THOMAS F. W. BARTH, the Norwegian geologist, died on 7 March 1971, aged 71. He obtained his PhD at the University of Oslo in 1927 with a thesis on the pegmatite intrusives in northern Norway, then worked in Germany, Iceland, and the United States until, in 1937, he became Professor of Crystallography, Mineralogy, and Petrology at the University of Oslo. He returned to the United States in 1939, but was back in Oslo in 1940, a week before the German occupation. After the war, he worked in Chicago, but returned to Oslo in 1949 to become director of the Mineralogisk Geologisk Museum. He served on many committees and commissions, national and international, devoted to improving scientific research generally and geological research in particular. He published voluminously in Norwegian, English, and German. His bibliography of scientific publications, which were mainly concerned with the physical and chemical controls of igneous rock formation, runs to some 200 titles. His work was rewarded by several distinguished prizes and medals and by honorary doctorates from København, Nancy, Kiel, Liège, and Zürich.

LOUIS ERNEST CHARLES "BILL" DAVIES, Arctic medical officer, died in Vancouver on 27 April 1972. He was born in Llanidloes, Wales, on 22 November 1909 and was educated at Rugby, Oxford, and St George's Hospital, London. During World War II, he served in India, Burma, and Malaya; he was awarded the MBE and demobilized with the rank of brigadier. Between 1946 and 1953, he was in private practice in Singapore; then he went to Canada and, in 1954, became Superintendent of the Mackenzie and Western Arctic Zone of the Indian and Northern Health Service of Canada's Department of National Health and Welfare. In 1964, he suffered a severe heart attack, but he did not retire until 1970, by which time he had become Area Director of the department's service in Vancouver.

No doctor ever used an aircraft the way Davies did for the health of the Eskimos. For six years he pursued them from settlement to camp and even to moving groups. Wherever an Eskimo was, that's where Davies thought he should be, too. He covered the Western Canadian Arctic in its entirety, summer and winter, and probably holds the record for landing on unprepared ground, ice, rivers, lakes, and salt water. He had one of the nicest personalities one could meet — always a smile and always ready to discuss ways and means of aiding Eskimos even more. For their part, the Eskimos not only admired and respected him, they loved him. I echo Lord Ritchie-Calder's tribute to him in *The Times* (22 May 1972), "He was a great human being".

S/L Scott Alexander

GEORGIY PETROVICH DEMENT'YEV died on 14 April 1969, aged 71. He was one of the best known of Soviet ornithologists and conservationists. As director of the ornithological laboratory of Moscow State University, he built up

the ornithological collections of the University's zoological museum to become one of the largest in the world. Professor Dement'yev was the author of more than 400 publications. The best known to westerners of his works is the encyclopaedic six-volume *Ptitsy Sovetskogo Soyuza* [Birds of the Soviet Union], of which he was senior editor. This great work has been translated into English by the Israel Program for Scientific Translations, Jerusalem (1966-70).

BORIS OSIPOVICH DOLGIKH, the Siberian ethnographer, died on 31 December 1971, aged 67. After taking courses in history, anthropology and ethnography at Samara and Moscow universities, he first went to northern Siberia as an enumerator for the census of 1926. Thereafter he devoted virtually the whole of his working life to study of northern peoples. He worked in the 1920's among the peoples living in Taymyr, and later he enlarged his field of interest to include the whole of the Yenisey-Lena interfluve. Among his early published works were a monograph on the Kety (1934) and a collection of Nganasany folklore. He later made detailed studies of the Dolgany, Entsy, Nentsy, and Buryats. He joined the staff of the Institute of Ethnography of the Academy of Sciences of the USSR [Institut Etnografii Akademii Nauk SSSR] in 1944, and lectured at Moscow University. The historical aspect of ethnographic studies claimed much of his attention. Perhaps the most important of his many publications was the massive and authoritative Rodovoy i plemennoy sostav narodov Sibiri v XVII v. [Clan and tribal composition of the peoples of Siberia in the 17th century (Moscow, 1960), in which he reconstructed from archival sources the number and distribution of these peoples at first contact with the Russians — a very remarkable feat. He was much interested also in questions of ethnogenesis and folklore. He made many expeditions to the north, and was a well-loved figure among the peoples whose culture he studied.

CHARLES REGINALD FORD, the last survivor of Scott's Discovery expedition, 1901-04, died at his home in Auckland, New Zealand, on 19 May 1972, aged 92. He was born in London and applied to join Scott while he was in the Royal Navy. Scott hired him after less than a minute's conversation and gave him charge of the ship's stores. He earned Scott's high praise for his meticulous care in this work, and he also served as Scott's secretary and accountant. In 1902 he broke a leg skiing, but in 1903 he participated in at least one sledging trip to lay a depot for the Southern Party at Minna Bluff. After the expedition, Ford wound up its financial affairs, which included negotiating the sale of Discovery. He then toured England as Scott's secretary during his lecture tour. Ford himself lectured in Canada and Australia, then, in 1906, settled in New Zealand, where he eventually qualified as an architect. His firm was associated with the design of the Dominion Museum, National War Memorial, Wellington Public Library, and other important buildings. He wrote one short book on his experiences with Scott, Antarctica. Leaves from a diary kept on board an exploring vessel (Christchurch, Whitcombe and Tombs, [nd]) and another on English ceramics, on which subject he was an expert.

GEOFFREY MALCOLM GATHORNE-HARDY, the Norse specialist, died on 7 January 1972, aged 94. He was educated at Eton and New College, Oxford, and was called to the Bar in 1903. It may seem ironic that his death was more fully reported in Norway than in England, but it was in Scandinavian studies that he was most distinguished. He was in Norway in 1905, when that country gained independence and her own king. Then was born the love he henceforward felt for Norway as his second country. He acquired a deep knowledge of her language, history, and literature, and he made many friends there. He also learned some Danish and was proficient in Icelandic. It was interest of this kind that led to publication of his pioneering work, *The Norse discoverers of America* (Oxford, 1921).

In 1910, he made with H. Hesketh Prichard the difficult and dangerous journey from Nain on the Labrador coast inland to Indian House Lake on George River. They were the first white men to travel that route in summer, and they came near starvation, for they met only stragglers of the migrating caribou herd on which they were depending for meat. Gathorne-Hardy contributed a chapter on fishing to Hesketh Prichard's narrative, Through trackless Labrador (Heinemann, 1911). In 1920, he returned to Labrador with the present writer to examine some house ruins near Nain, for he thought there was a possibility they might be of Norse origin. The ruins were clearly not Eskimo but, with the caution of an expert, he did not claim them to be Norse. Perhaps, he postulated, they were the work of Eskimos, alien to Labrador but who had lived among European dwellings in Greenland.

Gathorne-Hardy had lost a finger in the Boer War and a foot in World War I, during which he was awarded the MC and the Belgian Croix de Guerre. During World War II, he worked on Norwegian propaganda and acted as an unofficial delegate to the Norwegian Government in exile. For these services he was given the Order of St Olaf; he also received an honorary PhD from the University of Oslo. After the war he published A royal imposter (1956), an imaginary and plausible reconstruction of King Sverre's saga to show that Sverre was not of royal lineage. He also published admirable translations of poems from Norwegian, Danish, and Icelandic, and a verse translation of Ibsen's Brand (1966). This last work has not received the attention it deserves: in time it may come to be regarded as one of the major translations into English.

When he was 90 and almost blind, he dictated a new preface to a fascimile edition of *The Norse discoverers of America* (Oxford, 1970), in which he accepted a correction to his method of calculating the length of a day's sailing in the 10th century; he also accepted, after reconsidering arguments he had earlier rejected, that the house ruins he investigated in Labrador might indeed be Norse. This flexibility of mind was remarkable in a nonagenarian, but it was characteristic of him: he had a mind of astonishing versatility. Blind and crippled in extreme old age, he met these infirmities with extraordinary cheerfulness and retained to the end the eagerness of an alert and inquiring mind. Of his character it is difficult to write without seeming to fall into the false eulogies of a conventional epitaph, but there are many today, and of more than one generation, who can testify to the sweetness of his character and to his capacity for deep affection.

Robert Gathorne-Hardy

MICHAEL GRAHAM, a former Director of Fishery Research in the Ministry of Agriculture, Fisheries and Food, died on 1 January 1972, aged 73. He was born in Manchester. After service in the Royal Navy during World War I, he read natural history at Cambridge. In 1920, he joined the staff of the Fisheries Laboratories in Lowestoft and, for the next seven years, worked mainly on the biology of cod in the North Sea. During 1927-28, he studied the African cichlid fish *Tilapia* in Lake Victoria. In the 1930's, back in Lowestoft, he continued his work on cod and became concerned with the possibility of over-fishing. This concern developed into a study of the dynamics of exploited fish populations, a pioneer work in a field for which the Lowestoft laboratory became famous after World War II, when Graham had returned from service with the Royal Air. Force to become its director.

Until his retirement in 1958, Graham's greatest professional enthusiasm was for research on cod, work that he personally directed. In November 1945, anticipating his Ministry's decision to build a vessel for research on Arctic fishing grounds. Graham sailed on a commercial trawler to the Bear Island grounds to learn at first hand what were the fishermen's problems. He was convinced that a research ship should be a good Arctic-type trawler, and it was on these lines that Ernest Holt was built. By the time she was launched in January 1949, Graham had recruited four young scientists who worked together as the nucleus of the laboratory's "Arctic Team" for the next ten years. Ernest Holt made seven to nine cruises a year; all but two of the first 50 were to Barents Sea, most of them in the Bear Island-Hope Island-Spitsbergen area, and a great deal had been learned about the cod's biology and seasonal migrations. Graham himself went on one or two cruises each year, usually during winter because of the pressure of his other duties as director. He always enjoyed the weeks of work and talk at sea during the cold, windy months between November and February. His enthusiasm was an inspiration to his younger colleagues, who did not always seem as tough as he was. By them—and by all with whom he came in contact—he will long be remembered for his warm friendship and sympathy and encouragement.

John Corlett

FRANK ILLINGWORTH, Arctic traveller, broadcaster, and journalist, died on 30 March 1972 after a long illness. He was born in Shanghai on 23 November 1908 and came to England, aged 12, to enter Dover College. He first worked for an insurance company but, finding that life restricting, he soon turned to freelance journalism. He was a correspondent during World War II and he published two books about the war. He had travelled in northern Sweden and lived for a time among the Skolt Lapps in the mid-1930's. After the war, he joined the BBC News Division and continued to write, specializing in Arctic subjects. He travelled in Svalbard, Iceland, northern Canada, and Alaska and made his experiences the basis of some hundreds of articles and several books, which include Highway to the north (1955), North of the circle (1951), Men against the Arctic (1949), and Wildlife beyond the north (1951).

Mr Jack Singleton, one of his colleagues at BBC has written, "Frank wouldn't call himself a naturalist — or any other 'ist' except a journalist. He just loved people, how they lived and worked and played, and he rubbed shoulders and sometimes noses with them, and brought them to life for us on the printed page and over the air." Mrs Jennifer Illingworth has generously presented "The Frank Illingworth Collection" to the Scott Polar Research Institute. It is a voluminous collection of her late husband's articles, news clippings, photographs, and correspondence, the impressive results of some 30 years of journalism devoted to the polar regions.

ROCKWELL KENT, artist, author, and traveller, died in Plattsburgh, New York, on 13 March 1971, aged 88. Kent was emotionally committed to whatever he did, and his passionate involvement with the north began in 1919, when he lived for a year with his nine-year-old son on an island near Seward, Alaska. The experience is vividly recorded in diary form in Wilderness, a journal of quiet adventure in Alaska (1920). In 1922-23, he sailed in a small boat in the dangerous waters of Cape Horn, an adventure told in Voyaging southward from the Strait of Magellan (1924). In 1929, he sailed with two others up the Labrador coast and across to Greenland, where their vessel was wrecked south of Godthåb. He spent the rest of the summer along the coast of Greenland, and described these events in N by E (1930). Captivated by the great beauty of that rugged coast and the charm of its people, he returned in 1931-32 to live at Igdlorssuit. Salamina, perhaps his best book, is the name of his housekeeper there. He later published Rockwell Kent's Greenland journal (1962), a daily record of his life in Igdlorssuit and an interesting insight into the background of the earlier work. In 1940, he published an autobiography, This is my own.

Kent's books are warm, humorous, intensely personal documents. His honesty in describing physical sensations and subjective moods brings a sympathetic reader very near Kent's own experiences. His art, with which he profusely illustrated his handsomely produced books, was popular, and he became wealthy. His social and socialistic conscience made him outspoken in his criticism of the United States' involvement in the armaments race following World War II and, latterly, with the war in Vietnam. Revulsion with his treatment at the hands of Senator Joseph McCarthy's Congressional Committee on Un-American Activities strengthened his sympathy with Soviet communism and, in 1960, he gave his large personal collection of art and his library to the Soviet people. He served on a number of disarmament and cultural committees, was elected an honorary member of the Soviet Academy of Arts and, in 1967, was awarded the Lenin Peace Prize.

GUDMUNDUR KJARTANSSON, the Icelandic glacial geologist, died on 7 April 1972. He was born on 18 May 1909, the son of an eminent clergyman, at Hruni in south Iceland. He studied geology at the University of København, taking an MSc in 1940. He taught school in Hafnarfjörður from 1940 to 1955, when he was appointed geologist in Iceland's Museum of Natural History.

His primary interest was Quaternary geology, which in Iceland means both glacial geology and volcanology. In his first important work Náttúrulysing Árnessýslu I. Yfirlit og jarðsaga [Árnessýlsa. General description and geological history] (Reviavík, Arnesingafélagið, 1943), he advanced for the first time the now accepted idea that the Icelandic table mountains, such as Herðubreið and Hrútafell, are not tectonic but are constructive in origin, having been built up by subglacial volcanic activity until the lava cover had grown high enough to emerge through the ice. His later studies were devoted mainly to Upper Pleistocene formations and the retreat of the last inland ice cover. His systematic study of glacial striae revealed that, toward the end of the last glacial age, the ice divide was situated much farther south than the present watershed, so that a large northward-draining ice-dammed lake was formed in the Kjölur area, north of the retreating ice edge. He wrote important papers on Hekla and on hydrological subjects. He introduced the classification of Icelandic rivers now in use. At the Museum of Natural History his main task, and a great one, was the compilation of a geological map of Iceland in nine sheets at 1:250000. Five of the sheets were published and a sixth nearly finished at his death.

Kjartansson was a clear-minded, conscientious and hard-working scientist. He was also the master of literary style and, had he not stuck to Icelandic in most of his papers, his international reputation would undoubtedly have been greater. His was a noble personality, respected by all his colleagues and held in high esteem by everyone who knew him personally.

Sigurdur Thorarinsson

SERGEY DMITRIYEVICH LAPPO died in July 1972, aged 76. As a scientist serving the needs of Soviet Arctic shipping, he took part in many Arctic expeditions. He was engaged in hydrographic surveys of Obskaya Guba and the southern Kara Sea in 1920-28, and served as deputy leader of the Kara expeditions (convoys of merchant ships entering the Kara Sea) in 1927 and 1928. In 1934 he joined the ice and weather service of the Chief Administration of the Northern Sea Route [Glavseymorput']. He published a general guide to the Soviet Arctic, Spravochnaya knizhka polyarnika [Polar worker's handbook] (Moscow, 1945), as well as many more specialist works.

THOMAS CHARLES LETHBRIDGE, author, explorer, seaman, archaeologist, and mystic, died in October 1971, aged 70. He was educated at Wellington College and Trinity College, Cambridge. At University, he studied archaeology and anthropology and, in 1921, joined J. M. Wordie and others in an expedition to Jan Mayen. On that occasion they made the first ascent of Beerenberg. In 1937, he joined another of Wordie's expeditions, this time to north-west Greenland and Baffin Island. He excavated a number of Eskimo house sites and the house at Cape Sparbo where F. A. Cook wintered in 1908-09.

For many years he was Honorary Keeper of Anglo-Saxon Antiquities in the University Museum of Archaeology and Ethnology at Cambridge and he was an active member of the Cambridge Antiquarian Society. In these capacities he was responsible for a great number of excavations in East Anglia and elsewhere, but he had a particular enthusiasm for the Scottish islands, especially the Outer Hebrides, where he sailed his own ketch and pursued his special interest in tracing the evidence for Viking raids. A growing absorption in Norse archaeology and mythology inevitably took him also to Scandinavia, the Faroe Islands, and Iceland. Another subject in which he delved deeply was the kind of life led by 6th to 10th century hermits who evidently spread from Iona to occupy in solitude their exposed and uncomfortable cells on remote Scottish islets. He enjoyed, for example, deducing what they are from the remains in their midden heaps and speculating about what this meant in terms of human mortification. He went even further in speculating about the spiritual experience that men must have derived from such apparently voluntary hardships.

He was widely and deeply informed about practical as well as academic lore. This rare combination of knowledge of archaeological remains and of the functional possibilities (eg, the seaworthiness of a particular type of boat or the limitations of a particular design of clay pot for cooking) enabled him to clothe with flesh and blood the bare artifacts of an excavation and offer a very plausible recreation of what life there had once been. He was at his best when able to make and personally test the qualities of an excavated artifact. Visitors would not be surprised to find him tentatively embarking in a reconstructed skin boat or chipping flint arrowheads without the aid of modern tools. Using these methods, he was especially productive in conjectures about the early Norse voyages to Britain, Iceland and North America. In Iceland, the sagas provided him with wonderful material to be related to the findings of modern excavations. He was not wedded to his hypotheses and theories and said in print more than once that he would be delighted if his views were disproved—for it is in this way, he argued, that knowledge is advanced.

Many archaeologists found themselves unable to agree with this approach, which some regarded as irresponsible and unscientific. In their distrust of his methods, more conventional archaeologists often had to plod along far behind until the necessary evidence to support or disprove one of Lethbridge's "hunches" could be discovered. But none could deny his skilled and imaginative reconstructions of archaeological sites in terms of life as it must have been lived in ancient times. He was helped by his knowledge of anthropology and a considerable insight into probable influences that must have moulded social conditions in an Anglo-Saxon village or during a particular ceremony, such as a funeral (where long-established rites nearly always provide a good source of solid evidence in the form of surviving artifacts). His speculations in these fields led him to an increasing interest in the occult and in mysticism. His friends understood quite well this kind of change in emphasis, but it was bewildering to some of his more academic critics, and some of them took full advantage of the great arsenal of ammunition that he continued to provide for the demolition of many of his own ideas.

Of the books that drew extensively on his northern travels were Merlin's island. Essays on Britain in the dark ages (London, 1948), Celtic seafarers in the northern seas (Cambridge, 1950) and Boats and boatmen (London, 1952). In Gogmagog: the buried gods (1957), he claimed to have discovered — by probing with a steel bar— a series of hill figures buried beneath the turf on a hillside near Cambridge. He presented his evidence for examination by an appointed commission, but the reports on it were divided. He retired to Devon and, in later years, devoted his attention and his publications to parapsychology. Andrew Croft has written to us: "Tom was a big man in every way, with great strength of character, humour and honesty, and a singleness of purpose which united all his work. I have met few persons who contributed more towards the understanding of prehistory, and none who, either by books or lectures, has brought the past so excitingly to life."

DONALD BAXTER MacMILLAN, explorer, lecturer, author, and the last surviving member of Peary's 1908-09 expedition to the North Pole died, aged 95, on 7 September 1970 at his birthplace, Providence, Massachusetts. He had been a schoolmaster for ten years before going north with Peary, and he was a member of one of the poleward support parties until Peary sent him back to base because his feet were frostbitten. MacMillan's How Peary reached the pole (1934) describes that expedition and defends Peary in the controversy that followed between him and Frederick Cook.

In 1910-12, MacMillan made ethnological studies of Indians and Eskimos of Labrador and, in 1913-17, commanded his own Arctic expedition, a major undertaking during which he disproved the existence of Crocker Land (one of Peary's less substantial discoveries) and explored and mapped a large area between Axel Heiberg Island and the Parry Islands. His narrative Four years in the white north (1918) recounts that remarkable expedition. In 1921, he sailed in his own ship, Bowdoin, to Baffin Island and, with her, he gradually acquired the intimate knowledge of the coasts of Labrador, Baffin Island, and Greenland that proved so valuable during World War II, when he was assigned to the US Hydrographic Office as consultant and cartographic adviser. His association with the US Navy had begun in 1918; he was appointed lieutenant-commander in the US Naval Reserve in 1925, recalled to service in 1942 as commander, and made rear admiral in 1955.

In 1935, he married Merriam Look, who shared his active life and published an account of it in *Green seas and white ice* (1948). In 1945, he resumed his regular voyages north in *Bowdoin*, taking successive generations of young men with him for training and research. After his expedition of 1913-17, this polar education afloat was probably his major contribution to knowledge of the North American Arctic, for many of his "*Bowdoin* family" (some 300 in all) continued in polar work. After his last voyage, in 1957, he left his ship with the Marine Historical Association at Mystic, Connecticut, where it is popular as a museum. His bluff and hearty personality made him not only a

successful leader in the difficult conditions of polar field work, but an effective, even inspiring, lecturer and teacher, and a warm and loyal friend. Arctic odyssey; the life of Rear Admiral Donald B. MacMillan by Everett S. Allen (1963) attempts to describe the great influence he had over so many others.

ARTHUR EUGENE MOLLOY, marine cartographer, died suddenly from a heart attack on 14 March 1972. He was born on 24 February 1927. He began his career in United States government service with the Division of Chart Construction, US Navy Hydrographic Office, in 1948. In 1957, with the Marine Surveys Branch, he began a long association with Arctic submarine research by performing the initial analysis of bathymetric data collected by USS Nautilus. He participated in five major submarine Arctic expeditions: USS Skate (1958. 1962), USS Sargo (1960), USS Seadragon (1960), and USS Pargo (1969). He also served as senior scientist aboard a number of surface ships making bathymetric surveys in the North Atlantic Ocean and Mediterranean Sea. In 1964, he joined the Arctic Submarine Laboratory of the Naval Undersea Research and Development Center, San Diego, where he was Marine Cartographer and Senior Staff Scientist until his death. In 1968, on special assignment, he had helped to set up the Maury Center for Ocean Science. His publications include papers on the Arctic Ocean in Arctic, International Hydrographic Review, and Surveying and Mapping.

KEIJIRO OZAWA, in command during three Antarctic cruises of Umitaka-Maru, research vessel and training ship of Tokyo University of Fisheries, died after a long illness on 14 October 1971. He was born on 28 January 1922. In 1944, after graduating from the Imperial Fisheries Institute, he joined the Institute's staff. In 1956-57, during Umitaka-Maru's first Antarctic cruise, he was first officer. Promoted captain in 1958, he was in command during the Antarctic cruises of 1961-62, 1964-65, and 1966-67. On the last voyage, during which the ship visited Australia, South Shetland Islands, South Georgia, and Heard Island, he was also in charge of all expeditionary work. Extensive oceanographical programmes carried out during these and other cruises formed part of Japan's participation in the International Indian Ocean and EQUAPAC investigations. Ozawa was appointed professor in Tokyo University of Fisheries in 1968. He was especially interested in sea birds and wrote several papers on their distribution in the Indian, North Pacific, and Southern oceans. He was joint author of papers on a variety of oceanographical subjects and on experimental fishing trials.

A fine seaman and a delightful companion, he is sadly missed by many friends.

S G. Brown