

ARNE NOE-NYGAARD
(1908-1991)

One of Denmark's most distinguished scientists, geology professor Arne Noe-Nygaard, died on 3 July 1991 at the age of 83.

Arne Noe-Nygaard was born in Ribe, Jutland, one of Denmark's ancient towns, where his father was president of the local teacher's college and a minister. Noe, as he was known to everyone, graduated in 1927 from Aarhus Cathedral School, one of the country's oldest. He had majored in classical languages, which would normally have led to a university study in theology, thus following in his father's footsteps, as he originally intended.

Noe, however, was greatly influenced by his science teacher, a noted geologist, so much so that he began to study mineralogy and geology at the University of Copenhagen (UC). He graduated with a Master of Science degree in 1933, a noteworthy achievement, having spent much time as a young student on various expeditions, including 3½ months on the Danish East Greenland Expedition of 1929, 2½ months on the 1930 Godthaab Expedition, and 21 months, including the winter of 1931-32, on the Three-Year Expedition of 1931-34. Noe continued his studies in Uppsala, Sweden, until 1935, when he transferred to Glasgow in 1936 and London in 1937. He defended his doctoral thesis in the same year at UC. It dealt with the igneous rocks of Canning Land, East Greenland, based on materials collected during his stay at the sub-station Vimmelskaflet at Cape Brown. He proved that the igneous rocks form a well-developed and rather varied series of eruptives with surface characteristics and of the upper or middle Devonian age. Also his paper "Stratigraphical outline of the area around Flemming Inlet" was based on fieldwork done partly during his wintering at Cape Brown and partly during the summer of 1934. This time the research covered the land between Carlsberg Fjord and Antarctic Harbour and dealt especially with the pre-Mesozoic, Mesozoic and Tertiary rocks and the geological evolution of the area.

Noe's fieldwork during the Three-Year Expedition resulted also in his only paper dealing with the Pleistocene period: "Remarks on *Mytilus edulis* L. in raised beaches of East Greenland," in which he demonstrated that the milder climate of Allerød/Two Creeks in West Greenland (and other places in the world) also prevailed in East Greenland.

Volcanism and igneous rocks, however, were Noe's main interest. As a member of the 1936 Fourth Danish-Icelandic Expedition to Vatnajökull he studied the sub-glacial volcanic eruptions that took place that year; in 1939 as a member of the Second Danish Nugssuaq Expedition he examined the plateau basalts in the large Ummannaq Fjord region and the pre-Cambrian Phyllite formation on the Svartenhook Peninsula, Northwest Greenland.

In 1936 Noe was appointed scientific assistant at Copenhagen's Mineralogy Museum; he moved two years later to the Geological Survey of Denmark. Here, besides taking care of the Drilling Division, he was assigned the geological mapping of the Faroe Islands, which are almost exclusively made up of volcanic material formed during the younger Cretaceous and Tertiary periods. This work was very close to his heart and he participated in it until his final days. In 1940 he was promoted to sectional geologist of the Drilling Division, a job that was in fact far from his main interests. In

spite of this, Noe demonstrated his undisputed ability for management and administration, which became obvious when in 1942 he competed successfully for the Chair of Professor Geologiae at UC, succeeding Professor O.B. Bøggild, who retired on reaching the age limit. Bøggild had been Professor Geologiae and Director of the Mineralogy Museum since 1912, a full 30 years. He was no doubt the leading mineralogist and crystallographer of his time — a distinguished scientist. However, while fulfilling his basic duties of promoting education in geology and looking after the directorship of the museum, Bøggild's interests were definitely not in developing the subject or inspiring his students, improving the administration, or expanding the museum, the oldest of its kind in the world. In fact, interest in geology generally stagnated during his reign. A challenging job was therefore awaiting Noe, and the odds were against him. Denmark was at that time occupied by the Germans, which was of course in many ways a hindrance to making significant changes. Noe managed, however, to put his hands on a shipment of various optical instruments meant for the Soviet Union when it was diverted following Germany's sudden attack on the Soviets.

Subsequently, Noe joined the Resistance Movement and, as a member of Denmark's Freedom Council, he had to go underground in 1944. This obviously interfered with his professional aims; not until Denmark was liberated in the spring of 1945 was he able to tackle his main objective of moving Danish geology forward and upward. In this he was most successful, with the help of a large, cooperative staff.

In order to fully appreciate the great strides made during Noe's tenure as professor and director, it is useful to describe features of the building in which the museum was established back in 1893. Originally, one half of the three-winged building housed the Chemistry Department of the UC; the other half was occupied by the Geology Department, formally named the Mineralogy Museum. There were some offices and laboratories in the basement, other offices, an auditorium and exhibition halls on the first and second floors, while the entire upper floor was used for storage. The two wings also contained resi-



Arne Noe-Nygaard in the field.

dences, one each for the Chemistry Department head and the director of the museum.

Right after the war money for expansion and major alterations was granted. Thus the area below the basement was excavated and converted to storage rooms. Collections were taken down from the third floor loft and placed in the basement, making room for a dozen new offices. When district heating was installed in 1950 it was possible to rebuild the boiler room so as to accommodate several laboratories. In 1964 the museum took over the half of the building occupied by the Chemistry Department and the two professors' residences; this allowed for additional offices and special laboratories, as well as for a student library. Finally in 1966 the museum was able to triple its floor space by taking over the Polytechnic Institute building, just down the street (Øster Voldgade) from the museum, which for two years had already been using the Polytechnic's basement for storage.

Along with the expansion of physical facilities, Noe was also able to increase substantially what is nowadays termed human resources, but which Noe preferred to call co-workers. When he started in 1945, a total of 28 persons were employed by the museum, 17 of whom were scientists, including 5 emeriti. By 1978, when he retired, the staff had grown to 99, consisting of 48 scientists (including 3 emeriti, 4 new professors and 15 instructors), 19 salaried part-time students and 32 technical co-workers, custodians and cafeteria personnel.

It was not long before the university and other academic institutions became aware of Noe's enormous energy and capacity for work. A few years after taking on his professorship he was elected Decan (head) of the mathematics-natural sciences faculty, and in 1955 he was made a member of the university's Supreme Governing Body (Consistorium). He became a member of boards of directors of various foundations, such as in 1963 the prestigious Carlsberg Foundation.

He was a member of the Committee for Scientific Research in Greenland, from 1948 as a director and from 1955 on the board of editors for the *Meddelelser om Grønland* series. Noe was also a member of the committee in charge of running the Geological Survey of Greenland (1944-66) and of the Danish Arctic Institute (1954-69). He became a fellow of the Arctic Institute of North America in 1973 and maintained memberships in numerous foreign and domestic scientific societies, including several honorary memberships. He was the president of the International Geology Congress of 1960 in Copenhagen.

Along with all these remarkable activities, Noe found time to educate and prepare textbooks for his students and write many papers. For the general public he wrote, among others, a beautiful book describing the stones found along Denmark's 700 km of beaches. He also published a history of the museum, the origin of the various collections and their growth, as well as a history of the mathematics-natural science faculty for its 200th anniversary. He devoted his "spare" time, *inter alia*, on research of the boulders used as building stones in Danish village churches. He also liked to travel; his last major trip was to the United States, visiting major and minor places of historical and geological interest in Arizona and Utah, camping out as Noe and his friends used to do long ago in East and West Greenland. Another planned follow-up visit to the Rockies and Yellowstone Park did not materialize due to his death.

Noe's name will be remembered by generations of international and Danish geologists and arctic explorers.

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