# Obituary

**Sir GEORGE DEACON**, CBE, FRS (1906–1984). George Edward Raven Deacon, an outstanding Antarctic oceanographer of this century and Director of the UK National Institute of Oceanography 1949–71, died 16 November 1984. He was educated at the City Boys School, Leicester and Kings College of London University, and by sharing a cabin with James Marr in rough conditions around South Georgia during 1927–28, shortly after obtaining a BSc in chemistry.

His twelve years' work for the Discovery Investigations Committee included a spell at the Marine Laboratory, Grytviken in 1929 and three commissions aboard RRS *Discovery II* in 1929–31, 1931–33 and as Chief Scientist in 1935–37. As part of the broad study of whales of the Southern Ocean, Deacon was concerned with their physical environment, largely through precise temperature and chemical studies of ocean waters. His analyses of these data led to identification of water masses and their pattern of circulation which was described in three classical *Discovery Reports*, published in 1933 and 1937. This led to awards of DSc in 1938 and Fellowship of the Royal Society in 1944.

In 1939 at 33 years of age, World War II turned his research first to anti-submarine warfare in the Admiralty Research Laboratories, then to lead a group studying ocean waves in order to predict surf conditions during landings on enemy coastlines. He continued with this group until 1949 when, together with biologists of the Discovery Investigations Committee, they formed the UK National Institute of Oceanography (now the Institute of Oceanographic Sciences) with Deacon as Director. Here he led and inspired an outstanding group of physicists, biologists, mathematicians and technical designers. Their work both at sea and in the laboratory soon established the NIO as one of the outstanding oceanographic institutes in the world. This was due to his clear sighted pursuit of scientific goals, and the encouragement and support he gave all his staff to do likewise. Administration was a necessary but secondary activity. The example of how to organise an institute with a wide spread of interests was of great help to the writer in his early years at the SPRI. Deacon also helped the SPRI directly in 1959 by lending a NIO shipborne wave recorder to measure the penetration of ocean waves into pack ice. The research project, also supported by the British Antarctic Survey who provided shipboard facilities, was the forerunner of the present very active sea ice group in the Institute.

Deacon's many honours included awards of the Polar Medal in 1942, CBE in 1954, a knighthood in 1971, two honorary doctorates and honorary membership of overseas scientific bodies in Sweden and New Zealand. He received the Founder's Medal of the Royal Geographical Society in 1971. He was President of the Institute of Navigation 1961–64, of the International Association of Physical Sciences of the Ocean 1960–63 and of the Antarctic Club 1962, and held many other honorary offices.

George Deacon, his wife (who died in 1966) and his daughter were a united and mutually supportive family. He remained active in oceanography after retirement, making his last voyage to the Southern Ocean in RRS *Discovery* in 1979. He produced over 200 publications covering various aspects of oceanography, with many on Antarctic studies. A note of 1940 in *Nature*, for example, provided some of the earliest data and discussion of partial pressures of carbon dioxide in the Antarctic ocean and atmosphere. Shortly before his death Cambridge University Press released, as the first book in its new Polar Research series (see review in this issue), Sir George's final publication on the topic that absorbed his working life, *The Antarctic circumpolar ocean.*

Gordon Robin

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**Col-Gen MIKHAIL MIKHAYLOVICH GROMOV**, who achieved fame as a polar aviator in 1937, died on 22 January 1985. Born on 24 February 1899, he passed out of the Moscow school of aviation in 1917 and entered the Red Army. In July 1937 he was captain of the crew of three in the aircraft ANT-25 which flew from Moscow across the North Pole to land in San Jacinto, California, 62 hours 20 minutes later. The flight was a world long distance record, being approximately 6 300 miles. It was the second and most successful Soviet trans-Arctic flight of three made that summer. The first, led by V. P. Chkalov the month before, followed the same course but was obliged to land at Portland, Oregon, some 600 miles shorter. The third, under S. A. Levanevskiy, set out in August and disappeared shortly after crossing the Pole.

In his subsequent career Gromov filled many senior posts in the armed forces, and played an important role in the development of jet aircraft in the USSR. He retired in 1955. He held four Orders of Lenin and many other decorations. He visited Cambridge and the Scott Polar Research Institute in 1947.

Terence Armstrong

**TREVOR ARNOLD HARWOOD**, an Arctic specialist for many years with the Canadian Defence Research Board, died at Mississauga, Ontario, on 8 October 1984 aged 69. Born in Darlington, England, in 1914, he moved with his family to Montreal in 1928. About this time he shipped as a cabin boy from Boston to Australia, before finishing school in Montreal. In 1934 he signed on as a clerk with the Hudson Bay Company, discovering too late (according to his own story) that he had mistaken the annual for the monthly salary. He spent five years in the Arctic, two at Dundas Harbour, Devon Island (where an RCMP post had already been established and where Chesley Russell, the factor, and he now set up a trading post) and three years at Pangnirtung, Baffin Island. During these years he made extensive sledge journeys, including a crossing of the Devon Island ice cap from Dundas Harbour to Craig Harbour, Ellesmere Island, a journey through Pannirtung Pass and northwest along the east coast of Baffin Island to Henry Kater Peninsula, and a journey from Pangnirtung south to Frobisher Bay and Lake Harbour.

In 1939 Harwood enrolled at the University of Toronto, and in May 1940 joined the Royal Canadian Navy, serving in an armed merchant cruiser and North Atlantic corvettes until 1943. Qualifying as a gunnery officer, he served in an infantry landing ship 1943–45 off Normandy and in the Mediterranean. Demobilized as a Lieutenant Commander, he returned to the University of Toronto and graduated in geology in 1949, in which year he joined the Arctic (later Geophysics) Section of the Defence Research Board in Ottawa. He took his MSc in mining geology and soil mechanics at the University of Toronto in 1951. In 1956 he became Head of the Geophysics Section, continuing in that role until retirement in 1972.

His duties with the Board included field work, but were later concerned with planning and logistic support for northern installations, and for projects in the earth sciences, usually involving sea or air operations, his experience of which was summarized in a paper for this journal (*Polar Record* 10(67): 356–71 (1961)). In summer 1950, with Yves Fortier and Raymond Thorsteinsson of the Geological Survey of Canada, he canoed round Cornwallis Island on a geological reconnaissance (*Polar Record* 6(46): 794–96 (1953)); the island had previously been circumnavigated only by the *Erebus* and *Terror* in 1845. In 1951 he was a Canadian naval observer in USS *Tanner*, engaged in hydrographic surveys off the east coast of Labrador, and in 1952 in USCGC *Eastwind* on site surveys for navigation stations in Baffin Island and Greenland, and in the resupply of Alert. The winters of 1952 and 1953 saw him working with the Canadian Army on trials of

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snow-compacted runways in northern Ontario, and in 1955–56 he was loaned to the Foundation Company of Canada for site surveying on the DEW line. In 1957–58 he played a key role in the organization of the Canadian IGY Expedition to Lake Hazen. Very good at delegating responsibility under an agreed strategy, he backed his lieutenants to the hilt if problems arose.

Harwood became increasingly involved in formulation of scientific policy and promotion of research in permafrost, sea ice and soil mechanics, and in vehicle mobility and remote sensing technology. Serving on National Research Council and other committees, he was Chairman of the Devon Island Committee of the Arctic Institute of North America, of which he was a Fellow. He was also instrumental in gaining Canadian support for the work of the Scott Polar Research Institute.

As Head of the Geophysics Section he largely wrote his own brief. A former Chairman of the Defence Research Board once remarked that, if he wanted something done in a hurry, he gave it to his Geophysics Section but asked no questions as to how it would be done. Harwood might have replied that there were more ways than one of skinning a cat (a favourite expression) and got on with it, for he was a past master at cutting red tape and circumventing normal channels. He continued to enjoy forays into the field; for example in May 1961, with colleague Harold Serson, he visited the Russian drifting station North Pole 7 after it had drifted out of the Arctic Ocean, probably via Nares Strait and Baffin bay, following abandonment in April 1959 (*Polar Record* 11(72): 292–93 (1969)). The inspection and inventory of the station were tasks well suited to Harwood's inquisitive nature and taste for the unusual. Also in the early 1960s, to his particular delight, he was invited by the National Science Foundation to visit US Antarctic stations as a VIP, being one of the first Canadians to be accorded that honour.

The bare record of his career gives little idea of the very individual style of the man we knew. He possessed vision, persuasiveness and drive, and a formidable memory fed by insatiable curiosity and voracious reading. He amassed a detailed knowledge of the working of government and civil service both in Canada and the United States, developing an exceptional range of personal contacts in those areas, and also in universities and industry. If a few were put off by his often brusque manner, they knew not the kindly heart and essentially shy personality that lay beneath. He had a gift for vivid, usually forceful, expression to the delight of his friends who would cherish the latest 'Trevorism'. He seemed to attract adventures, whether from a falling rock, a musk-ox or a contretemps with his car, to be recounted later in his own inimitable fashion. It was his endearing if disconcerting habit with friends, perhaps after an interval of several years from the last meeting, to resume conversations with no preamble and some such cryptic remark as'There you are—I told you so!' We his friends mourn the passing of a major figure in post-war Canadian Arctic affairs, and a uniquely lovable character. By his last wish his ashes will be scattered at Dundas Harbour, in the land where, as a young man, he had found his lifelong interest.

Geoffrey Hattersley-Smith

**Sqdn-Ldr JOHN HUGH SAFFERY** DSO. At the age of 77 John Saffery died in his sleep the day before he was due to attend the 56th reunion dinner of the Antarctic Club.

When 7 years old John was taken by his father to see the'flying men at Hendon', and from then on his one ambition was to become a pilot. His first hopes of joining the RAF were blighted due to a defect in one eye, but not to be outdone he joined the London Aero Club and obtained his pilot's certificate at the age of 20. After first working with an advertising agency, in 1938 he joined F. Slingsby, builders of gliders and sailplanes.

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On the outbreak of war he was commissioned in the Fleet Air Arm ('in the Navy I really learnt to fly'). Just as he had completed his naval training in 1941, the War Cabinet issued an appeal for those with gliding experience: as a result Saffery transferred to the RAF and was appointed Chief Flying Instructor at No. 1 Gliding School. When glider training came to an end in 1943 he took over a photo reconnaissance training unit and subsequently commanded 541 Photo Reconnaissance Squadron, flying Spitfires with high-level Rolls-Royce engines, equipped for vertical photography. Most of the PR sorties had necessarily to be flown at 40 000 feet, beyond the reach of the Luftwaffe interceptors; there was no pressurisation of the pilot's cockpit which resulted in considerable discomfort to the aircrews on sorties lasting several hours. Saffery himself flew 37 such sorties over Germany and France, photographing potential targets for Bomber Command including V1 and V2 rocket sites. Shortly after D-Day he had to bail out over the Channel, when he'bobbed about in a dinghy' for a whole day until fortuitously picked up by a passing torpedo boat. For his wartime exploits he was awarded the DSO and Croix de Guerre (Belge).

On demobilisation in 1946, he joined Hunting Aerosurveys as Chief Pilot and later Flying Manager. For the next ten years he flew a variety of aircraft types on photo missions, most of which were to developing countries in the Middle East, Africa and the Far East, usually operating from rough or non-existant airfields and in conditions requiring great flying skill. From 1955 to 1957 Saffery served as Flying Manager and Deputy Leader of the Falkland Islands Dependencies Aerial Survey Expedition, carried out by Hunting Aerosurveys on behalf of the Colonial Office. During two successive flying seasons with two Catalina Canso amphibian aircraft, operating from Deception Island in the South Shetlands, the Expedition completed 35 000 square miles of air photography over Antarctic Peninsula, and in addition obtained photo coverage of the whole area of the Falkland Islands. For this Saffery and his aircrews received the Johnston Memorial Trophy of the Guild of Air Pilots.

In retirement John's unbounded enthusiasm for aeroplanes never waned. In an old workshop on Shoreham Aerodrome he spent a great many leisure hours and the summation of his skill and experience in the design and building of a new and original light aircraft. Tragically he left it too late for this final outlet of his passion for flying ever to become airborne.

As one privileged to know John both as friend and colleague in times of stress I found him ever a tower of strength—utterly reliable, unflappable, and dependable. His quiet wit and sense of humour, combined with considerable artistic and literary talents made him a delightful and unusual companion, and endeared him to his many friends. If such were needed, a fitting epitaph for John Saffery could well be'per ardua ad astra'.

Peter G. Mott

**AMORY. H. WAITE**. Amory H. ('Bud') Waite, the pioneer in radar sounding of ice sheets, died on 15 January 1985 at the age of 82. Born 14 February 1902 in Newton, Massachusetts, he was married to Betty (née Massey) in 1936. He graduated from the Naval Radio School at Great Lakes Naval Station in 1919 and received his degree in electrical engineering from the Lowell Technological Institute in 1926. Most of his career was spent with the Institute of Exploratory Research of the US Army Signal Corps (later the US Army Electronics Command), in which he was the Chief of the Communications Research Group. He was one of the last survivors of the Second Byrd Antarctic Expedition during which he was the radio engineer/operator, and a member of a small tractor party that rescued Admiral Byrd from Bolling Advance Base during the winter

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night of 1934. His interest in polar regions lasted all his life; twenty times he led Signal Corps research teams in the Arctic or Antarctic.

Bud Waite was best known for his important contributions to the early development of radar sounding. He made the first recorded long-distance transmission of radio waves through ice at Little america Station on the Ross Ice Shelf in the summer of 1955–56, when he recorded signals that had traveled one mile between snow pits. He also recorded the first bottom echo from the base of the Ross Ice Shelf in January 1957, although he did not recognize it as such until looking back later at his records. His first deliberate attempt at measuring ice thickness, at Little America Station in December 1957, was a discouraging failure. Only a month later, however, he successfuly sounded ice up to 600 m thick south of Wilkes Station (now Casey Station). He also made the first airborne survey in Antarctica in December 1961. In the summers of 1963 and 1964 he organized and coordinated the International Cooperative Field Experiment in Glacier Sounding, a unique venture in which the results of radar, seismic, gravimetric, and electrical measurements of ice thickness were compared directly along the same sounding lines. He retired from the US Army Electronics Command in 1965.

Bud Waite was a man of great enthusiasm and boundless generosity. For several of the early years he persisted with his belief in radar sounding in the face of widespread skepticism on the part of glaciologists and geophysicists. His generous help was instrumental in establishing programs in radar sounding in several US institutions. He took great and justifiable pride in his accomplishments which eventually, if slowly, brought him the international recognition he deserved.

Charles R. Bentley

**Lt-Col AMHERST BARROW ('BROWNIE') WHATMAN**, MBE, a member of the Oxford University Arctic Expedition 1935–36, died in Hong Kong on 5 January 1985. Born 1 November 1909, he was educated at Winchester, St John's College, Cambridge and the Royal Military Academy, Woolwich, and was commissioned in the Royal Corps of Signals in 1929. He received the Polar Medal in 1941 for his expedition service in Northeast Land (Nordaustlandet), returning to Svalbard as a British liaison officer with a Norwegian force in 1942–43. He retired from the Army in 1952.

Sir Alexander Glen writes:

The news of 'Brownie' Whatman's death in 1985 was particularly sad, as that was the 50th anniversary year of the Oxford University Arctic Expedition 1935–36, of which he was a very special member. A regular soldier (Captain, Royal Corps of Signals), Brownie was appointed by the War Office to take charge of the expedition's radio communications. Together with Richard Hamilton, under the guidance of Professor E. V. (later Sir Edward) Appleton and the Slough Radio Research Establishment, he was responsible too for the first ionospheric research programme attempted in high latitudes.

To design, build and set up in North East Land the advanced equipment (by standards of the time) needed for this work was achievement enough. To operate it successfully without hitch through twelve months at 80° N was outstanding. As leader of the expedition I knew that even the technological skills of of Brownie and Richard could not have brought success had it not been for the complete partnership between them, their particular brand of humour and utter determination that sent gremlins of every breed flying to warmer places. 'Me and my dog, lost in the fog' was but one of the melancholy laments, sung in an unforgettable monotone through winter darkness or blizzard, that

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makes the memory of Brownie imperishable. Powerful, untiring, patient, fun, and always kindly, he was a master of his craft and a rare human being. And we all knew it.

That was not the end of his time in the Arctic. After the ill-judged Allied evacuation of Spitsbergen in 1941, a small Norwegian force returned by sea in May 1942 to establish a presence, prevent further deterioration of the coal mines, and discourage possible German attempts to establish air strips. Brownie,'Dan' Godfrey (also of the Oxford University Arctic Expedition) and I were British liason officers with this force. Godfrey was killed when our ship was sunk by Luftwaffe attack; Brownie's quiet influence and cool courage ('a Rock of Gibraltar man in a tiny garrison,' said his commanding officer at the end) helped to make the garrison a constant complication and hindrance to German arctic operations in the area.

This is only a brief note of two or three years in the life of a remarkable man. There are few of the like of Brownie Whatman; we were very privileged to share those years.

## CORRECTION

R. K. Headland has drawn attention to errors in his note 'The Antarctic Treaty: signatories and dates', which appeared in *Polar Record* 22 (139): 438–39 (1985). Norway's status as an original signatory should be denoted in the table by an asterisk, before the cross denoting a consultative party. Poland became a consultative party in 1977, not 1979: Brazil and India became consultative parties in 1983, not 1984.

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