January 31. When unloading was complete, return cargo for New Zealand and Davisville, R.I., was loaded and *Wyandot,* with 37 redeploying passengers on board, sailed for Lyttelton, New Zealand. Just before *Wyandot*'s departure USNS *Maumee* arrived.

Heavy weather and the presence of numerous ice floes in Winter Quarters Bay slowed *Maumee*'s approach to berth. Finally, *Staten Island*'s assistance was required to moor and unmoor the large T–5 tanker. *Maumee* delivered 1.744 million gallons of arctic diesel fuel, 2.452 million gallons of jet fuel, and 165,000 gallons of motor vehicle gasoline. For her return voyage she took on 155,000 gallons of aviation gasoline, no longer used by U.S. aircraft in the Antarctic. Some 78,000 gallons of avgas remains.

USCGC *Staten Island* began a bottom survey of four individual approach sites in the Marble Point-Gneiss Point area on January 30. This survey was not completed because of unfavorable weather and ice conditions. Shipboard observations noted that drift ice from as far away as Williams Field—some 40 miles—is carried along the west shore of the mainland by the prevailing east and southeast winds. A counterclockwise sweep of the current at Marble Point appeared to always hold some drift ice along the shore, around and between Marble and Gneiss Points. *Staten Island* observers at one point noted that the current was strong enough to hold the ice against the mainland in the face of a 15- to 18-knot wind.

Staten Island completed her *Deep Freeze 72* requirements by February 18 and departed McMurdo for the United States.

On February 1, USCGC *Northwind* took aboard nine investigators from the Scripps Institution of Oceanography, the Woods Hole Oceanographic Institution, and the Coast Guard Oceanographic Unit. The investigators were to make deep oceanographic casts for temperature, salinity, oxygen, and nutrient data in the Ross Sea between 71°S. and 75°S. and between 140°W. and 170°W. An experiment also was conducted to determine the effects of ice crystals on the measurement of salinity.

By February 20 some 22 oceanographic stations were completed. *Northwind* then proceeded to the vicinity of Hallett Station, where a second cast was taken at one station. Hallett Station was closed on February 21 when *Northwind* helicopters were used to bring out 10 men and 500 kilograms of cargo. The Hallett personnel and oceanographic investigators were returned to McMurdo, where *Northwind* remained pending the arrival of USNS *Eltanin* (see page 59). After refueling *Eltanin* on February 25, *Northwind* departed for Campbell Island and Lyttelton with 11 U.S. and five New Zealand investigators on board.

Cargo was delivered to a New Zealand station at Campbell Island on March 3 using ship's boats and helicopters. *Northwind* arrived at Lyttelton on March 6. Three days later she was ordered to stand by in Lyttelton for possible assistance to the Japanese icebreaker *Fuji.*

Assistance for *Fuji*

In mid-February, the Japanese icebreaker *Fuji* reached a point about 17 miles from Showa Station on her annual supply trip, but ice kept the ship from getting any closer. Although the ship's three helicopters were able to resupply the station and relieve the winter-over crew, heavy equipment had to remain on board.

On February 23, *Fuji* turned back. By March 9, she was still in ice, and it was decided to delay the homeward passage of USCGC *Northwind,* then in Lyttelton, and USCGC *Southwind,* in Rio de Janeiro. Fleet Weather Facility, Suitland, Maryland, continued to send ice forecasts to both *Fuji* and the U.S. icebreakers, which were about 17 sailing days from *Fuji.* On March 11, *Fuji* entered winter ice from young ice. On the 13th, 3 miles of fast ice and 30 miles of pack lay between the ship and open water.

On March 18, ice conditions around *Fuji* appeared to be getting worse, and the Coast Guard ordered *Northwind* and *Southwind* to refuel and replenish and, when ready, to sail toward *Fuji,* whose tanks were down to 21 percent of capacity. *Northwind* departed Lyttelton on March 21, and *Southwind* left Rio de Janeiro the next day.

Also on March 21, Japan made a formal request for U.S. icebreakers to assist *Fuji.*

Seven days later, on March 28, *Fuji* broke out of the ice on her own. With less than 20 percent fuel on board, she headed for Capetown, the nearest port, to refuel before returning to Japan. *Northwind* and *Southwind* changed course for their U.S. home ports.

Novolazarevskaya Station

Mr. Gregg A. Vane (University of California, Los Angeles) is spending a year with the Soviets as an exchange scientist at Novolazarevskaya Station (70°46'S. 11°50'E.), on the Princess Astrid Coast. He arrived on April 10, having traveled aboard Soviet ships from the Canary Islands. Mr. Vane is operating a long-period seismic station similar to those at Pole Station and New Zealand's Scott Base.

Palmer Station

R/V *Hero* returned to Palmer Station on February 22 after making a midseason trip to Punta Arenas, where she disembarked NSF representative Lloyd R. Haugh and three scientific teams and embarked Dr. John H. Dearborn and five colleagues from the University of Maine.

The Dearborn group, investigating the ecology of echinoderms (starfishes, sea urchins) and other organisms, collected extensively from *Hero* near Palmer and as far south as the southern tip of Adelaide Island. Feeding, reproduction, brood protection, and respiration were investigated. In late March, trawls and nettings yielded invertebrates and fishes, including 19 large specimens of the ice fish *Chaenocephalus aceratus,* some of which will go to the Smithsonian Oceanographic Sorting Center. A total of 106 stations were taken, with depths ranging to 670 meters. The group departed Palmer on March 31 aboard *Hero,* which reached Punta Arenas on April 7.

Two groups that had arrived at Palmer Station aboard *Southwind* in January left aboard the icebreaker on February 24. Dr. Frank Strong's group collected arthropods until mid-February and made aerial infrared photographs of Norsel Point and Humble Island from a *Southwind* helicopter. Dr. Gerald Kooyman and his group continued metabolic studies of penguins in February and also made behavioral observations. Both groups reported that they had completed their programs as scheduled.

Two scientific teams of two men each are wintering at Palmer Station this year. Messrs. William L. Graham and A. Robert Crooker, representing Dr. Russell W. Strandtmann (Texas Tech University), are studying the population dynamics of arthropods. In February, sticky slides were placed in 91 areas for collection of the mite *Stereotydeus villosus.* The number of specimens collected declined steadily until late March, when a slight increase was noted, probably owing to continued mild weather. Collections also were made using a berlese funnel for life-history studies. Cultures of two species of *Rhagidia,* another mite family, were started in mid-March, and by month's end several eggs had been laid, although none had yet hatched.

Messrs. William N. Krebs and William L. Stockton are wintering over to continue a study of benthic foraminifera begun in December under Dr. Jere H. Lipps (University of California at Davis). Work in February and March consisted mainly of monitoring phytoplankton and its environmental influences at approximately 100 sites and establishing cultures of algae.

USCGC *Southwind*

Continuing a seal population survey begun in January in the pack ice of the Bellingshausen Sea, USCGC *Southwind* entered the Amundsen Sea in early February. By the 19th she finished her work, having reached as far south and west as 72°30'S. 137°30'W. Scientific leader Dr. Albert W. Erickson (University of Idaho) reported that from January 30 to February 19 a total of 26 shipboard and helicopter censuses of seals were made covering 2,200 square kilometers. Fewer than 2 seals per square kilometer were seen, far lower than that reported for the Bellingshausen Sea but approximately the same as densities previously determined for the Weddell Sea. Most seals were crabeaters, but leopard and Ross seals were seen. Also in February, 16 oceanographic stations were taken.

After finishing her westward track through the Bellingshausen and Amundsen Seas, the icebreaker turned and sailed eastward, this time skirting the pack ice instead of penetrating it. The ship visited Palmer Station on February 23 and 24, taking on personnel and supplies. She set out a day marker on Halfway Island and placed a day marker and a survival cache in the Outcast Islands and then sailed for Buenos Aires.