.
- Fissurina diaphana* (Buchner) = *Lagen a diaphana* Buchner, 1940. (rare)
- Fissurina eburnea* (Buchner) = *Lagen a eburnea* Buchner, 1940.
- Fissurina laevigata imperfecta* (Buchner) = *Lagen a laevigata* (Reuss) forma *imperfecta* Buchner, 1940. (rare)
- Fissurina* cf. *tingillifera* (Buchner) = *Lagen a tingillifera* (Buchner, 1940. (rare)
- Fissurina* sp. A. (rare)
- Fissurina* sp. B. (rare)
- Fursenkoina earlandi* (Parr) = *Bolivina earlandi* Parr, 1950.
- Globigerina bulloides* d'Orbigny, 1826.
- Globocassidulina bora* (Crespin) = *Cassidulina bora* Crespin, 1960.
- Heronallenia wilsoni* (Heron-Allen and Earland) = *Discorbin a wilsoni* Heron-Allen and Earland, 1922.
- Hippocrepina alba* (Heron-Allen and Earland) = *Hippocrepinella alba* Heron-Allen and Earland, 1932.
- Hippocrepina flexibilis* (Wiesner) = *Technitella flexibilis* Wiesner, 1931.
- Hippocrepina* sp.
- Hippocrepinella hirudinea* Heron-Allen and Earland, 1932.
- Lagen a gracilis* Williamson, 1848. (rare)
- Lagen a meridionalis* Wiesner = *Lagen a gracilis* Williamson var. *meridionalis* Wiesner, 1931. (rare)
- Lagen a serica* Buchner, 1940. (rare)
- Lagen a* sp. A. (rare)
- Lagen a* sp. B. (rare)
- Lagen a* sp. C. (rare)
- Miliammina arenacea* (Chapman) = *Miliolina oblonga* (Montagu) var. *arenacea* Chapman, 1916.
- Miliolinella subrotunda* (Montagu) = *Vermiculum subrotundum* Montagu, 1803.
- Neogloboquadrina pachyderma* (Ehrenberg) = *Aristerspira pachyderma* Ehrenberg, 1861.
- Nodosaria calomorpha* Reuss, 1865. (rare)
- Nonionella bradii* (Chapman) = *Nonionina scapha* (Fichtel and Moll) var. *bradii* Chapman, 1916.
- Oolina apiculata* Reuss, 1851. (rare)
- Oolina globosa* (Montagu) = *Vermiculum globosum* Montagu, 1803. (rare)
- Oolina laevigata* (d'Orbigny) = *Nodosaria* (*Glandulina*) *laevigata* d'Orbigny, 1826. (rare)
- Oolina pseudocatenulata* (Chapman and Parr) = *Lagen a pseudocatenulata* Chapman and Parr, 1937. (rare)
- Oolina scalariforme-sulcata* Wiesner, 1931. (rare)
- Oolina scalariformis* (Williamson) = *Entosolenia squamosa* (Montagu) var. *scalariformis* Williamson, 1848. (rare)
- Parafissurina curvens* (Buchner) = *Lagen a curvens* Buchner, 1940. (rare)
- Parafissurina dohrnii* (Buchner) = *Lagen a dohrnii* Buchner, 1940.
- Parafissurina fusiformis* (Wiesner) = *Ellipsolagen a fusiformis* Wiesner, 1931.
- Parafissurina* cf. *fusiformis* (Wiesner) = *Ellipsolagen a fusiformis* Wiesner, 1931 (rare)
- Parafissurina lateralis simplex* (Buchner) = *Lagen a lateralis* (Cushman) forma *simplex* Buchner, 1940. (rare)
- Parafissurina pseudomarginata typica* (Buchner) = *Lagen a pseudomarginata* forma *typica* Buchner, 1940. (rare)
- Parafissurina quadrata* Parr, 1950. (rare)
- Parafissurina* cf. *staphyllearia* (Schwager) = *Fissurina staphyllearia* Schwager, 1866. (rare)
- Parafissurina* sp. A. (rare)
- Parafissurina* sp. B. (rare)
- Parafissurina* sp. C. (rare)
- Patellina corrugata* Williamson, 1858. (rare)
- Pseudobolivina antarctica* Wiesner, 1931.
- Pseudobulimina chapmani* (Heron-Allen and Earland) = *Bulimina chapmani* Heron-Allen and Earland, 1922. (rare)
- Pseudonodosaria torrida* (Cushman) = *Nodosaria* (*Glandulina*) *laevigata* d'Orbigny var. *torrida* Cushman, 1923. (rare)
- Pseudoparrella exigua* (Brady) = *Pulvinulina exigua* Brady, 1884.
- Pullenia subcarinata* (d'Orbigny) = *Nonionina subcarinata* d'Orbigny, 1839.
- Pyrgo bulloides* (d'Orbigny) = *Biloculina bulloides* d'Orbigny, 1826. (rare)
- Pyrgo depressa* (d'Orbigny) = *Biloculina depressa* d'Orbigny, 1826. (rare)
- Pyrgo elongata* (d'Orbigny) = *Biloculina elongata* d'Orbigny, 1826. (rare)
- Pyrgo williamsoni* (Silvestri) = *Biloculina williamsoni* Silvestri, 1923. (rare)
- Quinqueloculina seminulum* (Linnaeus) = *Serpula seminulum* Linnaeus, 1758.
- Recurv oides contortus* Earland, 1934. (rare)
- Reophax dentaliniformis* Brady, 1881.
- Reophax diffflugiformis* Brady, 1879.
- Reophax distans gracilis* Earland = *Reophax distans* Brady var. *gracilis* Earland, 1933.
- Reophax nodulosus* Brady, 1879. (rare)
- Reophax pilulifer* Brady, 1884. (rare)
- Reophax scorpionus* de Montfort, 1808. (rare)
- Rosalina globularis* d'Orbigny, 1826.
- Saccammina sphaerica* Brady, 1871.
- Spirillina radiosa* Parr, 1950. (rare)
- Spiroplectammina biformis* (Parker and Jones) = *Textularia agglutinans* d'Orbigny var. *biformis* Parker and Jones, 1865.
- Stainforthia fusiformis* (Williamson) = *Bulimina pupoides* d'Orbigny var. *fusiformis* Williamson, 1858.
- Textularia wiesneri* Earland, 1933.
- Thalmanammina parkerae* (Uchio) = *Recurvoidella parkerae* Uchio, 1960.
- Trifarina angulosa* (Williamson) = *Uvigerina angulosa* Williamson, 1858.
- Trochammina malovens* Heron-Allen and Earland, 1929.
- Trochammina ochracea* (Williamson) = *Rotalina ochracea* Williamson, 1858.

I thank Jere H. Lipps for comparing the Deception Island species with Heron-Allen and Earland's collection in the British Museum (Natural History), London. I am also grateful to John B. Anderson for permitting me to study his Weddell Sea reference slides at Rice University, Houston, Texas. This research was supported by National Science Foundation grant GV-31162.

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## Studies in polar biology

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In the early stages of the U.S. Antarctic Research Program, the Division of Polar Programs, National Science Foundation, and the Smithsonian Oceanographic Sorting

Center (SOSC) developed agreements concerning collection and scientific use of biological materials including specimens, data, and ocean bottom photographs. The agreements reflected a plan for systematic analysis of antarctic biota, especially marine organisms to be collected from U.S. research ships. The goal was to insure that specimens and related data, collected at considerable expense, would be readily and widely available to specialists for systematic and other scientific analyses. The plan was a unique approach to a substantial, nationally funded, oceanographic venture.

The concept of a national sorting center itself was new—at least on the scale required by the antarctic research program. But the plans for support of systematic research extended beyond sorting, recording, and distributing specimens to scientists seeking research materials. We became aware that interested specialists sometimes could not complete their studies in a timely manner without technical help or funds for supplies. Also, some antarctic groups of special ecological interest are abundant and widely distributed; the size of the collections of such taxa is enormous. Thorough study of such groups will require years of effort by numerous scientists. So, going one step further, SOSC (with support from the National Science Foundation) has contracted with scientists to examine some collections and prepare monographs and other reports on a variety of fauna and flora. This program, cooperative systematic studies, and a number of the taxa involved were reported (Landrum, 1976).

The figure illustrates the scheme for collecting, processing, and studying polar collections. The figure shows the interactions of SOSC, the polar programs supported by NSF, the grantees of the agency who have collected specimens from

