

THE RIJKSHERBARIUM AND THE SCIENTIFIC AND SOCIAL CONDITIONS WHICH INFLUENCED ITS FOUNDATION

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At the beginning of the nineteenth century the Netherlands lagged behind intellectually when compared with the surrounding countries. This was especially true in the field of natural history.

If we wish to understand the reasons for this backwardness we must remember that during the second half of the eighteenth century the neighbouring countries had started to build and maintain an active trade, whilst the Dutch merchants had secured their capital by investing in those countries, especially in England. The fast decline of our trade with the colonies was one of the consequences of this development.

The study of natural history in those days was stimulated tremendously by the acquisition and exploration of new colonial territories. World-wide expeditions were launched, such as those by Bougainville – with the naturalists Sonnerat and Commerson on board ship – and by Captain Cook who was joined for instance by the Forsters father and son. Those and other expeditions yielded many interesting natural history collections, which were stored in the museums of London and Paris.

Germany and the Netherlands hardly took part in this development. For Germany this was understandable, since the country had no direct connections with the oceans of the world and moreover suffered from a weak political structure. However, for the Netherlands the situation was most peculiar. Botany had flourished here as nowhere else in the world since Carolus Clusius came to the University of Leiden in 1593. It is sufficient to recall such men as Vorstius, Schuyt, Sijen, Boerhaave, Jan and Casper Commelin, and Burman. Even Linnaeus had come to Holland attracted by the vigour of botanical science here and the well-filled botanical gardens. Mainly through the Netherlands the products of the tropical flora had become famous thanks to men like Van Rheede tot Drakestein, Rumphius, Kaempfer, Paul Hermann, Van der Stelt, Van Aerssen van Sommelsdijk, and many others.

The relative backwardness of natural sciences in the Netherlands at the beginning of the nineteenth century must be partly accounted for by the colonial policy of the United East India Company (V.O.C.), adopted in the second half of the eighteenth century. When in that period profits decreased, the governors had shown themselves less and less inclined to admit naturalists into the territories administered by them. This practice was a consequence of the secrecy adopted by the V.O.C. in matters of mercantile interest. The Company could afford to have this policy because it was virtually an independent body which was practically immune from governmental influences from the Republic. Private possession of geographical

maps of territories held by the V.O.C. was a criminal offence. It is hardly surprising therefore that the pursuit of natural history was virtually non-existing in these territories. The major expeditions avoided them and the areas under control of the V.O.C. did in fact belong to the scientifically poorest known in the world. The Spaniard Fernando de Noroña was the only person known to have penetrated the interior of Java for collecting plants (cf. Van Steenis' paper in this volume, particularly his discussion of the period 1753 – 1817).

A peculiar link in the development of scientific research was constituted by the 'Bataviaasch Genootschap van Kunsten en Wetenschappen' (Batavian Society of Arts and Sciences) founded in 1778. It is the oldest known scientific society to be established in Asia. As announced at its foundation, natural history was to take an important place in its activities, albeit that such studies were specifically to benefit the mother country. For the study of native plants, a botanical garden was to be established and dried plants and stuffed or otherwise preserved animals were to be studied in a museum. Friedrich Baron von Wurmb was the central figure in the study of natural history at that time. When, however, after only three years, he died, the activities of the Society came virtually to a halt. The low level of activity of the Society lasted until 1814, aided and abetted by the onset of the fourth English war in 1780 which severed the connections of the Dutch mercantile fleet with the mother land.

The year 1811 constitutes an important landmark in this course of events. Java was occupied by the English at that time as some sort of retaliation for the annexation of the Netherlands by France. Sir Thomas Stamford Raffles was installed as Governor-General in Batavia on this occasion.

Raffles held opinions on management and administrative affairs which were completely alien to those fostered by the V.O.C. He carried out a complete reform of government, abolished slavery and established a totally different economic system. He was moreover profoundly interested in the culture and natural history of the territories entrusted to his care. Raffles considered the still existent Batavian Society a useful tool to achieve his ends, i.e. the profound study of native culture and biology; and thanks to his stimulating guidance the Society showed a certain revival.

In 1804 an American physician and botanist by the name of Th. Horsfield had become a member of the Batavian Society. Thanks to the active support of its Council at that time he had succeeded in obtaining permission from the government in Batavia to travel in Java, albeit along pre-defined routes. As early as 1811 he had succeeded in bringing together large collections of plants and animals and this activity was not only appreciated by Raffles but moreover vigorously stimulated. To learn more of the nature of Horsfield's collection we have to wait until 1819.

Apart from Horsfield, other foreign collectors such as the Englishmen Alexander Hare and Joseph Arnold and the Frenchmen Pierre Diard, Alfred Duvancel and Louis Théodore Leschenault de la Tour had been active in the former Dutch Indies under Raffles' government. As a result of their activities Raffles was able to send large collections of biological specimens to Joseph Banks in London. These would later become part of the British Museum (Natural History). The French collectors sent most of their material to Paris. A large part of Horsfield's collections became the property of the Museum of the English East India Company, and Horsfield himself became the curator of this museum after his departure from Java. In this

position he was able to devote the entire rest of his life to the study of his own collections made in the East Indies.

So it happened, that at the beginning of the last century large collections of plants and animals from the Dutch East Indies landed in foreign museums and were described for the first time by foreign scientists (Cf. van Steenis, 1979, p. 57). In 1814, when the French occupation of the Netherlands came to an end, the Dutch became more and more aware that unique opportunities were being lost for our country, and possibly King Willem I, sovereign of the Netherlands and Belgium from 1814, was more aware of this danger than anyone.

King Willem I took a great number of initiatives to raise the Netherlands in particular to a higher level amidst the other countries. He stimulated trade and industry as well as the arts and sciences. This was certainly not an easy task, because, as Jan Romein has put it in his 'History of the Low Countries near the Sea': In those days the Netherlands were a nation of rentiers and paupers, and neither of these are renowned for their great activity.

The Netherlands were greatly impoverished when they emerged from French occupation and there was hardly any industrial development. Moreover, Dutch trade had strongly decreased and given way to English competition. Willem I, during his exile in England, could observe this very clearly, and he had realized how important the colonies could be for the Dutch nation as a supplier of raw material and as a market for industrial products, in the way practised by England and its colonies. The King's interest for our colonial territories can best be understood against this economic background. The foundation of the *Handelmaatschappij* (Mercantile Society) and the application of the culture system must also be viewed in this light, i.e. for the benefit of the Dutch economic interests.

Soon after the Netherlands had become a free nation again, the King therefore focussed his activities on the East Indies. On April 27th 1816 an important Dutch delegation consisting of amongst others the future Governor-General Baron van der Capellen and the 'Director for Agriculture, Arts and Sciences in the Island of Java and Dependencies', Professor C. G. C. Reinwardt, arrived in Batavia. In the letter inviting Reinwardt to accept this function, written by order of King Willem I we read: 'We must no longer be deprived of the merit of knowing our colonies as thoroughly as our neighbours know theirs ... and the philosophical study of the manners and ways of their inhabitants will develop the safest means to assure Holland of their love and confidence for many years to come' (Smit, 1978, p. 53).

Reinwardt acquitted himself excellently in his task: he organized the school system, especially elementary education, he set up a medical committee, and he introduced vaccination, a service which was headed by his compatriot, the German physician C. L. Blume. Finally, and most interesting for us, Reinwardt also devoted a great deal of attention to science, for according to his instructions he was also to occupy himself with matters such as prospecting for minerals, collecting plants and animals for cabinets of natural curiosities in the Netherlands and studying useful plants and finding methods to propagate them.

With respect to the latter task, just one year after his arrival in Java, Reinwardt suggested to the Governor-General to lay out botanical gardens at Buitenzorg for propagation trials of indigenous plants, in order to find out whether they offered possibilities for economic exploitation. Reinwardt's suggestions met with positive reactions and it is to him that we owe the establishment of 's Lands Plantentuin (The National Botanical Garden) in 1817.

To help enrich the collections of plants and animals in the Netherlands Reinwardt sent large shipments in 1817, 1818, and 1819. Unfortunately all these shipments were lost with the ships carrying them. It was not until 1820 that the first shipment arrived in the mother country.

Meanwhile arrangements had been made in the Netherlands to accommodate these collections. By Royal Decree the National Museum of Natural History was founded in 1820 in Leiden. Here Reinwardt's collections of preserved animals and plants were sent.

The foundation of this National Museum formed part of the strategy of King Willem I for the promotion of science nationally and the large museums of Natural History in Paris and London had served as its model.

How closely the scientific and economic interests were intertwined is clearly shown in a letter written by Temminck in support of the King's plans to found the National Museum of Natural History: ... it is necessary that 'this country shall be able, on a footing of equality with other countries, to boast new discoveries, from which trade and industry may very often derive great and efficacious profit' (Smit, 1978, p. 54). Coenraad Jacob Temminck (1778 – 1858) was the first director of this museum from 1820 until his death.

The success of Reinwardt's mission to the Indies and the need to supply the recently founded Museum of Natural History with materials led in 1820 to yet another Royal Decree, instituting a Natural Science Commission, in the Indies. Its task was to further the scientific knowledge of natural products in the East Indian Archipelago, primarily by collecting plants and animals and by shipping them to the Museum of Natural History in Leiden. It was stipulated that materials collected were the property of the Netherlands and must not be sent to foreign countries without the consent of the minister. Afterwards a condition was added that members of the committee had to send their material to Holland as soon as possible, without first studying it on the spot. All these measures were intended to bring at least natural science in the Netherlands to the same level as in England and France.

However, in spite of all these measures, it remained difficult for Temminck to compete with other countries. Despite all restrictions it happened repeatedly that newly found plants and animals appeared to be known already in Paris. Moreover, Temminck lacked sufficiently trained staff to publish on the material sent to Leiden. The untimely deaths of most of the members of the Natural Science Commission soon after their arrival in the Indies created additional problems. Especially because these Committee members would have been so well qualified to study the plants and animals on their return in the Netherlands.

The German Heinrich Kuhl and the Dutchman Johan Coenraad van Hasselt were the first to be appointed as members of the Natural Science Commission. They were entrusted with the scientific responsibility. The taxidermist G. van Raalten and the draughtsman J. Keultjes had been added to the mission. Towards the end of 1820 the Commission arrived in Buitenzorg, where they were welcomed by Reinwardt. After a short period of preparation in the surroundings of Buitenzorg they embarked on a trip into the interior of Java, collecting everything nature had to offer. After just nine months of uninterrupted labour, Kuhl's physical condition succumbed to the unusual climate, and he died in Buitenzorg on the 14th September in 1821. Van Hasselt subsequently occupied himself for some time sorting out the collections and gave special attention to the plant material.

Meanwhile Reinwardt had been appointed professor of chemistry, botany and

natural history at the university of Leiden at the end of 1819. In this function he succeeded S. J. Brugmans. For several years Reinwardt stayed behind in the East Indies, however, and took part in some expeditions to territories outside Java. In 1822 he was succeeded by C. L. Blume as director of the National Botanical Garden. In the same year Van Hasselt embarked on an expedition into the Bantam region. This was to be his last journey, because in 1823 he fell seriously ill and upon returning to Buitenzorg he died on the 8th September.

In the period which followed there was a close and active collaboration between Van Raalten and Blume in Buitenzorg. Much of the zoological material collected by Kuhl and Van Hasselt was sent to Temminck at the National Museum in Leiden. Most of their botanical specimens, however, came into the hands of Blume. Part of these collections were sent to the Netherlands through the Ministry of Colonial Affairs with as final destination the Museum of Natural History. Following suggestions by Reinwardt, part of the latter material was again sent for study to J. G. S. van Breda, at that time professor of botany at the university of Gent (cf. Smit & Koolen, 1979).

Meanwhile Blume had become a central figure in the collection of East Indian plants. When he left Java in 1826 and returned to the Netherlands he was able to take with him an enormous collection of dried plants. This collection consisted not only of plants brought together by Kuhl and Van Hasselt, but also of large numbers collected by himself and of partial collections made by others. Of the latter the collection made by the German A. Zippelius – a member of the Natural Science Commission after the death of Kuhl and Van Hasselt – was the most important (cf. Van Steenis-Kruseman, 1979). Immediately after his return to Holland, Blume displayed great activity. One of the first things he did was to appeal to King Willem I to finance the publication of his *Flora Javae*, and this work appeared between 1828 and 1851.

Meanwhile the storing and preservation of the enormous botanical collections Blume had brought with him created a real problem. We may assume that the zoologist Temminck was not extremely interested in so many plants, and on the other hand that Blume – considering his character and personality – was by no means inclined to donate his precious collections to the National Museum.

Whatever the reasons behind it, on March 31, 1829 a Royal Decree was issued, establishing the National (= Rijk-) Herbarium and appointing Blume its first director. For the benefit of political (and scientific) balance it was decreed that the herbarium should be located in Brussels, in several apartments of the Coudenberg convent.

This situation did not last long. When in the summer of 1830, the troubles started which ultimately resulted in the separation of Belgium from the State of the Netherlands, Blume was abroad while P. F. von Siebold happened to be in Belgium. The latter carried with him a large collection of plants brought together during his stay in Japan from 1823 until 1828. Von Siebold intended to add this collection to those of the Rijksherbarium in Brussels under Blume's care. Von Siebold, however, fully realized the great dangers to which both his and Blume's collections would be exposed in such days of turmoil. After consulting Blume's assistant in Brussels – Dr. J. B. Fischer – and the ministry in The Hague it was decided to transfer both collections of plants to Leiden as soon as possible. Thus the Rijksherbarium can be considered to have been transferred to Leiden by October 1, 1830 (cf. Van Steenis-Kruseman, 1979).

When appointed director of the Rijksherbarium Blume was given a special distinction: he was allowed to carry the title of University Professor, although he was not involved in the teaching of botany at Leiden. This task rested on Reinwardt's shoulders in his capacity as professor of botany. This arrangement created a difficult situation which became worse when the collections of plants belonging to Leiden university were merged with those of the Rijksherbarium. The tasks and function of the latter institute were not further defined and delimited in the process (cf. Van Steenis-Kruseman). In article 4 of the 'Instruction of the Rijksherbarium' it was stated that the professor of botany should have completely free access to the herbarium, but the addition 'subject to the responsibility of the director' much diminished the value of this article. Blume interpreted his responsibilities as director of the Rijksherbarium so rigorously, that he was most uncooperative in matters concerning access to the collections in his institute for research purposes. As a consequence there were great difficulties between Blume on the one hand and most of the Dutch botanists on the other and these difficulties lasted until Blume's death in 1862. Thus the Rijksherbarium collections remained inaccessible to most Dutch botanists, and the latter decided to do something about it. In 1845 a number of Reinwardt's ex-students had founded the 'Society for the Dutch Flora'. In 1850, however, it was decided to broaden the scope of its activities to include the study of the flora of the Dutch colonial territories. For this purpose the society was to accumulate its own collections beside those of the Rijksherbarium. The name was changed accordingly into the 'Society for the Flora of the Netherlands and its overseas territories'.

Whatever one may say about Blume, under his guidance the collections increased so rapidly that within a short period the Rijksherbarium could be counted amongst the floristically most important of the world. Important acquisitions were collections by Korthals, Junghuhn, Hasskarl and Von Siebold. Based on these collections, Blume wrote a number of publications on the tropical flora which are still the basis of all our knowledge of the Javanese plant world especially (cf. Van Steenis, 1979).

It may have struck the reader that most of the characters in this narrative were German by birth. This is true for C. L. Blume (1796–1862); C. G. C. Reinwardt (1773–1854); H. Kuhl (1796–1821); F. W. Junghuhn (1809–1864); J. K. Hasskarl (1811–1894); A. Zippelius (1797–1828); and P. F. von Siebold (1796–1866). Only two important Dutch collectors can be named to balance this list, viz. J. C. van Hasselt (1797–1823) and P. W. Korthals (1807–1892). The latter incidentally is one of the very few who in 1837 returned safe and sound to the Netherlands after a six years' stay in the Dutch East Indies. However, he hardly pursued his botanical studies after his retirement in 1843.

All these men lived in a climate of discovery and exploration of colonial territories; of industrialization, trade and competition; and of the search for markets of industrial products as well as for countries supplying raw materials to enable and maintain production. In the beginning of the nineteenth century the Netherlands lagged far behind countries like England and France in this respect. Gradually the country woke up from a period of lethargy, stimulated by a progressive and strong-willed King, and aided by many foreigners, especially Germans. Around the middle of the last century the Netherlands were wide awake and could play their own score in the European social and scientific concert. The great men who stood at the cradle of the Rijksherbarium have effectively contributed to this development and several

of them have paid for it with their lives. We should not forget that because of their activities the great American botanist E. D. Merrill could say on the occasion of the first centenary of the Rijksherbarium: 'The Rijksherbarium in importance and particularly in historical material of great value, ranks with the great herbaria of Europe and America and is one of the few great institutions of its kind in the world ... (its) actual scientific value, with particular reference to Malaysia, (is) unparalleled in any other single botanical institution in the world'. In my opinion these words, expressed 50 years ago, still apply today.

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F. A. W. Miquel (1811 – 1871)
Director 1862 – 1871
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