

OBITUARIES



NEIL ALISON MACKINTOSH—1900–1974

NEIL ALISON MACKINTOSH, C.B.E., D.Sc., an authority on whale biology and on the distribution of Antarctic pack ice, died in London on 9 April 1974. His pioneer work with H.F.P. Herdman on "Distribution of the pack-ice in the Southern Ocean" (*Discovery Reports*, Vol. 19, 1940, p. 285–96) was a principal source for Southern Hemisphere ice atlases until well into the age of polar-orbiting satellites. An updated and amplified version of earlier charts showing mean positions of the ice edge month by month was incorporated in one of his last major publications on the "Life cycle of Antarctic krill in relation to ice and water conditions" (*Discovery Reports*, Vol. 36, 1972, p. 1–94).

Mackintosh's Antarctic interests spanned fifty years, for it was in 1924 that he was appointed to the Discovery Investigations to establish the Marine Biological Station at Grytviken, South Georgia. The chief purpose of the work was to develop a scientific basis for conservation measures to regulate the rapidly expanding southern whaling industry. He took part in whale marking from R.R.S. *William Scoresby* in 1927 and served with R.R.S. *Discovery II* during three major Southern Ocean commissions in 1929–31, 1933–35, and 1937–39. He was chief scientist for the last two of these commissions. It was during this period that he became aware of the significance of low sea temperatures to the growth of krill, and hence of the relationship between the ice edge and the distribution of whales. Although not at first attempting to evaluate the factors which control the distribution of pack ice nor to

describe the processes of its formation and disintegration, Mackintosh and Herdman amassed a wealth of data based on actual sightings of the ice edge over a long period of years. The work was circumpolar in scope and for this reason was able to draw attention to some unsuspected relationships between the extent of ice in different regions during normal and also abnormal years.

Mackintosh's work was characterized by meticulous sifting and evaluation of data from a wide variety of sources, and because of his broad knowledge of Antarctic oceanography he came closer to an understanding of the factors which control ice distribution than did any of his contemporaries. Even today when we can obtain satellite pictures of the whole Southern Ocean daily throughout the year, Mackintosh's analysis of a long series of anomalies in the position of the ice edge is still a prime source for anyone studying not only fluctuations in the distribution of Antarctic krill but also significant changes in climate.

In 1936 Mackintosh was made Director of Research of the Discovery Investigations, a post which he held until the work of his team was merged with that of the newly established National Institute of Oceanography (now Institute of Oceanographic Sciences). He 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. He played a major part in scientific committees which advised the Falkland Islands Dependencies Survey (now British Antarctic Survey) on the direction and organization of its research. Mackintosh's exacting standards of recording and preparation of work for publication were incorporated in detailed instructions sent south with each new batch of field men. Since 1936 he had edited *Discovery Reports*, 36 volumes of which had been published at the time of his death. These represent by far the largest single source of Antarctic research results ever published in any language. His own pre-eminence in whale biology was marked by his membership and then chairmanship of the Scientific Committee of the International Whaling Commission from 1950 to 1962. In 1939 he joined the Association for the Study of Snow and Ice, the recently formed group which grew by successive stages into the International Glaciological Society. His special interest in sea ice was an important factor in ensuring that this aspect of glaciology received appropriate recognition by the Society.

Neil Mackintosh was one of the kindest and most modest of men; it was because of his retiring nature that he was not widely known outside the realms of whale biologists. But his contributions to glaciology were important in that they came a whole generation before it was generally accepted that fluctuations in the area covered by pack ice constitute the biggest single variable affecting the mean albedo and hence the climate of our planet.

C. W. M. SWITHINBANK