

THE WORLD'S CLEAREST SEA WATER OFF ANTARCTICA

During a voyage by R/V *Polarstern* in the Weddell Sea, on 13 October 1986, a team of Dutch and German oceanographers lowered a Secchi disc to a record visibility depth of 79 m; the position was 71°23.6'S, 15°02.5'W. The Secchi disc, a simple white disc 30 cm in diameter, indicates water clarity by the depth to which it remains visible. The previous record was claimed in 1985 by T. Berman and colleagues in the eastern Mediterranean Sea, who reported visibility at 53 m depth. The Antarctic reading, taken at 1445 on a sunny afternoon, in calm water surrounded by sea ice, testifies to the extreme clarity of the water and lack of biological activity. Concentration of the plant pigment chlorophyll *a* (a measure of microscopic plant life) recorded at the same time was less than 0.01 mg per m³ in the top 80 m of water, and light absorption measurements showed that the water was hardly distinguishable from filtered sea water. Distilled sea water would give Secchi disc values close to 80 m. Visibility depths of about 70 m were recorded later in the year at several stations further south, off the Riiser-Larsen Ice Shelf. Water clarity measurements have not previously been recorded from the Weddell Sea so early in the season. (Source: Note by W. W. C. Gieskes, C. Veth, A. Woehrmann and M. Graefe in *Eos* 68(9): 123.)

OIL FROM THE CANADIAN ARCTIC

Panarctic Oils Ltd, the only hydrocarbon exploration company currently operating in the Canadian arctic islands, reports an estimated total of 1.7 billion barrels of crude oil reserves at eleven fields, and almost 18,000 billion cubic feet of marketable gas reserves. In late August 1986 it made a further successful shipment of 103,456 barrels of crude oil from the Bent Horn field on Cameron Island in the ice-breaking tanker *MV Arctic*, which traversed the northernmost 200 miles through ice. The icebreaker loaded up within 24 hours. Assistance through the ice was at times given by the Canadian Coast Guard icebreaker *John A. Macdonald*. Off Little Cornwallis Island most of the cargo was transferred to a conventional tanker, the *Imperial Bedford*, for shipment out; 5000 barrels were dropped off at Resolute Bay, and the rest was taken south to reach the Montreal PetroCanada Refinery in September. Bent Horn remained open for a month to refill its storage tank. *MV Arctic*, now upgraded to Arctic class IV and using new ice radar navigation equipment, should now be able to reach Cameron Island every year; double the volume of oil is expected to be shipped out in 1987, some of it for use in direct replacement of diesel fuel in Arctic power plants. (Source: Panarctic Oils Ltd., 19th annual report, 1986.)

Obituary

Dr HELENE ELIZABETH BARGMANN, formerly curator of the Discovery Investigations collections, died on 9 April 1987, aged 90. Born in London in 1896, she read zoology at Bedford College and was an active member of the rowing club there. She joined Discovery Investigations in 1928, working in the 'Discovery hut' behind the Natural History Museum, and producing two important reports on the reproductive system of krill *Euphausia superba* and on its post-larval development and life history. With the outbreak of World War II she joined the Red Cross. In the bombing of London she was responsible for the transfer of the 25,000 glass jars of specimens in the collections from the museum to a place of safety in the Duke of Wellington's country house in

Hampshire. She then joined the Womens Auxiliary Territorial Service, becoming a Junior Commander.

After the war she continued her work as curator of the collections, organizing the examination of the many different systematic groups by specialists throughout the world. She did much editorial work on the long series of reports which resulted from this, and also helped with the examination of specimens collected annually from the Antarctic whaling fleet. A charming and cultured lady, she made the *Discovery* hut a favourite meeting place for old expedition members. She took a special interest in the new generation of biologists joining the Discovery Investigations after the war, and later the biological section of the National Institute of Oceanography; 'my boys' as she affectionately called us. She retired in 1964 and took an active part in the life of her community, as well as keeping a lively interest in developments in Antarctic biology.

S.G. Brown

Capt WILLIAM ROBINSON COLBECK MEng, FRICS, RNR, has died in Liverpool at the age of 80. In 1929, aged 23, he joined the sailing ship *Discovery* for the third and final voyage of the British, Australian and New Zealand Antarctic Research Expedition (BANZARE), led by Sir Douglas Mawson, serving initially as Second Officer and Navigator. Perhaps the greatest achievements of the expedition were the discovery of Mac.Robertson Land, the BANZARE Coast and Princess Elizabeth Land (named after the present Queen), and the preliminary charting of a vast arc of the coastline of Greater (East) Antarctica. Colbeck played his part in navigating and surveying these unknown, rock-strewn and ice-infested waters. Colbeck Archipelago, discovered on 18 February 1931 and consisting of numerous rocky islets near Byrd Head, Mac.Robertson Land, was named after him. He was promoted First Officer for the homeward voyage from Melbourne to England.

Colbeck joined *Discovery* from HMS *Sussex*, in which he had served as a Sub Lt RNR. He was the son of Captain William Colbeck, commander of the two relief expeditions in SY *Morning* during the National Antarctic Expedition, 1901–04 led by Captain Scott. When the Polar Medal came to be awarded to BANZARE expedition members, Colbeck was gazetted to receive the bar to the medal, not the medal itself, the authorities having mistaken him for his father. The error was rectified and he received the medal in his own right. He later served in the merchant marine and became marine surveyor to the Mersey Docks and Harbour Board.

Ann Savours

Dr JOHN MURRAY CRAM died at Frobisher Bay on 18 July 1986. Born on a Saskatchewan homestead in 1926, he moved with his family to Alberta in the 1930s and entered the University of Alberta in 1946. During vacations he worked as a miner, prospector, truck driver and cat-skinner in mining camps in the Northwest Territories. After graduating in English he became a school teacher, marrying another teacher, Barbara McGregor, in 1951 and working with her in a variety of schools in Canada and the United Kingdom. In 1965 Jack joined McGill University's new Department of Counsellor Education. In 1967 the family moved to British Columbia where Jack completed his Ed.D, with a thesis on miners' perceptions of their work in remote areas of northern Canada. Returning to McGill in 1969, he was involved in developing testing programs and research projects for schools in the Province of Quebec.

After recovering from a serious heart attack in 1972 he helped to establish what is now called the Kativik-McGill Teacher Training Program, taking McGill's teacher-training

courses to the Inuit settlements of northern Quebec. There the Inuit themselves helped to elaborate a new system of education, from which professionally-trained and certified Inuit teachers have graduated to instruct primary grades in their own language. Jack became a full professor of education in 1977. Following a sabbatical year, 1977–78, at the Scott Polar Research Institute, Cambridge, he tried to implement at McGill the lessons he had learned in Cambridge about the operation of a successful polar research institute. He tried in vain.

In 1980 he became director of McGill's Centre for Northern Studies, and from 1981 was program director of the Eastern Arctic Teacher Education Program. Jack's heart condition required a pacemaker and ever-stronger medication, but he laughed and joked about his debility; he was the first to encourage any suggestion of celebration, and the life of every party he ever attended—and they were neither few nor small. While visiting Frobisher Bay to help wind up a summer school, he died in his sleep, his work wonderfully accomplished.

Alan Cooke

Dr GAVIN JOHNSTONE died on 15 April 1987, aged 45. Born in Scotland and educated in biology and conservation at the universities of Bristol, London and Aberdeen, he joined the Australian Antarctic Division in 1969 to work as an ornithologist. Working first with Robert Carrick in Adelaide, he wintered on Macquarie Island in 1970 and made many subsequent visits to Macquarie and Heard islands and to Antarctica. He investigated the breeding, diet and distribution of Antarctic and Subantarctic birds and contributed to many polar conservation issues. His work on the lakes and biology of the Vestfold Hills oasis area, Antarctica, was influential in establishing the continuing program there. He gave excellent direction and guidance to ANARE's biology, becoming one of the expedition's chief supervisors of scientific work.

Gavin was a climber with experience in Wales, Scotland, the French Alps and the Hindu Kush, a photographer of exhibition standard, and a member of the Tasmanian University Choral Society. He was a sensitive man, committed to ideals in science, care of the environment and thought for his fellow man. He was always available to those who called on him for guidance, and will be sadly missed by those who knew him.

Members of ANARE

Dr FRANZ NUSSER died on 8 February 1987, in Hamburg. Born in Vienna in 1902, he studied geography, geology, mineralogy, meteorology and biology at the University of Vienna, 1922–27, and was awarded a doctorate in natural sciences with the thesis 'Glaziologische Untersuchungen in Island und Spitzbergen' [Glaciological investigations in Iceland and Spitsbergen]. From 1926 to 1937 he was a secondary school teacher in his home city. Together with two like-minded scientists he founded the Österreichisches Archiv für Polarforschung at Vienna, undertaking three research expeditions to Iceland and two to Spitsbergen. Called up for wartime military duty, he headed Operation Nussbaum, a German meteorological observing station in Spitsbergen from October 1942 to June 1943.

Getting into conversation with Franz Nusser one could be sure that before long he would introduce a polar topic, so much was he tied to the polar regions and to ice. His calm and obliging manner encouraged friendships in many parts of the world. He was proud of forming contacts with scientists abroad, especially Scandinavia, soon after World War II, and of developing the ice service of the Deutsches Hydrographisches Institut (DHI), a service that still exists in the form he gave it. In 1952 he was invited by the

University of Hamburg to lecture on polar sciences; such were his merits and excellent relations with the Institute of Geography that the University nominated him a professor *honoris causa* in 1962. From 1966 to his retirement a year later he directed the Department of Oceanography, one of the major divisions of the DHI, with great success. For many years he continued teaching with great devotion, even after retirement. Nearly all of his numerous scientific papers concern polar phenomena, especially sea ice. We deeply deplore that, with the death of Franz Nusser, polar sciences have lost one of their great and enthusiastic experts.

Hans Walden