

## OBITUARY

**KENNETH GORDON CHIPMAN**, one of the last surviving members of Stefansson's Canadian Arctic Expedition, 1913-18, died in Ottawa on 29 April 1974, aged 89. He was born on 4 August 1884 in Berwick, Nova Scotia. He attended elementary schools there and in Newton, Massachusetts. On graduation from Massachusetts Institute of Technology with a BSc in mining engineering in 1908, he joined the Geological Survey of Canada as the first member of its topographical survey. He was promoted from topographical assistant to assistant topographer in 1911, to topographer in 1914 and, from 1941 to his retirement in 1950, he was Chief Topographical Engineer of the Department of Mines and Technical Surveys.

Chipman's first professional work was in British Columbia. In 1913, he was appointed geographer and second-in-command, under R. M. Anderson, of the Southern Party of the Canadian Arctic Expedition. With J. R. Cox, he made a topographical survey of some 2 000 km of the Canadian Arctic coast, from the Alaska boundary to Bathurst Inlet. Their joint work, "Geographical notes on the Arctic coast of Canada" was published in the reports of the Canadian Arctic Expedition (Vol 11, Part B, 1924, 49 p).

During his long and active life, Chipman was influential in the development and adoption of new techniques, especially of aerial survey, in cartography. He was an enthusiastic supporter of the Canadian Geographical Society and of the Arctic Institute of North America. He is survived by his widow, Marjorie Pennock Chipman, and one son, William P. Chipman, of Toronto. Before his death, Chipman had given to the Public Archives of Canada some of the diaries and correspondence related to his service with the Canadian Arctic Expedition, and his widow has since given to the Archives the remainder of these papers.

Ian McClymont

**HENRY MURRAY DATER**, the chief historian of United States exploration of the Antarctic since the International Geophysical Year, died at his home in Washington, DC on 26 June 1974, after a long illness from cancer. He is survived by his wife, Alice David Whitaker Dater, whom he married in 1935, and two sons, Henry M., III, of Billings, Montana, and Anthony W. of Concord, New Hampshire.

Dater was born on 28 February 1909 in Brooklyn, NY. He received a BA in history from Yale College in 1931. For two years (1933-34), he did dissertational research at the Université de Lyon while on an American Field Service Fellowship for Study Abroad, and received his PhD in history from Yale University in 1936. He was an instructor in history at Yale College (1934-36) and an instructor, assistant professor and associate professor at Kent State University, Ohio, from 1936 to 1943.

During World War II, he served in the US Navy as an historian, recording the development and application of naval aviation. He retired in 1946 as a Lieutenant Commander, USNR, and accepted a civilian appointment as Chief, Aviation History and Research Section, Office of the Chief of Naval Operations. While in this position, and as Deputy Historian, Office of the Secretary of Defense (1952-56), he was an advocate of the air power-sea power mix embodied by

aircraft carriers. He was the author of the *Administrative History of U.S. Naval Aviation* (with D. B. Duncan) and prepared the *Encyclopaedia Britannica* article on aircraft carriers (1956, revised through 1970).

Dater began his Antarctic work when he was appointed Staff Historian to Rear Admiral Richard E. Byrd, the Officer in Charge, US Antarctic Programs, in 1956. He continued as the Defense Department historian for operations in Antarctica through several administrative reorganizations. When this historical responsibility was transferred from the Department of Defense to the Department of the Navy in 1965, Dater moved to the staff of the Commander, US Naval Support Force, Antarctica. He remained in this position until his death.

As the historian of the logistics side of the United States effort in Antarctica, Harry Dater performed three functions: he saw to the collection of reports and other records that dealt with the logistic support of scientific research in Antarctica; he contributed articles, monographs, and books to the literature; and he taught newly assigned sailors and Naval officers the history of exploration of Antarctica. I suspect he achieved greatest satisfaction from the latter, for he was most enthusiastic when doing it.

He joined with George Dufek and Emil Schulthess to write *Antarctica* (1959), and wrote *Aviation in Antarctica* (1960, revised 1962), *Partners in science* (1968), and *Dakotas in the Antarctic* (1970).

In 1960 he founded the *Bulletin of the U.S. Antarctic Projects Officer* and served as editor until 1965 when the *Bulletin* was merged with the National Science Foundation's *Antarctic Report* to form the *Antarctic Journal of the United States*. He joined with several other authors to write the article on Antarctica for the *Encyclopaedia Britannica* (1971) and contributed "Why men go to the Antarctic" to Vol 15 of the *Antarctic Map Folio Series*.

He visited the Antarctic six times and was an exchange observer with the Argentine Antarctic Expedition. For several seasons, in the late 1960's and early 1970's, he was the Washington Representative of the Commander of Operation Deep Freeze during the operating season.

Dr Dater belonged to several societies: Antarctic Society of the United States, Antarctic Society of New Zealand, Explorers Club, Arctic Institute of North America, American Historical Association, American Military Institute, Naval Historical Foundation, and the US Naval Institute.

He was a member of the US Advisory Committee on Antarctic Names (1962-67) and at the time of his death was chairman of it. He was awarded the US Navy Distinguished Civilian Service Medal, the highest award presented to a civilian employee. Dater Glacier, Antarctica, was named in his honour. His papers, personal and official, are being given to the Center for Polar Archives in Washington, DC.

Rear Admiral George J. Dufek summed up the reaction of Dr Dater's friends to news of his death: "The Antarctic program has lost an outstanding historian; his shipmates have lost a cheerful companion".

Peter J. Anderson

**NEIL ALISON MACKINTOSH, CBE, DSc**, British biological oceanographer and authority on Antarctic whales, died in London on 9 April 1974 at the age of 73. He was a pioneer of the sustained and carefully planned government-sponsored scientific research in the Antarctic which followed the age of privately organized exploring expeditions before the First World War. In this work he played a leading part for almost 50 years. His influence for the maintenance of high

standards in the planning and execution of research programmes, and in the subsequent publication of results, will long continue as a monumental example of how these things can be achieved in the face of great difficulties.

Mackintosh was born at Hampstead on 19 August 1900, the second son of E. E. Mackintosh, MD, and Alice Emmeline, daughter of Edward Ballard, FRS. While at Westminster School he decided to become a marine biologist and entered the Imperial College of Science in London. Soon after graduation, when acting as a demonstrator in zoology, his early interests found expression in two papers: one on the chondrocranium of the Teleost fish *Sebastes marinus* (*Proceedings of the Zoological Society*, 1923) and the other on the crystalline style in gastropods (*Quarterly Journal of Microscopical Science*, 1925).

In 1924 he was appointed to the staff of the Discovery Investigations with an initial assignment to establish and take charge of the Marine Biological Station at Grytviken, South Georgia. The chief purpose of this work was to obtain the essential biological information required by the Falkland Islands and Dependencies Administration before adequate conservation legislation could be introduced to regulate the rapidly expanding southern whaling industry.

It was at Grytviken and during visits to the whaling station at Saldahna Bay in South Africa that Mackintosh and J. F. G. Wheeler, working together, collected the enormous amount of information, based on the examination of 1 683 whales, for their massive report on "Southern Blue and Fin Whales" (*Discovery Reports*, 1929). This, and a series of later reports by Mackintosh, laid the foundation of most of our knowledge of the economically important species. As Sir Alister Hardy has written,

It was a gargantuan task. I shall never forget my first sight of Mackintosh and Wheeler working on the flensing plan at Grytviken, when we later joined them in 1926 on the first voyage of the old RRS *Discovery*: as they climbed over the great carcasses with measuring tapes, dug into them to secure ovaries or embryos, and walked with care over the sloping plan streaming with blood and slime, they looked almost like flies in a butcher's shop.

They discovered the remarkable prenatal rates of growth of these whales: the calves of Blue and Fin Whales at birth have an average length of 7m and 6.5m, both after gestation periods of 11.25 months.

Mackintosh spent two periods at Grytviken, 1924-26 and 1926-27. He was with RRS *William Scoresby* for part of her first commission, marking whales off the Falkland Islands in April 1927. He also took part in three of the major Southern Ocean commissions of RRS *Discovery II*, in 1929-31, 1933-35 and 1937-39. He was chief scientist for the last two of these commissions. An enormous harvest of detailed information about the plankton and hydrography of the Southern Ocean was brought back.

In 1929 Mackintosh was appointed Chief Scientific Officer of the Discovery Investigations and succeeded Stanley Kemp as Director of Research, a post which he held until 1949 when this organization was merged with the newly established National Institute of Oceanography (now the Institute of Oceanographic Sciences), with headquarters at Wormley in Surrey. Mackintosh became Deputy Director of the Institute and continued in this capacity until 1961.

From 1961 to 1968 he was in charge of the Institute's Whale Research Unit, housed at the British Museum (Natural History) in London. This Unit, which continues to flourish, is a direct descendant of the original team of whale biologists who started work in 1924.

Throughout this period he published numerous papers. It is impossible to list them all here, but a selection will suffice to indicate his special interests. With S. Kemp and A. C. Hardy he produced a comprehensive report on the "Discovery Investigations, objects, equipment and methods" (*Discovery Reports*, 1929). His own contribution to this was an account of the Marine Biological Station at Grytviken. In a later report he collaborated with R. A. B. Ardley in the production of a detailed account of "The Royal Research Ship *Discovery II*, and her equipment" (*Discovery Reports*, 1936). Other outstanding publications were "Distribution of the macroplankton in the Antarctic" (*Discovery Reports*, 1934); "The seasonal circulation of the Antarctic macroplankton" (*Discovery Reports*, 1937); "Distribution of the pack-ice in the Southern Ocean", a joint paper with H. F. P. Herdman (*Discovery Reports*, 1940); "The southern stocks of whalebone whales" (*Discovery Reports*, 1942); "The Antarctic Convergence and the distribution of surface temperatures in Antarctic waters" (*Discovery Reports*, 1946); "The natural history of whalebone whales" (*Biological Reviews*, 1946); "The pattern of distribution of the Antarctic fauna" (*Proceedings of the Royal Society B*, 1960); "Distribution of the plankton in relation to the Antarctic Convergence" (*Proceedings of the Royal Society A*, 1964); "Preliminary estimates of the southern populations of the larger baleen whales", a joint paper with S. G. Brown (*Norsk Hvalfangst-tidende*, 1956).

On retirement from his Institute appointment in 1968, Mackintosh received a Fellowship under the Natural Environment Research Council for which the data and collections from the Discovery Investigations constituted the principal material for three further publications. The first, on the "Life cycle of Antarctic krill in relation to ice and water conditions" (*Discovery Reports*, 1972), included revised maps of monthly ice limits, with a study of their annual variations and areas of ice cover, a review of water conditions with a new investigation of "divergence zones" in the Weddell drift and Scotia Sea. The second, on "Distribution of post-larval krill in the Antarctic" (*Discovery Reports*, 1973) made another big step forward. The third, published after his death, analysed the "Sizes of krill eaten by whales in the Antarctic" (*Discovery Reports*, 1974). Krill, *Euphausia superba*, a shrimp-like crustacean which constitutes a huge potential source of proteins and fats, could be continuously harvested for man's benefit, if the technical and rational problems of developing this resource can be agreed and enforced on an international basis. This would be a logical consequence of Mackintosh's biological research and his work for the International Whaling Commission.

Most of his publications related to his central interest in whale biology; he knew well that no sound policy for regulating the industry could be developed in the absence of basic scientific information; but for many years there existed a large gap between the ideas of scientists and some governments about the maximum sustainable yields of southern whale stocks.

The International Whaling Commission was established under the provisions of the International Convention for the Regulation of Whaling in 1946. From its inception until 1970, Mackintosh attended all its annual meetings as an expert adviser; he exercised an important influence on its recommendations. As one early example, his "Outline of recommended whale research" was adopted at the second meeting in 1950. In that year he was appointed to the Commission's Scientific Committee, and from 1952 until 1962 he was chairman of this group and of a succession of sub-committees. The members of this group were really enthusiastic in praise of his leadership. It was not his fault that the Commission so frequently disregarded the advice of its scientific experts.

From 1936 onwards he edited the long series of *Discovery Reports*, initiated by Kemp and published by Cambridge University Press. At the time of his death, 36 volumes of this great work had appeared. Few persons can have any idea of the amount of personal care and effort he put into this. It was typical of his self-effacing attitude that nowhere in this series is there any mention of his editorial responsibility.

He had very exacting standards about the careful recording of observations and their subsequent reduction to a form suitable for publication. Some of his colleagues found this hard to swallow when it led to criticism of their efforts. This methodical, often slow, but always reliable treatment of problems which came his way reflected an important facet of his character. Because of his retiring nature, he lacked the enthusiasm and encouragement which should perhaps have predominated over criticism. No impartial observer could doubt his sincerity, yet he could sometimes lack adequate understanding of human failings. We should not forget that he was one of the first batch of Antarctic research workers to be recruited as regular civil servants. In the early years he had considerable freedom of action for basic research, but later there were ever-increasing restrictions imposed by administrative responsibilities and the dominant requirements of international negotiations. He never pushed himself forward in the public image.

Some have been critical on the grounds that the results of these major investigations are only available to those who have easy access to the *Discovery Reports*. It is painfully obvious that most modern biologists and oceanographers working outside Britain on Antarctic problems are scarcely aware of this fundamental source of information. There is some excuse for this situation. The *Discovery Reports* are splendidly produced and very costly to buy, but they are not to be found in most libraries. Even when a set has been located, it is difficult for anyone to know what is in these 36 large volumes without taking each volume down from the shelves, *one by one*, and looking through the table of contents. True it is that Mackintosh published—again anonymously—a *Report on the progress of the Discovery Committee's investigations* (London, Colonial Office, 1937), and also an admirable summary of the work of the Discovery Committee (*Proceedings of the Royal Society*, 1950), but he was never able to produce any kind of index to this immense mass of information. Although he tried for many years to find time to complete this acknowledged need, it always became subordinated to other more urgent matters; nor could he find anyone else willing or competent to undertake such a thankless task. In later years he felt a particular urge to give priority to bringing together and preparing for publication some of the themes of research which had for many years attracted his special attention. He hated the thought that so much effort might never come to fruition, but he also had a realistic understanding of the basic wastefulness of all biological processes, including man's research into these subjects. He was fully aware of the disadvantages of publishing in the *Discovery Reports* and even encouraged others to use different means of publication, as he did himself. Periodicals like *Norsk Hvalfangst-tidende* (now, alas, no longer published) provided an effective and rapid means of communicating the results of whale research in Norwegian as well as English.

It was this obvious need to make the results of whaling research more generally available that stimulated his book *The stocks of whales* (London, 1965). This was a major study of their populations and conservation prospects based on all the available evidence, but more particularly on his own unrivalled knowledge of the subject. This is the best introduction to the biology of the great whales so far published. The only other comprehensive summary of the results of the Discovery

Investigations is in Sir Alister Hardy's *Great waters* (London, 1967), an extremely readable, well-illustrated and informative book which combines a narrative of the work and a synthesis of the main problems and associated discoveries. His assessment of Mackintosh's contribution in this particular field is more comprehensive than can be attempted here. Mackintosh first demonstrated that many planktonic organisms return southward during the winter after drifting northwards during the summer. More important, perhaps, were his conclusions about the seasonal vertical movements of Southern Ocean plankton. He always took a great interest in whale marking and was responsible for the adoption by the International Whaling Commission of the international marking scheme. This helped to establish understanding of the migrations, age criteria and the existence of separate stocks of whales and has also provided an additional check on the estimated stocks of whales.

Mackintosh was a competent artist, illustrating many of his publications with his own pen-and-ink drawings. His drawings of anatomical structures, the laboratory and other equipment on *Discovery II* make one wish that he could have found more time to develop this talent.

It was characteristic that one early adventure is recorded only in an unpublished epic poem about an adventurous ascent in a balloon in 1924. With Alister Hardy, he was a passenger in a flight organized by Captain E. T. Willows, an aeronaut who was then trying to popularize week-end ballooning thrills. It must have been exciting: "The basket bumped upon the ground, causing one of our instruments to fall out . . . so delicately balanced is a balloon that the immediate effect was to make us rise a thousand feet". This kind of event recurred frequently throughout a memorable week-end.

Although Mackintosh's interests were chiefly biological, he became deeply absorbed in many related subjects. One of these was the seasonal distribution of pack ice in the Southern Ocean. His chief work on this subject with Herdman in 1940 has been mentioned above, but its special significance should not be lost in the list of his biological publications. It was an important pioneer contribution to knowledge of a subject which possessed, as he well knew, much wider implications than his original interest in the seasonal effects of sea ice on plankton and whales. It was the first major attempt to plot the observed position of the northern fringe of the pack ice and to indicate in what latitudes and longitudes the ice edge is most likely to be found at different times of the year. More than 20 years were to pass before it became generally accepted that fluctuations in the area covered by pack ice in the Arctic and Antarctic constitute the largest single variable affecting the climate of our planet. In 1939 he joined the Association for the Study of Snow and Ice, the recently formed group which later grew into the British Glaciological Society and eventually became the International Glaciological Society. His pioneer work on Antarctic sea ice was an important factor in ensuring that this aspect of glaciology received appropriate recognition by the infant society.

From 1942 until his death, Mackintosh was a member of the Committee of Management of the Scott Polar Research Institute. He continued as a member of this Committee through several constitutional changes in the Institute's aims and functions. His advice was always wanted because it was independent, sound and unbiassed; indeed, when the Institute was passing through its worst crisis in 1956—involving an acute series of attacks on the reasons for its very existence, let alone its proposed post-war expansion of activities with government support—it was Mackintosh who was asked to draft the chief factual report which eventually led to a compromise solution. His own and some other independent

assessments played a large part in preventing the Institute from being destroyed during the post-war University witch-hunts, some of which aimed to distinguish between “fundamental” and “applied” research and to eliminate the latter altogether from Cambridge departments. The problem of “earmarked government grants” for specific practical purposes was a divisive and destructive issue in Cambridge University politics at that time.

This notice must next record something about Mackintosh’s contribution to the Falkland Islands Dependencies Survey (FIDS), now called the British Antarctic Survey (BAS). This organization started in 1943 under the code-name “Tabarin”, a secret wartime naval operation with the object of maintaining British sovereignty in the face of Argentine and Chilean encroachments in this British Dependent Territory. It was possible to include a few qualified scientists in the first permanent occupation parties. It seemed to some of the organizers of this project—and it did not escape severe criticism—that no possible opportunity for further scientific work in this remote area should be missed and that, despite all the difficulties and restrictions of a world at that time deeply preoccupied with war, some useful observations could be combined with the basic legal requirements of occupation. Until 1945 the marine part of this activity was a naval operation, but the selection of personnel, the sites they were to occupy and the productive scientific work which it was hoped might be accomplished was left almost entirely to the Foreign Office. Most of this had to be done by the Polar Regions Section of the Research Department, where the corridors became blocked with accumulating stores and equipment; a quite unusual activity for the FO. There were many grotesque situations. At one time Mackintosh and I had to deal with the purchase and arrange for the transfer through London of a team of sledge-dogs from Labrador. These animals were never actually delivered to the Foreign Office, or to Mackintosh’s office in Queen Anne’s Chambers, but for a short time this was an appalling prospect for both of us.

At the end of the war, responsibility for “Tabarin” was transferred to the Colonial Office. A small “FIDS Sub-Committee” was set up to meet periodically and advise the Colonial Office. It consisted of James Wordie (chairman), Neil Mackintosh, Ted Bingham (who succeeded James Marr as leader of the field parties at the end of 1944) and myself. There was also a Colonial Office representative whose main function appeared to be the obstruction of any useful executive action. It fell to me to prepare the Agenda for each meeting and to record “informal” minutes. For four years this small group had no officially recognized responsibilities and had to struggle with Whitehall bureaucracy to keep FIDS alive. It was not until 1948 that the Secretary of State for the Colonies set up the Falkland Islands Dependencies Scientific Committee, with clearly defined terms of reference and an adequate secretariat.

Mackintosh was, from its earliest days, an active supporter and a member of both of these committees. At the first meeting of the new committee in 1948, one of the chief papers for consideration was a memorandum he had written entitled “The implications involved in the supervision of scientific work at home”. In this, he set out clearly the basic needs in planning the research programme, organization of records and disposal of specimens collected, publication of results, and various other essential administrative arrangements. Like all his papers, it was clear and concise, based on long personal experience of these problems with the Discovery Investigations. All his recommendations were fully endorsed by the FIDS Committee, but they were largely ignored by the Colonial Office. There was, however, one good result of this first meeting. It was agreed by the Colonial Office that the Discovery Committee (*ie*, Mackintosh) should be

responsible for custody of all FIDS records and specimens. Although this was originally minuted as no more than a "temporary" arrangement, and one which did not make financial provision for even one filing cabinet, it lasted until 1950 when Dr (now Sir) Vivian Fuchs was able to establish the FIDS Scientific Bureau as a part of the headquarters of the Survey. I remember vividly my relief in 1948 at being able to hand over to Mackintosh a number of crates of records and specimens salvaged during the previous five years. In addition to diaries and specimen registers, there were a lot of photographs (including many undeveloped negatives), boxes and jars of geological and biological specimens—the latter preserved in alcohol or formalin—none of which could appropriately be incorporated in the Foreign Office archives, but had accumulated in my office because no one else except the originators had shown any interest in their preservation. With characteristic efficiency, Mackintosh now made time to list and organize all this material.

In the early years of FIDS, Mackintosh and I jointly drafted the annual programmes and the accompanying official instructions. He was always a tower of strength. I often wondered whether FIDS would have foundered without his wise councils. He had a thorough understanding of Civil Service procedures as well as of Antarctic research. His contribution to the foundations of the British Antarctic Survey must not be forgotten.

Some landmarks in the recognition of his work by others were his DSc in London (1931), the award of the Polar Medal (1942) and the Patron's Medal of the Royal Geographical Society (1954). He was a member of the Council of the Royal Geographical Society in 1939-43 and again in 1947-50.

In any assessment of Mackintosh's life work, we must inevitably try to pick out several different themes. Six of his special contributions seem to me to stand out. First, his research on whales and other related aspects of Southern Ocean biology—his work on whale biology and macroplankton was quite outstanding; second, his work for the International Whaling Commission and the various international agreements concerning the regulation of whaling and rational exploitation of this major economic resource; third, his planning and direction of research of the Discovery Investigations over a long period and his editing of the *Discovery Reports*; fourth, his pioneer studies of Antarctic sea ice which made him an acknowledged authority on this subject; fifth, his contribution towards the early organization of the Falkland Islands Dependencies Survey (now called the British Antarctic Survey); sixth, the important influence he exercised as an active member of the Committee of Management of the Scott Polar Research Institute and the Council of the Royal Geographical Society.

Brian Roberts