

FELIX ANDRIES VENING MEINESZ
1887-1966

Vening Meinesz was born on 30 July 1887 in Scheveningen near The Hague. He was the son of Sjoerd Vening Meinesz, at that time burgomaster of Rotterdam. Vening Meinesz, Jr. attended an HBS and studied civil engineering at the Technical College of Delft. After finishing his studies in 1910, he was employed by the Rijkscmissie voor Graadmeting en Waterpassing in Delft, where he had to work on a gravimetric survey of the Netherlands, which was a contribution to the determination of the precise shape of the earth. Because of certain difficulties in gravity measurements (the peaty soil in the western parts of the Netherlands made it almost impossible to find a stable base for the measurements) in 1912 Vening Meinesz moved his equipment to a more stable place, the Meteorological Institute, KNMI, in De Bilt. He also devoted himself to a thorough theoretical investigation, resulting in his dissertation *Bijdragen tot de theorie der slingerwaarnemingen* (1915). His supervisor was the Delft professor J. Cardinaal. Vening Meinesz discovered that by using two pairs of pendulums swinging in two mutually perpendicular planes all disturbances could be eliminated. With this new method, and after some instruction at the Geodetic Institute in Berlin, by 1921 he had measured gravity all over Holland.

Then Vening Meinesz decided to turn his attention to the more complicated problem of determining gravity at sea. In his *Theory and Practice of Pendulum Observations at Sea* he first tackled the theoretical problems. After a conversation with F.K.T. van Iterson, chief engineer of the State Coal Mines, who had been impressed by the tranquillity in submerged submarines, Vening Meinesz hit upon the idea of measuring gravity in submarines. In 1923 he took his first voyage with the submarine K II to Java (Indonesia). He discovered that even when diving in a calm sea the pendulums had to be fitted in a kind of cradle to allow for reliable measurements. With some other improvements, Vening Meinesz was able to make a large number of observations before reaching Java. But he continued devising and implementing new instruments, which show his ingenuity as well as his craftsmanship. He made other trips to the eastern Mediterranean, across the Atlantic, the Pacific and the Indian Oceans, always improving his instruments. During the Second World War his meas-

urements were interrupted, but after the war he stimulated younger colleagues to resume the measurements.

In the meantime, his measurements had earned him an extraordinary professorship in geodesy, cartography and geophysics at the University of Utrecht in 1927. In 1937 he also became temporary lecturer at the Technical College of Delft and in 1939 he was appointed extraordinary professor of geodesy at the same institution.

Venings Meinesz's most important discovery during his early cruises was the existence of belts of negative gravity anomalies near the islands of Indonesia, the so-called Vening Meinesz Belts, which he explained by means of his buckling hypothesis. This hypothesis was supported by experiments done by the Dutch geologist Kuenen, but met with resistance from other geologists. He dismissed the theory of continental drift; in his opinion the crust of the earth was rigid, while inside the earth convection currents were responsible for geological activity. The drag of the currents on the crust was responsible for the buckling phenomenon along the Vening Meinesz belts.

After the Second World War Vening Meinesz combined his professorships in Utrecht and Delft with the directorship of the KNMI at De Bilt, after 1952 moving on to the position of president of the board of curators of the institute. He was also active in international organizations. He was president of the International Geodetic and Geophysical Union from 1948 to 1951. He resigned his professorships at Utrecht and Delft in 1957. In 1962 he was awarded the prestigious Vetlesen Prize.

Vening Meinesz, a 'grand seigneur' of science, who always remained a bachelor, died in Amersfoort on 10 August 1966.

Primary works

Bijdragen tot de theorie der slingerwaarnemingen (Amsterdam: De Bussy, 1915); *Theory and practice of pendulum observations at sea*, 2 vols (Delft, 1929-1941); *The gravity measuring cruise of the US Submarine S-21* (Washington, 1930), with F.E. Wright; *Gravity expeditions at sea*, 5 vols (Delft, 1932-1960), vol. 2 with J.H. Umbgrove and P.H. Kuenen. A bibliography up to 1957 can be found in *Gedenkboek F.A. Vening Meinesz* (*Verhandelingen van het Nederlands Geologisch-Mijnbouwkundig Genootschap*, Geol. Ser., 18 [1957]).

Secondary sources

B.J. Colette, in: *Geologie en mijnbouw* 45 (1966) 285-290 (in English).

W. Nieuwenkamp, in: *DSB*, vol. 13, 605-611 (weak on biographical information).

[K.v.B.]