

OBITUARY PROF. DR. HENK POSTMA 1921 –2005

G.C. Cadée

On the 19th of July 2005 our former director Henk Postma passed away. With him, we have not only have lost a well-known oceanographer, but also a wise, friendly and humoristic colleague. He has had a very long connection with NIOZ. Also after his retirement in 1986, he remained active in various national and international committees and a regular visitor to the Institute, interested in its progress, but also always full of anecdotes on life at the institute in the past.

Henk Postma was born in Zwolle in the province of Overijssel, where his father worked as a typesetter. Here he received his primary and secondary school education. In 1938 he started studying chemistry at Groningen University. Here he obtained his M.Sc degree in 1946, having lost some time during the war. Like many young field biologists, but unlike most chemistry students, Postma became a member of the Dutch Youth Society for Naturalists (NJN). Members had to leave this society at the age of 23, it was (and still is) completely organised by people under that age limit. For many of its members, the NJN proved to be an important meeting place where many life-time friendships were founded and a keen interest in general field biology was fostered. This has certainly helped Postma to understand the work of his biological colleagues at NIOZ at a later stage. It also helped him to fit his chemical and hydrographical studies in one of the goals of his predecessor as NIOZ director, dr. Jan Verwey: the understanding of the ecology of the Wadden Sea.

8

After a brief stay at the Philips laboratory in Eindhoven, Verwey selected Postma to work for a PhD study on the chemistry and hydrography of the Wadden Sea. Postma started work at the Zoological Station in Den Helder in 1947. The Zoological Station changed its name to 'Netherlands Institute for Sea Research' (NIOZ) in 1961. Postma's thesis *Hydrography of the Dutch Wadden Sea* (1954) is still a benchmark paper on the Wadden Sea. Published in the *Archives Néerlandaises de Zoologie* (10: 405-511), it first remained somewhat obscure. However, his Wadden Sea work became better known after he contributed a chapter to Lauff's well-known book *Estuaries* (1967), which was based on Postma's hydrographic studies in the Wadden Sea and in several other estuaries since. This 1967 paper became probably his most cited one (see NIOZ Annual Report 2001: 79-81). His thesis is still important, as it gives data for nutrients in the Wadden Sea before real eutrophication (*i.e.* the enrichment of nitrogen and phosphate by man's activities) started in the nineteen seventies. It also indicated why the Wadden Sea was already a rich area for bivalves (cockles, mussels), fish and birds before the years of heavy eutrophication. Postma's work showed that the Wadden Sea acts as a trap for suspended particles including phytoplankton and detritus, entering from the North Sea through the tidal inlets. He observed that, particularly during summer, much of this imported organic matter was mineralised in the Wadden Sea and that the liberated nutrients were either directly taken up by (micro)algae in the Wadden Sea or exported to the coastal North Sea. No wonder Postma and his long-time assistant Joop Rommets also carried out the first measurements on primary production activity in the Wadden Sea already in the early 1960s.



Postma continued studies in the Wadden Sea, e.g. on suspended matter, in which simple apparatus were his favourites, such as the Secchi-disc and his own water sampler. This Postma water sampler was much better adapted to collect suspended matter than those available before that time. He also went abroad studying sediments and sedimentary processes in the Gulf of Paria in front of the Orinoco river together with Tj. H. van Andel in 1952-'53. In 1954 he did research with K. Kalle in the Elbe estuary on the turbidity maximum also caused by the trapping mechanism for particles he had observed earlier in the Wadden Sea. With P. Korringa from the Netherlands Institute for Fisheries Research (RIVO) in IJmuiden, he studied the fertility of the water of the Gulf of Naples in 1954. With scientists from Delft Hydraulics Laboratory he investigated coastal erosion in British Guyana in 1960. In 1962 he spent a full year at Scripps Institution of Oceanography in La Jolla, California, an excellent place to enlarge his oceanographic knowledge and meet interesting colleagues. His studies on the uptake of CO₂ by the ocean were stimulated here by contacts with C.D. Keeling and resulted in a paper in 1964 in which the fundamentals for the exchange of oxygen and carbon dioxide between ocean and atmosphere were established (See NIOZ Annual Report 2004: 91-95). This was published in the Netherlands Journal of Sea Research (2: 258-283), of which Postma was one of the founders in 1961. He was its editor-in-chief from 1961-1969 and from 1970-1984 one of its editors. In this way he helped to develop the multidisciplinary character of marine sciences in The Netherlands. In 1986, this Journal dedicated a special volume to Postma with 22 invited papers on physical, chemical, geological and biological aspects of the marine environment; all fields in which Postma had shown his interest and published himself.

Postma became NIOZ director after the retirement of Jan Verwey in 1965. The rules of the the Dutch Zoological Society (NDV) as the founding organisation of our Institute required that he should share this position with a biologist,. From 1971, dr. Jenne Zijlstra became Postma's biological counterpart. Postma and Zijlstra proved to be an excellent team, where Zijlstra added his management capacities, which had not really Postma's interest.

Under their combined leadership of some 15 years, NIOZ flourished: its staff increased from 60 to 160 employees. Between 1969 and 1977, a new institute was built on Texel on the other side of the 'Marsdiep'. NIOZ expanded its scientific work from the coastal regions to all over the world's oceans, culminating in the Snellius-II expedition in Indonesian waters in 1984-'85, in which both directors were active as organisers as well as cruise-leaders. Under the directorship of Postma and Zijlstra, NIOZ became a true globally active oceanographic institution.

Postma was mainly interested in fundamental research, and he believed that the scientists themselves were the best to judge what was scientifically most important. This was reflected in the freedom NIOZ scientists had at that time to select their own research topics. This does not imply that NIOZ in general and Postma himself did not participate in applied research (e.g. on the already mentioned coastal erosion with Delft Hydraulics). Under Postma's directorship, the



department 'Marine Pollution', with Jan C. Duinker as the head of department, started studying the fate and effects of the highly toxic PCB's and trace metals, dumping of radioactive waste in the deep sea (DORA-project) and the effects of the organic-rich potato-industry waste effluent on the ecosystem of Ems-Dollard estuary. For this project, the BOEDE group of scientists was appointed and their studies resulted in a mathematical ecosystem model that was also applied on the Western Wadden Sea and the North Sea. This group was led by dr Piet de Wolf.

In 1963 Postma was appointed as professor in physical and chemical oceanology in the geology department of the University of Groningen. Between 1963 and 1991, 16 students wrote their PhD thesis under his guidance. In 1975 he became member of the Royal Netherlands Academy of Arts and Sciences (KNAW). Based on his wide expertise in many fields of oceanography, he has served in many National and International Councils. He was *i.a.* 10 year chairman of the Netherlands Committee for Sea Research and he advised the Dutch government on matters of marine pollution, Wadden Sea management and possible effects of increased CO₂ production and many other subjects.

10 Internationally, Postma has been active in SCOR (Scientific Committee on Oceanographic Research), many years he served in its Executive Council and was SCOR's president from 1973-1975. He was member of the national UNESCO -committee for oceanographic affairs and had many contacts in UNESCO and the International Oceanographic Committee (IOC). After his retirement he played a leading role in designing the worldwide IGBP-LOICZ project (Land-Ocean Interaction in the Coastal Zone), in the planning committee (1991-'92) and as member of its scientific steering committee (1993-'95). Postma facilitated support of the Dutch Government and promoted establishment of the LOICZ headquarters at NIOZ on Texel. Sadly in the same year of Postma's death, LOICZ headquarters had to leave NIOZ after ten years and moved to the GKSS Research Centre in Geesthacht, Germany.

Till the end of his life Postma remained highly interested in oceanography in general and the role of his former institute in particular. He has been a very stimulating teacher for many of us, with a keen eye for the main lines in research, able to do the most interesting observations with simple apparatus and to base his conclusions on back-of-the-envelope calculations. On the other hand, he stimulated growth of research at NIOZ by offering possibilities to keep its facilities up-to-date. With Henk Postma, our country has lost one of its most important oceanographers.

On the central pages of our 2004 annual report, Prof. Hein de Baar summarized the valuable contributions of Henk Postma to the early scientific work in his 40 years old publication (1964) on the uptake by the sea of carbon dioxide from fossil fuel burning. For this reason, the first copy of last year's annual report was handed over to Henk Postma by Hein during a coffee celebration in the NIOZ canteen. Henk Postma used this opportunity to tell his successors some humorous anecdotes about his personal experiences in sea research, highlighting the contrasts with modern practise.

