

JAN VERWEY: THE FOUNDER OF NIOZ

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On the 1st of September 2006, it was 75 years ago that Dr. Jan Verwey (1899-1981) became director of the Zoological Station in Den Helder, which he remained for 34 years until 1965. Verwey played a pivotal role and may be regarded as the 'founder' of the multidisciplinary institute NIOZ. Below an overview of his directorship is given, followed by three items which illustrate the way Verwey operated.

Jan Verwey as director

Jan Verwey studied biology at the Leiden University and did a PhD thesis on protozoan parasites (coccidiosis) in birds, for which he used lighthouse victims. In 1927 Verwey went to the Netherlands Indies (Indonesia) to work at the Institute for Sea Research at Tandjung Priok near Jakarta. The sheer richness of tropical nature in the Bay of Batavia deeply impressed him and he was among the first to study the behaviour and the ecology of inhabitants of the coral reefs and the mangroves. Meanwhile in Holland, the director of the Zoological Station in Den Helder, Redeke, resigned in 1929 and moved to a freshwater fisheries laboratory in Gouda. The Netherlands Zoological Society (NDV) selected Verwey as the new and permanent director of the Zoological Station in 1931. The grey sea and the barren tidal flats looked gloomy after the abundance at the equator but Verwey and his family preferred the Dutch climate to the tropical heat. However, the Zoological Station was impoverished and only a secretary, technician and servant formed the staff. Fortunately, various funds were granted to renovate the building of 1890 and to extend the aquarium and seawater facilities. Verwey reformed the student courses, with a focus much more on animal ecology instead of physiology. He changed the service character of the Station into a laboratory for fundamental marine biological research and started to develop the blueprint for a truly integrated study of the tidal system of the western Wadden Sea. Temperature, salinity and current speed were mapped by cruises on the research vessel 'Max Weber' that came into service in 1933.

Ecological studies of characteristic animals like the mussel were done by PhD students (from various universities) who stayed temporarily at the Station. A series of six theses formed the basic scientific knowledge of the fauna of the Wadden Sea. The Second World War put an end to this promising development. Station and vessel were seized and Verwey, staff and the library moved to Leiden. After the war an immense task of rehabilitation began with very limited means. Verwey himself operated the concrete mixer during the rebuilding of the destroyed aquaria. In 1947 the appointment of chemist Henk Postma



Jan Verwey (left) onboard the new 'Max Weber' during an excursion by the Zoological Society, 28 May 1933. (Photo Jan P. Strijbos, collection NIOZ)



The students of the summer course of 1955 around the director of the Zoological Station. (Photo collection NIOZ)

fulfilled Verwey's wish to extend the abiotic studies of the Wadden Sea. The first 'Waddensymposium' was held in Groningen in 1949 and Postma and Verwey gave a key lecture on hydrography. The staff gradually increased and by 1952 comprised 4 scientists plus 9 technicians and others. In 1956 Baerends, the NDV commissioner, and Verwey wrote an ambitious plan to transform the Zoological Station into an oceanographic institute of 150 employees in 15 years time. The rapid approval by the government in the summer of 1957 even surprised the tireless director. In 1960 the name was changed from Zoological Station into Netherlands Institute for Sea Research (NIOZ), to reflect the new mission that

included both the biotic and abiotic aspects of marine sciences. When Verwey retired in 1965, the extension was still in its first phase, with a staff of 60, but all his plans would become true, including the widening of the scientific scope from marine biology to include chemistry, geology, physical oceanography and pollution studies. The new NIOZ on the island of Texel even would surpass the intended size of staff.

102 From Naples to Woods Hole, 1955-1959.

Verwey became member of the Royal Netherlands Academy of Sciences (KNAW, Amsterdam) in 1949 and he played an important role in the founding of three KNAW institutes for fundamental ecology: the Institute for Ecological Research (Arnhem, 1954), the Hydrobiological Institute (Nieuwersluis, 1956) and the Delta Institute (Yerseke, 1956). Verwey's enthusiastic promotion of ecology gave him the goodwill in the government and elsewhere that he needed for the plans for his own Zoological Station. In April 1955, the International Union of Biological Sciences held a small conference in Rome on the organizational aspects of marine biological laboratories. Verwey used this opportunity to get insight in the scope and finances of a broad range of institutes worldwide. At that time the number of marine institutes (including those on oceanography and fisheries research) was already very large in the industrialized northern hemisphere: nearly 100 in Europe (excl. the USSR), 75 in the USA and 25 in Japan. The organizational structures among the marine biological laboratories were diverse. Many of the smaller institutes belonged to universities, but some of the largest like Plymouth Marine Laboratory and the institutions in Woods Hole were owned by associations or corporations, comparable to the ownership of the Zoological Station in Den Helder by the NDV. Governmental funding played a dominant role for all the institutes, even for the Zoological Station in Naples and the Bermuda Biological Station, where bench fees were once the major income. Verwey wrote an account on the discussions in Rome and stated that the funding of fundamental marine biology by the Dutch government was meagre compared to that in similarly sized regions like northern Germany, Scotland or Wales. Verwey concluded that the permanent staff of the Station in Den Helder would have to comprise 10-12 scientists and that substantial funds were also needed for the acquirement of modern equipment. When Verwey was in Rome he also visited the Stazione Zoologica di Napoli and later that year he went along several marine laboratories in England and Wales. After the British tour in the autumn of 1955, Verwey used the summer holidays of 1956 to get an impression of the organization of marine biological research along the Atlantic coast of France. After the government had given the green light for the

new institute, Verwey devoted part of his holidays of 1957 to a tour along the institutes in northern Germany. The next year Verwey had no time to continue these trips - except for spending part of the holidays at the MBL in Plymouth. In 1959 Verwey attended the opening of the new Biologische Anstalt on the island of Heligoland. A Dutch delegation for the Scientific Committee on Oceanographic Research (SCOR) was formed and Verwey, Postma and Duursma went to the first International Oceanographic Congress in New York in September 1959. Verwey and Postma subsequently visited a series of 15 institutes along the east coast of the USA, including the laboratories in Woods Hole. Later that year, Verwey and Postma attended an international conference in Monaco on the problem of discharge of radioactive waste. On this occasion Verwey also visited the marine biological laboratories at Villefranche, Marseille and Banyuls along the Mediterranean coast. All these impressions helped Verwey in drafting the plans for the new institute. Verwey became an important member of the Netherlands Committee for Oceanographic Research (NCZ), founded in 1962. Within the NCZ Verwey became involved in the first oceanographic expeditions by Dutch vessels after the war, i.e. the North Atlantic cruises by the Vening Meinesz Laboratory (geophysical research, Utrecht) and the NAVADO-project 1964/1965 wherein NIOZ and the Royal Netherlands Meteorological Institute participated.



Along the institutes of the east coast of the USA, September 1959: Postma en Verwey (middle) in discussion with one of their hosts. (Photo collection NIOZ)

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The move from Den Helder to Texel

The Royal Navy in Den Helder opened a much enlarged harbour in 1954 to accommodate the growing fleet. The tidal gully 'Nieuwe Diep' was barred at one side and the currents running alongside the quay of the Zoological Station decreased dramatically. As a result the water supply for the experimental aquaria varied much more in salinity and turbidity. Nevertheless, the old building remained the base in the plan to transform the Zoological Station into an oceanographic institute. Verwey tried to persuade the municipality of Den Helder to allow him to build next to the existing Station but the Navy denied to sell their soccer field. Meanwhile, alternative locations were inspected as far south as Vlissingen. Verwey finally concluded that the best building site would be close to Den Helder but across the Marsdiep: the small polder 't Horntje on the southern tip of the island of Texel. The intention to move was agreed upon during a famous meeting at the foot of the Texel dike, 25 June 1958, by Verwey, Postma, Baerends and officials from different ministries. The transaction of the ownership of the polder 't Horntje by the local farmer to the NDV passed March 1959. The area was still remote, but the new harbour for the ferry company TESO was planned just west of this location. This would decrease the sailing time between Den Helder and Texel to 20 minutes only and TESO planned an hourly service by ro-ro ferries. That part of the staff of the NIOZ that preferred to remain living on the mainland, would be able to com-

mute daily. Verwey envisaged that also the research vessels would lie in the new ferry harbour, but the authorities refused this combined use by TESO and NIOZ.

Consequently, the NIOZ plan had to be extended with a separate harbour east of the new building.

There was one large problem: no extra budget was available.

Personal contact between the new NDV commissioner Lever and the prime-minister of the Netherlands forced a way out of this dilemma. The funds came and the digging of the NIOZ harbour could start in 1963. The architects Pot and Pot-Keegstra designed the harbour sheds and were asked to draw the main building of the institute as well.

The first design by the Pot couple comprised 5 floors with a total height of 28 m that dominated the skyline. By 1 September 1965 when Verwey retired (at age 66), only the NIOZ-harbour on Texel was completed.

The start by the new director Postma was difficult: the design of the main institute was rejected by the authorities as the height did not fit with new building regulations. In this turbulent period the new biological director Groot quit within two years. The delay in the plans necessitated a temporary laboratory in the polder and the majority of the NIOZ staff moved from Den Helder to this 'provisorium' on Texel in the autumn of 1969. A second design for the main building with 3 floors met again objections, not in the least by the own NIOZ-staff. Only the large 'Aquarium building' for experiments with life marine organisms escaped this new delay and was completed in September 1971. The new guesthouse 'De Potvis' became inhabited in 1971 too and the new RV 'Aurelia' arrived in 1972. This gave a large impulse to the hydrochemical, geological and biological studies of the North Sea. The configuration of the permanent institute was finally approved: the basic units were stretched into a much lower building of 1 or 2 floors only. Construction started in 1975 and the opening was two years later. The transformation from Zoological Station to NIOZ was completed, twenty years after the approval by the government to create an oceanographic institute on Texel.

The battle of the Wadden Sea

During the storm-surge of 1 February 1953 more than 1700 people drowned in the provinces Zeeland and zuid-Holland when dikes broke and a number of polders flooded. This national catastrophe evoked the Delta Plan, wherein huge dams were planned to close the large inlets to improve safety. Agriculture would profit as well since the brackish, estuarine waters outside the dikes should change into freshwater basins. By the early 1960's, the Delta works in the southwest had started and the heir of Dutch engineers now began to develop

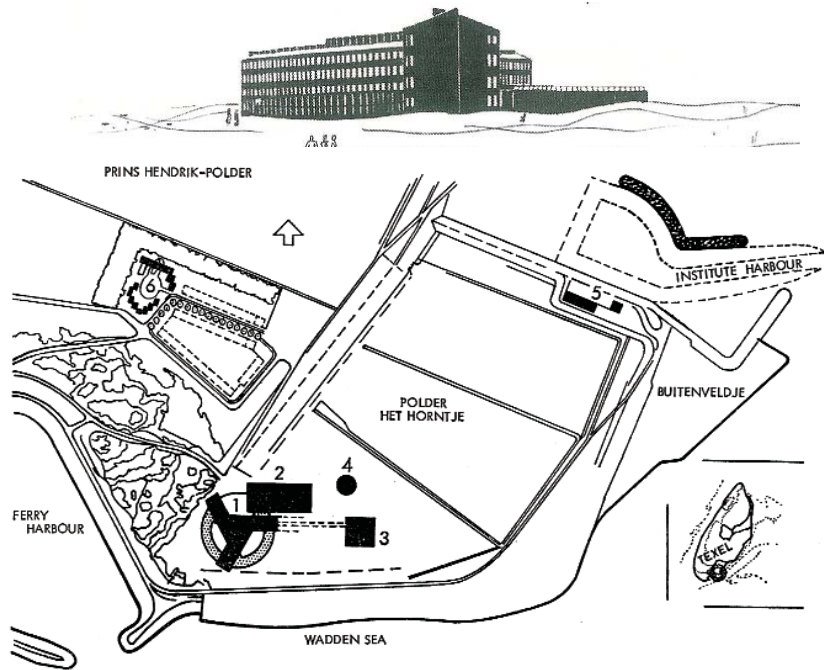


Fig. 1. Situation of the future buildings of the Netherlands Institute for Sea Research.

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| 1. Main building | 4. "Oceanarium" |
| 2. Observation aquarium | 5. Harbour buildings |
| 3. Experimental aquarium | 6. Dormitories |

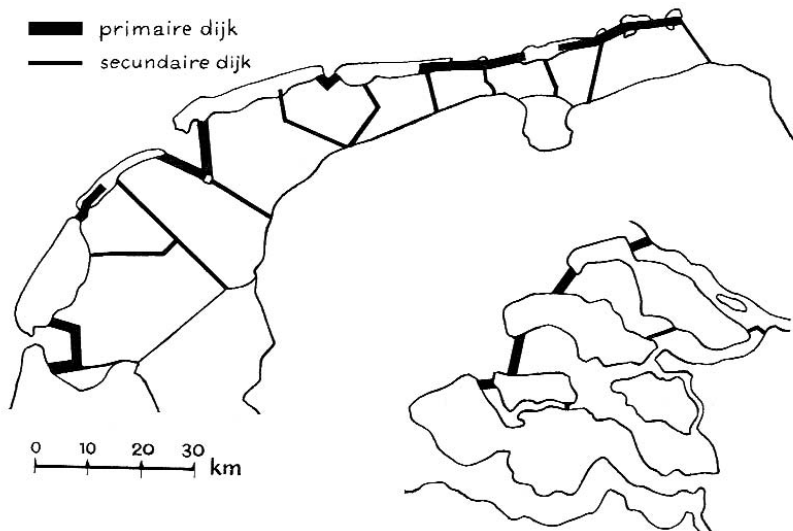
The first design dated summer 1964 for the institute on Texel, comprising a building of 5 floors, just east of the new ferry harbour.

plans to transform the Wadden Sea. The easiest work comprised the 'Ameland Plan' in 1961, which actualized the old 19th century idea to connect Ameland by dams with the mainland. This could be regarded as the first phase of the 'Plan Zandvoort', which leaked into publicity soon thereafter and involved the entire Wadden Sea.

Meanwhile, the unique natural character of the Wadden Sea became clear. The biological values of 31 coastal areas in Europe and North Africa were evaluated during an ornithological conference in the Camargue in southern France in 1962. The top rank was occupied by the Wadden Sea, with by far the

largest numbers of bottom animals and migrating birds. Reclamation of the area would thus have enormous consequences for natural life along the migrating routes in Western Europe and Africa. This international implication was a real eye-opener for Verwey, and urged him to form a small, independent group of Dutch experts, the Working Group Wadden Area (WGWA). The group was founded in Amsterdam on 17 September 1965, chaired by Verwey. One month later, Verwey's retirement symposium organised by the NDV at the Zoological Station in Den Helder comprised only fundamental scientific lectures on the 'Aspects of life in estuarine environments'. Verwey's own contribution was on 'The role of some external factors in the vertical migration of marine animals'. Then, free from his official duties and responsibilities as NIOZ director, Verwey bundled all the scientific knowledge available at the institute and elsewhere, and gave a lengthy talk on 'The rich Wadden Sea' for a much wider audience during a plenary meeting of the National Nature Conservation Committee in Utrecht on 18 December 1965. In an impressive presentation he gave biomass figures for the Wadden Sea and showed the existence of an astonishingly productive biological system on the tidal flats behind the dikes.

The 'Waddenvereniging' was founded in 1966 and Verwey's WGWA very much welcomed its magazine 'Waddenbulletin' in order to persuade the general public of the special status of the Wadden Sea. The speakers list of the Wadden Conference in Leeuwarden in April 1968 comprised both pros and cons in the battle for the open Wadden Sea, with naturalists like Verwey and engineers like Zandvoort. Verwey produced another historic talk, 'Destination for thousands', wherein he stressed the Dutch responsibility for the key refuelling area of migrating birds but he also pointed to the economic importance of the mussel culture in the Wadden Sea. Meanwhile, the WGWA delivered a negative advice on the Ameland Plan to the KNAW in October 1968. The disaster of the oil tanker Torrey Canyon that winter helped to alarm the public opinion. The studies of the Wadden Sea by NIOZ and by RIVO, the fisheries research institute in IJmuiden, profited by the support of the International Biological Program (IBP, 1967-1972). A main result of the IBP was the recognition of the Wadden Sea as a nursery area for young flat fish, fed by the rich bottom fauna, e.g. on the Balgzand, sampled bi-monthly by NIOZ-scientist Jan Beukema from 1967 onwards. A threat for this area was its possible reclamation, suggested by the majority of the members of the Wadden Sea Commission in 1974. Not surprisingly, the



Plan for the reclamation of the Wadden Sea, with 100 km primary and 150 km secondary dikes, compared to 22 km resp. 13 km of dikes in the Delta Plan. (Natuur en Landschap 19(4), 1966, p. 174)

WGWG produced an thoroughly argued negative advice on the Balgzand plan. Verweij's extensive network, also outside biological circles, proved essential in contacting some economists, who criticized the economic assumptions in the Balgzand plan. New ideas on the valuation of natural areas had been developed, and taking these into account the Balgzand plan was eventually abandoned. Verwey fought for the preservation of the Wadden Sea also by promoting new scientific cooperation across the border. He visited former colleagues at institutes in Germany and Denmark. The result was the first international Wadden Sea Conference in Bremerhaven in October 1970. In addition, Verwey persuaded the NDV to donate the Veth Legacy to the WGWG. The money had been bequeathed to the NDV by H.J. Veth, a biologist who worked as student at the movable wooden Zoological Station between 1876 and 1888. At the end of 1974 Verwey succeeded in a lobby to get a significant share of the financial result of the nationwide 'Action Nature' donated to the Wadden Sea. One million guilders thus enforced the 'Veth Fund'. This enabled the WGWG to create a new scientific group, hosted on Texel, that should produce an important series of scientific publications on the Wadden Sea as a whole, including the German and Danish parts. Wolff was the first scientist to come over to the island in 1975, followed by others one year later. After this accomplishment, Verwey withdrew from the WGWG in 1975 in the knowledge that the Wadden Sea was much more cared for than 10 years before. The frequency of his trips from his home in Schoorl to Texel dropped but Verwey was one of the main guests, of course, during the opening of the new NIOZ building on 28 April 1977. He was grateful that the directors Postma and Zijlstra had finalized the transformation of the Station into a well-staffed and well-equipped institute. Verwey died on 24 September 1981, at the age of 82. In his birthplace Noordwijk the Jan Verwey Nature Centre was founded in 1985.

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Konrad Lorentz and Nico Tinbergen visit Jan Verwey (right) at home, Schoorl 1965. (Photo collection Jan Verwey Natuurcentrum, Noordwijk)



Acknowledgements

This overview was inspired by an extensive manuscript by Edward Bonne on Jan Verwey (to appear as NIOZ Rapport in 2008), besides existing sources like the book on the history of NIOZ by Van Bennekom (2001). Edward Bonne and Gerhard Cadée checked the text. Bert Aggenbach helped with the illustrations.