



Dedicated to the memory of
CARL LUDWIG BLUME

DEDICATION¹

Many botanists must have wondered why as yet no volume of *Flora Malesiana* was dedicated to the outstanding botanist CARL LUDWIG BLUME, undisputed pioneer in planning the compilation of a '*Flora Malesiana*'.

The writing of this Dedication would have been greatly facilitated if a full biography of BLUME had been existent, but none is available; there is not even a bibliography of his works. Only recently, in 1979, two biographical attempts were made, by J. MACLEAN and by A. DEN OUDEN, but only for the period 1820–1832; together with other biographical and obituary notes they are here assembled in Appendix B. I have also compiled a bibliography: Appendix A.²

There are various reasons to account for the lack of data. At Leiden there are, in the Rijksherbarium archives, only few letters addressed to or written by BLUME, and this is also the case for the University archives. Also TREUB (B) in his papers on the history of the Botanic Gardens at Bogor complained about the lack of correspondence of BLUME. The largest source of (official) letters is contained in the huge 'Rijksarchief' at The Hague, but it will require a large, time-consuming effort to unearth these (D: 5). BLUME's large private library was auctioned at Leipzig in March 1863, soon following his death, by the firm of O.T. WEIGEL (B; D: 9).

It has sometimes been suggested that the lack of a full biography – to which BLUME was certainly entitled – could be explained by the fact that BLUME had few friends (D: 8) and that his contemporary colleagues were antagonistic. But this explanation does not really hold, as a biography of the charismatic MIQUEL was not written before a century after his death. In the Netherlands the climate is not favourable for biographies of scientists, at least not in botany (D: 7).

For the reasons given above I have waited a long time to frame a worthy dedication, in the hope that some historiographer would feel attracted to compose a full biography of BLUME. In the absence of this I have ventured to accumulate material myself, recently supported by a study of MACLEAN (B) on BLUME's years in Java and based on archival research in the 'Rijksarchief', and an unpublished essay by DEN OUDEN (B) on the same period based on details from several hundreds of letters in the same archives.

To my regret biographers frequently do not give sufficient attention to personality and motivations, but confine themselves to an appreciation of achievements. I have tried to form an opinion about this facet of BLUME. From BLUME's profuse writings much can be learned about his motivations and his attitude towards society and people. It stands beyond doubt – and that must soon have been realized by his contemporaries (E, F) – that in the science of botanical taxonomy BLUME was on a level with the great taxonomists of the previous century. But in the eyes of his close colleagues he was an autocratic, dominant, unsympathetic person, and this impression still lingers around his name and overshadows the singular value of his scientific work. His sharp pen and especially his fanatical pursuit of a monopolistic position for the Rijksherbarium estranged him from his surroundings. GODDIJN (B: 1931) has pointed this out very well.

My purpose in composing this dedication is to give a sketch of Blume's life, his work and his motivations in a detached way. Blume has a right to an impartial judgement; activities and personalities should be kept well apart. In a few cases, where there is lack of clarity about the interpretation of historical data, I will give BLUME the benefit of the doubt.

(1) Shortly before his death in May 1976 the author of this Dedication and former Editor of *Flora Malesiana*, Professor C.G.G.J. VAN STEENIS, finished the text of the manuscript. He had the intention to use this biography of Blume to conclude volume 10 of the *Flora*. We wholeheartedly like to carry out his intention here. – The General Editor.

(2) The documentation here presented is recorded in six appendices: A. BLUME's publications annotated; B. Biographical sources; C. References to cited literature; D. Notes (mostly additional information considered useful to illustrate the situations under which BLUME had to work, his surroundings, personalia, etc.); E. Eponymy; F. Honorary distinctions and memberships.

The photograph on the opposite page is copied from *Rumphia* 3 (1847), BLUME sitting above his treasures of the Javanese flora, including *Nepenthes*, *Rafflesia*, *Rhizanthus*, orchids and a rattan, presumably *Plectocomia*, the picture dating from the time when he was at the height of his career.

FLORA MALESIANA

Towards the end of the 18th century two earlier attempts to compile a Flora of Malesia were made, namely by FRANCISCO NOROÑA in 1786 and by LOUIS DESCHAMPS in 1794–1798 (B: VAN STEENIS & VAN STEENIS-KRUSEMAN, 1970; C: VAN STEENIS *c.s.*, 1954). Both attempts were abortive by the unfortunate loss of the material these collectors had made.

In the early 19th century the time had come for the more thorough exploration of the tropical floras, both in the New and in the Old World. In the Indies it was started by W. ROXBURGH and N. WALLICH. In Malesia there had been quite some botanical activity in RAFFLES' time, notably by W. JACK in Sumatra and by TH. HORSFIELD and L.T. LESCHENAULT DE LA TOUR in Java, but these researches had led only to publications by JACK.

The proper achievement fell to BLUME, after the establishment of the Botanic Gardens at Buitenzorg (Bogor) in 1817, where a year later BLUME started a research period of seven years which led to his brilliant scientific career.

CARL LUDWIG BLUME, born at Brunswick (Germany) on 9 June 1796, was a son of the merchant CHRISTIAAN NICOLAAS LUDWIG BLUME and of MELUSINE CAROLINE SOPHIE DRECHSLER. His father died before he was born and his mother died when he was five years old. He was an eager boy and was attracted by the study of pharmacy. To a high degree he was interested in travel books of foreign countries, a trend and interest possibly strongly developed in Germany since HUMBOLDT's time, known as the 'Wanderlust', a tendency perpetuated to the present day (D: 10). BLUME's interests were probably directed towards the many unexplored regions of the globe, including the tropics. By 1813 he used his heritage to buy clothes and equipment, and enlisted as a volunteer in the 'Lützowsche Jägercorps', fighting against the French. Later on he went to the Netherlands, where on 29 December 1814 the Medical Board of the Dutch Forces appointed him as a military apothecary of the second class. On 6 April 1815 he was placed with the ambulance of the second division of the mobile forces in Belgium. He was present at Waterloo. According to the military *Stamboeken* (Registers) he was an apothecary of the second class in the hospitals at Den Helder and Leiden between 1814 and 1817.

When in 1815 Prof. S.J. BRUGMANS was commissioned to bring back the collections of natural history from Paris to the Netherlands – collections which the French had taken there in 1795 – BLUME was appointed as his assistant.

In some way or other, young BLUME enjoyed the support of the Duchess of BRAUNSCHWEIG, financially and otherwise. She fostered his career and had recommended him to Prof. BRUGMANS († 1819), who urged BLUME – who had performed his task excellently – to study natural history and medicine. BLUME followed this advice and took a degree as Doctor of Medicine on 9 July 1817 at Leiden (A: 1817). Shortly before this date, apparently in view of his doctorate, BLUME finished his activities as an apothecary in the hospital at Leiden. On 17 October 1817 he returned in the service of the hospital as an M.D., after having obtained, on 6 October 1817, the degree of a health-officer of the second class of the forces and hospitals. On 11 January 1818 he was honourably discharged as a surgeon-major and on 28 March 1818 became a health-officer of the second class of the forces in the Netherlands East Indies. On 28 May 1818 followed the same appointment for the first class; he worked at Leiden till 17 March 1818.

Shortly after his arrival in Java, on 11 January 1819, BLUME was appointed deputy-director under C.G.C. REINWARDT in charge of the organization of Education, Medical service, Agriculture, Arts and Scientific investigation. He was then only 22 years old, but obviously highly esteemed for his ambition, zeal, knowledge and energy. His initial salary was f 500 annually. He lived in REINWARDT's house at Buitenzorg (Bogor), enlarged for this purpose, in the Botanic Gardens. He married the rich WILHELMINA NICOLASINA CRANSSEN. This marriage was obviously not very successful. He was divorced in April 1830 in Brussels and he remarried at the end of that month JOHANNA ALLETTA WILHELMINA WAARDENBURG, by whom he had 7 children.

At that time the Government was much concerned about serious tropical diseases, small-pox, typhoid, cholera, and in 1820 REINWARDT wrote a detailed report on the state of vaccination in

DEDICATION

the years 1818–1819. All civil servants were informed of the Government's intention to maintain and promote vaccination. BLUME was provisionally appointed 'Inspector of Vaccine' in 1819. He informed the Government that it was desirable to use indigenous plants instead of imported medicines which often lost their value during the long sea-voyage, and the Government requested him to make proposals.

In the seven years between 1819 and 1826 BLUME travelled widely in West and Central Java, as far east as Rembang, often accompanied by assistants, draughtsmen and interested persons, collecting plants and also animals; gathering information on all sorts of aspects, including the medicinal value of certain plants, inspecting epidemics, *etc.*; in short he was engaged in an overall, thorough scientific exploration.

He gathered many duplicates and his herbarium specimens are still in excellent condition. It has never become clear to me how these early explorers managed to dry and preserve their collections so well in the everwet tropics under the primitive conditions of the time, trekking from camp to camp (B: VAN STEENIS-KRUSEMAN, 1950).

In 1821/22 he was in Bantam in the company of the civil servant J.B. SPANOGHE; in 1822 he made a large exploration of Mt Salak; in 1823 of Mt Gedeh; in 1824 he made a large tour of inspection in the company of the clerk G.H. NAGEL, the gardener W. KENT, and the draughtsman A. LATOUR, to many places: Kuripan (near Bogor) with hotwells in limestone then surrounded by primary forest, Mt Seribu (hills SW. of Jakarta), then to the Krawang region (E. of Jakarta) eastwards to Indramayu, proceeding to Cheribon, ascending Mts Tjeremai, Tangkuban Prah, Burangrang, going as far as Tegal. Furthermore, he explored the then completely forest-clad large island of Nusa Kambangan (S. Central Java) where he detected *Rafflesia*. In 1825 he was again in Rembang (Central Java), but also in Bantam, ascending Mt Parang.

These must have been hectic, creative years in BLUME's life. In view of later controversies I have listed these explorations, which show that BLUME covered a considerable part of West and Central Java, and that his travels partly covered the same habitats which had been visited by KUHL and VAN HASSELT, members of the 'Natuurkundige Commissie', but also went beyond these. The result was of course that the majority of species were collected by both parties.

In all probability BLUME studied, analyzed, and described his collections *in situ*, facilitating later publication. In addition to all this field work he published scientific reports on many of these explorations, in part made public in a number of letters which he wrote to the brothers NEES VON ESENBECK, published in the Regensburg journal *Flora* (A: 1823–1826).

Finally he compiled all this material in the voluminous *Bijdragen* (A: 1825–1827), containing the concise treatment of some 700 genera and about 2400 species, belonging to 170 families of flowering plants. This achievement is colossal, as he had only very few books at his disposal, *viz.* WILLDENOW, *Species Plantarum*, PERSOON, *Synopsis*, SPRENGEL, *Anleitung* and *Systema Vegetabilium*, DE JUSSIEU, *Familles des Plantes*, ROXBURGH, *Flora Indica* vol. 1, and W. JACK, *Malayan Miscellanies*. He had of course also at his disposal the works of RHEEDE and RUMPHIUS but they were of hardly any taxonomical use. He mentioned in his *Enumeratio* that he had seen the plates of NOROÑA, obviously of a set since lost, but could not have had much profit from them for his purpose.

The writing of the *Bijdragen* itself was a tremendous task, let alone the research incorporated in them, a great deal of the genera and species being new to science. This research work has appeared to be of very high quality, testified by the fact that a very large amount of his newly proposed genera still stand and that others, now merged with earlier described ones, were always good taxa and were later often still recognized as subgenera or sections. A great merit was that BLUME hardly ever failed to recognize their proper affinity and almost always placed them in the proper family, evidence of his great systematic capacity. In view of the rather primitive state of tropical botany in his time this deserves great respect. BLUME's skills in this field also appeared from a first attempt to construct a system of affinity for tropical orchids, laid down in the *Tabellen en Platen voor de Javaansche Orchideën* (A: 1825), issued in part simultaneously with fascicle 6 of the *Bij-*

FLORA MALESIANA

dragen. He complained that he had had no access to contemporary literature on the family by R. BROWN, C.S. KUNTH, and L.M.A. DU PETIT THOUARS, which he only received during the printing of his own system of the orchids. This first attempt was much later crowned with his monograph *Flora Javae. Nova Series* (A: 1858–1859) of the *Orchidaceae*, the largest and least known family of the Malesian flora.

In addition he published in the first five fascicles of the *Bijdragen* data on the useful and medicinal plants of the families treated.

Apart from his work with vaccination and his exploration and botanical research work, another duty had fallen to BLUME, when he was in June 1822 appointed director of the Botanic Gardens at Buitenzorg (Bogor), at REINWARDT's request succeeding him. REINWARDT himself repatriated in that year. The annual salary was f 1000. This was a task in itself; besides enriching the garden with plants he collected during his own travels, he was also in contact with other gardens abroad, for instance at Mauritius and Calcutta, with the purpose of exchange.

BLUME was well aware of the fact that he should attempt to stimulate our consulates in foreign countries to collect plants or seeds for the garden, a policy which he later also followed when he was director of the Rijksherbarium. For the Buitenzorg garden he wished to have more Chinese and Japanese species and to obtain material he wrote to the Dutch consul in Canton and the representative in Deshima (Japan). A year later, in 1824, he instructed the Dutch in Japan how to dispatch seeds and plants to Batavia (Jakarta).

Furthermore, BLUME sent Javanese and other exotic plants in small baskets to the university gardens at Leiden, Utrecht and Ghent in the Netherlands and also dispatched seeds to the 'Société de Flore' at Brussels.

In 1823 BLUME published the first *Catalogus van ... 's-Lands Plantentuin te Buitenzorg* (A). In the listing were many manuscript names of REINWARDT under the latter's name. BLUME himself added several new genera under his own name with valid descriptions. Without doubt BLUME was the botanical 'motor' of this catalogue, REINWARDT having been too much occupied by administrative and organizational matters, and besides having been previously occupied by his large exploration of eastern Malesia. It should be added that REINWARDT's plant-systematical knowledge was meagre (D: 8).

On 11 June 1822 BLUME was also definitively appointed as 'Inspector of Vaccine' and had to attend to his medical-pharmaceutical duties as well. He reported on the virtues of hotwells in Krawang (A: 1825, 1839), gained information on the fight against cholera, *etc.* for which he initiated medical treatment, and paid attention to medicinal plants (A: 1825, 1832). On 12 August 1823 he was appointed commissioner of the civil health service. In short, his duties were manifold and his achievements in these years are of tremendous proportion.

In 1824 BLUME received permission to extend his research to all Dutch possessions in the East Indies and was allowed to publish in the journals of Dutch societies. The Government would pay for the printing of a book on botany, obviously the *Bijdragen*, with the provision that all discoveries, observations and prepared specimens would be the exclusive property of the Netherlands Government.

In a letter dated 6 August 1825, no. 365, BLUME informed the Governor-General about the proposed publication of his large book *Flora Javae*, pointing out that this was urgent as other persons who had explored in the Netherlands Indies were already active in having their discoveries printed. These other persons were obviously the French explorer L.T. LESCHENAULT, the American TH. HORSFIELD, and especially the British W. ROXBURGH and W. JACK. He said that with the insecure life in the tropics, when so many fell an early victim to tropical diseases, he felt that he had to safeguard his research, the result of his extensive field work and observations for science. Therefore he had decided to publish the very concise *Bijdragen* in anticipation of the large work *Flora Javae* which he had in mind. He mentioned that his own health slightly deteriorated, but there is no evidence that he was ever seriously ill in Java (D: 11). The *Bijdragen* were certainly not merely a striving for priority.

DEDICATION

It was then that years of negotiation started about financing the expensive *Flora Javae*. For its elaboration he requested a leave of three to four years in Europe, necessary for the acquisition of information which the new literature and the comment of experienced botanists could offer, and this required visits to some of the famous herbaria in Europe. He offered to stay in Europe on part of his salary.

In September 1825 the Governor-General permitted him a two-years stay in the Netherlands, at one third of his pay. After a frustrated attempt of BLUME to ship a large amount of living material to the Netherlands, and an offer to pay for his own passage, the Government finally decided by 26 June 1826 to commission BLUME for two years leave to the Netherlands on half-pay. His medical activities and the vaccination were assigned to his colleague PEITCH and the botanical work in the Gardens would be looked after by the gardeners JAMES HOOPER and ALEXANDER ZIPPELIUS who, together, would be paid from the other half of BLUME's salary. These were times of poor economy in the kingdom.

BLUME took with him 29 cases of herbarium material, sailing in the ship 'Christina Bernardina', destination Brussels, then the capital of the kingdom. He had the good fortune that the ship arrived safely, so many earlier dispatches having been lost by shipwreck, for instance several of REINWARDT's. By the end of 1826 BLUME arrived in Holland. By far the main part of the collections were made by himself, minor ones were included, e.g. those made by REINWARDT in Java and East Malesia (Celebes, Moluccas, Timor), local Javanese collections made by the gardeners ZIPPELIUS, KENT and HOOPER in the vicinity of Buitenzorg, etc. It should be stressed, however, that none of the collections of KUHL and VAN HASSELT were included, as these were property of the 'Natuurkundige Commissie'. Later, in 1828, these latter collections were dispatched to the Museum of Natural History at Leiden by G. VAN RAALTEN, who had been taxidermist in the service of the 'Natuurkundige Commissie', assisting KUHL and VAN HASSELT. VAN RAALTEN was also a capable draughtsman; he died at Kupang (Timor) in 1829.

VAN BREDA's archive, now at the 'Hollandsche Maatschappij', Haarlem, contains a partial abstract of a letter dated 22 July 1825 by G. VAN RAALTEN (B: 1825), in which he complains that BLUME – who had inspected the orchids in the KUHL & VAN HASSELT herbarium – had noted which species had been depicted of their collections. He became afraid that BLUME's publication would precede the publication of the KUHL & VAN HASSELT plants and found this unfair. He felt extremely sorry for the misfortunes which befell KUHL and VAN HASSELT. This letter was certainly one of the arguments for later, unjust accusations that BLUME stole scientific property. VAN RAALTEN pointed out that BLUME had agreed with VAN HASSELT to work out the orchids jointly, which BLUME also acknowledged in his *Bijdragen*; in fact some 27 names have a dual authorship, as I have elucidated (B: VAN STEENIS, 1980). As a non-botanist VAN RAALTEN did not understand that in such unfortunate situations the dead have no claim unless they left manuscripts.

A testimony that BLUME, after his departure from Java, had no access to manuscripts or drawings of KUHL and VAN HASSELT is the fact that in the Bogor Library there is – or at least was, before World War II – a book containing drawings of KUHL & VAN HASSELT (on *Asclepiadaceae*, *Orchidaceae*, etc.); it is a further proof that BLUME did not have these documents (D: 1).

Still, the letter by VAN RAALTEN, which was badly understood and interpreted, had influence. Accusations and slander lead a long life, and are often eagerly reproduced by antagonists. Thus even TEMMINCK, the director of the Museum of Natural History at Leiden, wrote in 1828 – when the KUHL & VAN HASSELT herbarium was transferred to BLUME – that the latter should guarantee priority to the manuscript names of KUHL & VAN HASSELT in publishing, although TEMMINCK must have been quite well informed about the situation. I regret that SMIT (B: 1979) in his essay still accepted VAN RAALTEN's accusation.

On the arrival of BLUME in Brussels, he reported to D.J. VAN EWIJCK (1786–1855), administrator of Education, Arts and Sciences in the Department of the Interior, who was very much impressed by BLUME's personality and works. In December 1826 VAN EWIJCK spoke highly of BLUME, praised his diligence and knowledge and declared himself in favour of the *Flora Javae*

FLORA MALESIANA

plans. The Minister contacted his colleague of the Colonies, who in his turn applied to King Willem I. This was followed by endless discussions who would pay for the publication of *Flora Javae*. The result was that BLUME received 7000 florins and that the Dutch Government would buy 50 copies (5 florins for each instalment), the Netherlands Indies' Government would buy 4 copies, and that he was allowed to appoint a draughtsman (ARCKENHAUSEN) for a period of four years. BLUME had in mind to publish 250 instalments.

In the meantime BLUME pursued his activities in Holland, continued the *Bijdragen*, and composed a new work under the title *Enumeratio plantarum Javae . . .* (A: 1827–1828). The treatment was more elaborate than that of the *Bijdragen*. It was published in Leiden. He mentioned on the title page that he had also used material from KUHLE and VAN HASSELT, but this is hardly possible as this came only available to him in 1828 (D: 1).

BLUME dedicated the first volume to the NEES VON ESENBECKS at Regensburg, with whom he had early friendly relations for several years. BLUME's frequent letters to them on his experiences in the exploration of Java were published in several volumes of the journal *Flora*, and he frequently sent them cryptogams, mosses and fungi; when he returned to Holland in 1826 he stuffed empty spaces in his cases between his parcels with moss samples, especially hepatics, which enabled TH.F.L. NEES VON ESENBECK to publish on Javanese *Hepaticae* in 1830. Partly out of courtesy the latter published a paper on Javanese *Fungi*, with BLUME as co-author (A: 1827). As a matter of fact BLUME extended his interest distinctly to cryptogams, and earlier had already pictured and studied mosses and fungi himself in the field. This interest did not wane, because in 1841 he readily agreed with ZOLLINGER to buy lichen collections from Java where ZOLLINGER intended to explore.

The second volume of the *Enumeratio*, dedicated to W.J. HOOKER, consists mostly of descriptions of *Pteridophyta*; in fact it is the first account of them in Java. It proves BLUME's thorough botanical knowledge, because he was mostly versed in *Spermatophyta*. Notwithstanding that, this volume is as complete and its contents as accurate as that of the flowering plants, according to HENNIPMAN (C: 1979).

When in 1828 BLUME's leave came to an end, he requested discharge of his position as chief of the Civil Health Service. This was granted because he would continue to work on botany and would not return to Java.

By Royal Decree of 22 June 1828 he was granted from 1 July 1828 onwards an annual salary of 3000 florins for his services and an annual half-pay of 2000 florins, till he had obtained another position. BLUME had to cede in this same year his immense collection of animals and insects to the Museum of Natural History at Leiden. As compensation he would receive an annuity (B: GUIZEN, 1938).

The first two parts of *Flora Javae* appeared in Brussels, in 1828, under authority of BLUME and his adjunct, Dr. J.B. FISCHER. J.G.S. VAN BREDA (C: 1827–1829), then professor at Ghent and by profession a zoologist, would participate, or at least elaborate, the *Orchidaceae* and *Asclepiadaceae*. For this purpose the drawings and descriptions of plants made by KUHLE and VAN HASSELT were also given to VAN BREDA.

On 31 March 1829 the Rijksherbarium was founded at Brussels, with BLUME as director, with the title of professor. One of his first actions was to instigate that the Botanic Gardens at Buitenzorg should regularly provide consignments of plants to the Rijksherbarium, and furthermore, that the members of the 'Natuurkundige Commissie' in the Indies should not distribute specimens to foreign herbaria.

The Rijksherbarium did not long exist at Brussels because of the 1830 rebellion, and was saved in the nick of time and transported to Leiden by FISCHER and VON SIEBOLD. This subject has been fully reported by my wife (C: VAN STEENIS-KRUSEMAN, 1962). BLUME himself was not on the spot, because he was on his honeymoon to Geneva. He combined this tour with the object of inspecting the ROEMER herbarium, which was for sale, to see whether it was worth-while to purchase it for the Rijksherbarium collections.

The Rijksherbarium, after its transfer to Leiden, was at that time not affiliated to the Universi-

DEDICATION

ty, but was subjected immediately to the Ministry of the Interior. That Ministry drafted an Instruction for the director, effective from the first of January, 1831 (C: VAN DAM, 1832).

BLUME continued the issue of *Flora Javae*. Mid-1830 35 instalments had been published. Unfortunately, the subscriptions appeared insufficient and money ran out, and the work was temporarily abandoned.

BLUME did his best to expand the Rijksherbarium collections on a large scale. Via the Ministry of Foreign Affairs he urged civil servants abroad and in the colonies to collect plants and make herbaria.¹ For this purpose he composed a booklet of instruction (of which I have not been able to trace a copy) on how plants should be made into a herbarium, as drying plants in the tropics brings along difficulties by the moist climate and the often bulky and/or fleshy structure of the material. Moreover, there was the problem of frequent insect damage once plants are dried.

With some people BLUME succeeded. There is e.g. a large collection of several hundreds of specimens made by the Dutch consul in Venezuela, J.G. VAN LANDSBERGE, made in 1842. This collection is arranged by families, but remains unidentified to the present; it contains many duplicates. On the whole, however, BLUME's urging did not meet with great success.

BLUME also approached missionaries to collect plants in their territory, and stimulated pharmacists to do the same; those whom he tutored at Leiden he gave special attention and instruction. Although in this way many people sent overseas were aware of his wishes, the results were very meagre, as compared for example with the results of F. VON MUELLER in Australia in his contacts with missionaries. The latter's success is probably to be ascribed to the fact that he maintained a very regular correspondence with them and kept them timely informed of results. Besides, VON MUELLER lived much closer to them.

In general, the attempt to acquire botanical material by stimulating an interest in the tropical flora among medical men and other residents in the colony and the collecting of specimens was, as far as I can judge, not successful either. The endeavour in itself was excellent, but possibly precocious in the early 19th century.

In addition BLUME was engaged in buying collections which were for sale. A curious, significant example was a collection of Javanese plants offered in 1837 for sale to the Government by the German physician J.G.H. KOLLMANN, who was in the service of the Dutch East Indian army. This offer was referred to BLUME who found to his great surprise that this collection contained also the set of duplicates (about 4000 specimens) which he had conscientiously left at the Botanic Gardens in Buitenzorg (C: VAN STEENIS-KRUSEMAN, 1950; D: 4).

It should be borne in mind that it was factually impossible for BLUME to work on incoming collections without having a large staff of botanists at his disposal. From numerous letters in the 'Rijksarchief' it is evident that he pleaded time and again for the appointment of staff officers. Notwithstanding the esteem he was held in by the Ministry of the Interior and the sympathy of some high officials, notably VAN EWJICK, it was of no avail. He could not even attain a permanent position for his two closest collaborators, Dr. J.B. FISCHER and his draughtsman and handy-man J.C.P. ARCKENHAUSEN (C: GRIEP c.s., 1977; D: 12). Financially the Netherlands were at that time at low ebb. BLUME, moreover, was unfortunate with respect to the few scientific co-operators he had. VAN HASSELT and FISCHER met untimely deaths and VAN BREDA took another job.

Members of the 'Natuurkundige Commissie' were entitled to work out the results after seven years of exploration in the East Indies, but in this category it was only P.W. KORTHALS who performed excellent work. KORTHALS was possibly a modest man, in the shadow of BLUME, but his work in the field and in science was of the same high quality. KORTHALS would have been an excellent staff member, but after his retirement he devoted his time to philosophical contemplation,

(1) A. DE CANDOLLE mentioned (B: 1862) that BLUME told him the Netherlands Indies' Government had ordered, at BLUME's request, that all physicians in their service should have A.P. DE CANDOLLE's essay *Sur les propriétés des plantes* (1816) as a botanical guide.

FLORA MALESIANA

as became evident from ZOLLINGER's diary. BLUME cannot be blamed for the fact that KORTHALS abandoned botany (B: ZOLLINGER, 1841; D: 8).

H. VAN HALL had worked with BLUME on a temporary basis from about 1850, but was only officially appointed adjunct-director in 1854, the only permanent scientific collaborator BLUME was ever allowed.

Deficiency of technical staff was another drawback; here again attempts to expand failed. Apart from his draughtsman ARCKENHAUSEN technical assistants were few. This must in my opinion be one of the main reasons that hardly any duplicates were distributed in order to exchange material with foreign institutes to enrich the Rijksherbarium. Foreign colleagues complained that BLUME asked for their material, but seldom gave a return. This greedy and monopolistic attitude made him unsympathetic. Evil tongues claimed that it was BLUME's intention not to distribute duplicates, as he wanted to prevent new species to be described by others. I cannot believe this to be correct for in any case he could have distributed duplicates of species already described by himself. Obviously BLUME was not in favour of seeing undescribed species published on duplicates. Not until the 1860s, under MIQUEL's directorship, numerous duplicates were distributed, partly unnamed. The same open policy was followed by the Herbarium Bogoriense (with an exception of selected Javanese collections made by C.A. BACKER) and this more generous attitude was also kept up by MERRILL in Manila, and from MIQUEL onwards by the Rijksherbarium. In the first place this is done for the greater safety of the collections (in that respect we have but to think of the disastrous effect of the fires in Berlin and Manila) but also because all research on Malesian plants must be welcomed, irrespective where and by whom. It is self-evident that in case of free-for-all descriptions a lot depends on the quality of the collaborators. It is true that not infrequently mediocre or uncritical collaborators have created more extra work rather than solved the problems for their successors.

A great inconvenience associated with duplicates of the early Dutch collectors was the fact that they were not numbered, neither by BLUME himself, nor by KORTHALS, REINWARDT, or others. Through this, typification is difficult and it is sometimes impossible to know which duplicates belong to which collection. The more praiseworthy a TEIJSMANN, who consecutively numbered the Buitenzorg collections! But then the latter had more personnel. BLUME's limited staff was certainly one of the reasons that the numerous collections remained undivided. Whom could he trust to distribute the unmounted collections in a responsible way?

As already mentioned it was not before the 1860's that MIQUEL, BLUME's successor, instigated the policy of free distribution of duplicates, but certainly did not do it himself; he had it done by technical personnel. Without doubt the distribution of duplicates was extremely important as the result was the acquisition of numerous duplicates in exchange from foreign herbaria in Europe. It is a pity that this distribution lacked carefulness as regards the labels. Occasionally specimens with BLUME's handwriting were sent elsewhere, for instance to Paris, while specimens retained at Leiden have labels written by a clerk. This is not seldom a nuisance in connection with the assignment of the holotype. Sometimes the use of wrongly printed labels is confusing, for instance of KORTHALS specimens of which sometimes 'Sumatra'-labelled plants are really from SE. Borneo. At BLUME's and MIQUEL's times most of the Malesian collections were not mounted; this was only done towards the end of the 19th century.

As the prime botanist he was, BLUME's interests were by no means restricted to those of a scientist working in seclusion. He was always keen on the development of the colony towards better living and status. He stressed the importance of promoting the cultivation of plants not only in the interest of big enterprise, but he held the opinion that there had to be a balanced situation for the benefit of all! This comprised also the introduction of new, useful plants. If one reads his general papers it appears that he had wide interests from his early stay in Java onwards. In the first five instalments of the *Bijdragen* he provided families with notes on their useful species. He wrote a monograph on the peppers (A: 1826) and as early as 1820 he took the initiative to advise the Government on the importance of cultivating indigo and of importing cochineal, and last but

DEDICATION

not least to import *Cinchona*, which materialized only three decades later through Hasskarl. In many papers he advocated more activity in agricultural matters and stressed the importance for national well-being in commercial, hence financial, aspects, for the Dutch as well as for the native people.

As a medical man, in his capacity of 'Inspector of Vaccine', and during his many travels, BLUME was of course in intimate contact with the Javanese people and he took their welfare as much to heart as that of the Dutch people; he clearly regarded them all as co-citizens. For example, he pleaded openly in a letter to the Governor-General of the Indies (A: 1829) for the desirability of abolishing opium, as he found this a menace for the population; only much later this was regulated indeed by the Opium Law.

In 1842 BLUME founded, together with PH.F. VON SIEBOLD and on the instigation of J. PIEROT, the 'Société Royale pour l'Encouragement de l'Horticulture dans les Pays-Bas' (Royal Dutch Society for the Advancement of Horticulture). This was part of his endeavour to make botany subservient to the general interest of the kingdom and to create a stimulant for new financial and commercial interests. In a first issue of the above-mentioned 'Société' (A: 1844) he compiled a large list of useful plant species. Also later he showed his unflinching devotion by a stimulating paper on timbers resistant to pile-worm (A: 1859).

Altogether he held enlightened, progressive ideas – not so popular in those days – and in his opinion the native people ought to have their share of welfare, not in the least because their manpower was an essential aspect of a prosperous colony. In this respect it is significant that he named the genus *Santiria* after Bapa SANTIR, an old Sundanese, who accompanied BLUME on his explorations of Mt Salak. It was JUNGHUHN who took this amiss (B: JUNGHUHN, 1853) and suggested that BLUME was consciously deceptive in pretending to be generous, but really threw a blame on great botanists and other dignified men who were the only persons entitled to be honoured by eponymy. In his colonial arrogance JUNGHUHN called Bapa SANTIR an inferior person, not more than a simple 'pakkedrager' (*kuli*, carrier), whereas in all probability Bapa SANTIR was an intelligent man and an outstanding local authority on plants who knew his way in the forest, knew the vernacular names and uses of forest plants and assisted BLUME in many ways. It is testimony of the irony of fate because in history JUNGHUHN is reputed to be the pioneer and advocate of a progressive society of freethinkers, whereas BLUME is remembered as a distinctly conservative person, though all his writings give evidence of a progressive, liberal mentality. It appeared that BLUME, *mirabile dictu*, was the more enlightened of the two; he was certainly devoid of any racial prejudice.

In 1843 BLUME started the journal *De Indische Bij*, another endeavour to promote an interest among the Dutch public in the understanding of the colony. Only one volume was issued (1843), mainly filled with papers by himself and his friend C.F.E. PRAETORIUS, Director of Cultures in Java, on all kind of subjects, partly political, partly ethnographical, on Borneo and South Sumatra, and on plant fibres.

Returning to BLUME's scientific works: in spite of the untimely abandoning of his *Flora Javae*, he set up another large-scale work in the thirties, *Rumphia*, the scope of which included also other parts of Malesia. The first fascicle appeared in 1836. It consisted finally of four volumes (1836–1849). This work was of the same critical standing as *Flora Javae*, to which it was similar in size and printing. In a sense it is an attempt towards a *Flora Malesiana*. Towards the end of the forties BLUME again managed to issue some important parts of *Flora Javae*, namely the *Filices* (instalments 36–39 in 1847 and 40 in 1851) and the *Loranthaceae* (instalments 41 & 42 in 1851). How these issues and *Rumphia* were financed is unknown to me.

The abrupt end of *Flora Javae* was regrettable and H.C. VAN HALL, professor of botany at Groningen, was much concerned about its continuation, which he found of national importance (C: VAN HALL, 1856). In a session of the Royal Academy of 28 June 1856 he proposed that this lofty body might form a committee to approach BLUME in order to come to a proposal from the Academy to the Government for further financing *Flora Javae*; at that time 42 instalments, each with 6 plates, had been issued. I do not know if VAN HALL's pleading led to any further action, but it shows that *Flora Javae* had supporters.

FLORA MALESIANA

After BLUME's death there obviously remained illustrated printed material for a continuation of *Flora Javae*. These 23 coloured plates, called *Planches inédites*, mostly represented species of *Loranthaceae* and *Ericaceae*, all provided with analyses. They were offered for sale as a packet by the firm VAN DER HOEK, Leiden, in 1862 or 1863 (A: 1863; C: VAN STEENIS, 1947).

Towards the end of the forties, when BLUME was in his prime, he must have been disappointed with the untimely discontinuation of the two works on which he had set his heart, *Flora Javae* and *Rumphia*, and the insufficient public interest in his journal *De Indische Bij*. Moreover, clouds had gradually gathered round his claim that the Rijksherbarium had the monopoly for housing and possessing all collections made in the colonies by persons in the pay of the Government. He based this claim on the Instruction for the Rijksherbarium of 1832. This claim, however, was an optimistically exaggerated interpretation of art. 10 of this instruction which read (transl.): 'The Director will attempt to acquire collections, notes and drawings from all civil servants or people in the pay of the Government through proposals at the proper place and authority' (C: VAN DAM, 1832). BLUME may have had a moral right to claim these collections, but could not refer to a legal right. His claim was not attended to and this must have been a thorn in his flesh.

BLUME opposed the founding of Herbarium Bogoriense by TEJSMANN in 1844, claiming that the latter should send the specimens to the Rijksherbarium, or at least the duplicates, but he found insufficient understanding with TEJSMANN, who foresaw that he would have little profit from this in the way of a speedy naming of the specimens. Furthermore, TEJSMANN's assistant, J.K. HASSKARL, had assembled a large private herbarium which he took with him on repatriation to Germany. Then von SEBOLD's herbarium was elaborated at Munich by ZUCCARINI (D: 2) where the types were left. W.H. DE VRIESE, professor at Amsterdam, had acquired the herbarium of SPLITGERBER, made in Surinam, but had not donated this to the Rijksherbarium. Finally, JUNGHUHN, officially belonging to the medical department in Java, had assembled a very large herbarium in Java, which BLUME could not get into his hands (D: 3). It was purchased by Leiden University, under the condition that it should not be incorporated in the Rijksherbarium; it was entrusted to DE VRIESE. Finally, there was the rising star of tropical botany, F.A.W. MIQUEL, who originally published valuable monographs of *Piperaceae*, *Cycadaceae*, *Casuarinaceae*, *Melocacti* (partly for DE CANDOLLE's *Prodromus*), and later elaborated various large families in MARTIUS' *Flora Brasiliensis*. He became also more and more interested in Asiatic plants, starting with his *Analecta Botanica Indica*, published by the Royal Academy. MIQUEL was a man of immense output and diligent handling of material, with an open mind for collaboration, which he brought in practice himself. Considering that, if the JUNGHUHN collection fell into BLUME's hands, identifications would be endlessly retarded, combined with JUNGHUHN's natural desire that it should be speedily worked out, DE VRIESE reasonably entrusted JUNGHUHN's collection for this purpose to MIQUEL. With elaborate support (e.g. BENTHAM's), the latter indeed published the *Plantae Junghuhnianae*. This must have caused immense irritation to BLUME, who was constantly on the barricades defending his institute, stressing again and again that collections made by government officials with government money ought to be deposited in the Rijksherbarium. This monopoly also concerned himself. My wife (C: VAN STEENIS-KRUSEMAN, 1979: 51) wrote: 'whatever has been said to BLUME's discredit, one thing is certain, and that is, that he was possibly the only botanist (and a devoted, not to say inspired one) in his period who had no private herbarium.'

It is ironic but true that BLUME's strict monopolistic claims made people reluctant to put their collections under his care, though BLUME was, although not legally, at least morally in his rights. Even admitting that his claims were correct, it must be said that he should have realized that, if all these collections had been donated to the Rijksherbarium, he could as a single person never have mastered them. This would have been necessary, as some people wanted names and identifications. He should have tried to compromise and initiate collaboration and division of labour, at least with MIQUEL and DE VRIESE, and not sit tight-fisted on propriety of collections. But obviously he could not well adjust himself to the changing conditions of the times and the rise of capable colleagues in his specialized field. This led to most unfortunate friction and a clash of

DEDICATION

personalities. He offended especially JUNGHUHN in writing with his sharp pen an acid comment in *Rumphia* (1847 or 1849?) on JUNGHUHN's so-called *Lycopodium arboreum* which he had 'at first sight' recognized as belonging to the conifer genus *Dacrydium*, and BLUME renamed *Primula imperialis* JUNGH. as *P. Kuhlii* BLUME, claiming that KUHL had found this first and thus had priority for eponymy, nomenclaturally wrong of course. JUNGHUHN complained that BLUME begrudged him to describe *Acer javanicum* and had renamed this wrongly *A. niveum*, in which JUNGHUHN in turn was wrong. In short, about 1850 the fight was on and several very sharp and polemic papers were published to and fro (D: 13).

The unfortunate result was that BLUME became a still more isolated and probably a rather embittered person. Apart from odd fascicles of *Flora Javae* and *Rumphia* he had no opportunity for further great undertakings. He then put himself to proceed with a subject, stipulated in the 1832 Instruction for the Rijksherbarium, namely compiling a catalogue of the collections of that herbarium. As this implied identifications, this was not a clerical task for a non-botanist. My wife mentioned (C: VAN STEENIS-KRUSEMAN, 1979: 35) that the scientific arrangement of the collections was started by J. PIEROT (1831–1840), who was succeeded by J.H. MOLKENBOER (assisted by C. KERBERT and SCHULTES Jr, the son of J.A. SCHULTES) (1840–1846), and finally by H. VAN HALL (1853–1862). Their work of course facilitated BLUME's later *Museum Botanicum*. These helpers were named 'assistants', only VAN HALL was designated the title 'conservator'.

In December 1850 BLUME had to face an official new Instruction for managing the Rijksherbarium collections (C: THORBECKE, 1850). This was to meet official complaints by DE VRIESE, JUNGHUHN and VON SIEBOLD and especially MIQUEL, all influential persons, who wanted to borrow material, requests only reluctantly given in to by BLUME. MIQUEL wrote to VON SCHLECHTEN-DAL (B: STAFLEU, 1970: 321): 'Es ist mir endlich gelungen, das Reichs Herbarium zu öffnen. Nach einem Befehl der Regierung sind die Samml. aus Borneo, die noch ganz unbearbeitet waren, mir zur Disposition gestellt.' BLUME was ordered to proceed with the catalogue; no unicates were to be removed from the collections; furthermore, the director had to refrain from publishing discoveries by still living persons of the former 'Natuurkundige Commissie', unless with their consent. It must have irritated him considerably that responsibility and authority were restricted.

The catalogue, named *Museum Botanicum*, was printed in fascicles, all filling one sheet (16 pages), apparently with the intention to publish the fascicles monthly. It consists of two volumes in which the fascicles of volume one are dated by the year and month. The first volume was dated from 1849 to 1852 and finished with an index. The second volume was started with a fascicle dated 1852, but fascicles 2–8 are undated, fascicles 9–16 being dated November 1855 to June 1856. There was no index; this was later composed by myself and CHEW WEE LEK (C: VAN STEENIS & CHEW WEE LEK, 1974). As BEUMÉE (B: 1948) and STAFLEU & COWAN (B: 1976) have pointed out there are discrepancies about the dates of publication and this induced the latter towards suggesting that BLUME withheld literature from his colleagues (MIQUEL, WEDDELL, etc.) and that in other cases the possibility of antedating cannot be excluded. MIQUEL (B: 1856) severely criticized the doubtful datings of the fascicles. It is quite probable that not every fascicle was for sale at the published date, but sold in lots, and confusion remains. In the absence of well-founded data regarding the authority which paid for the publication, who arranged the sale, and whether one could subscribe, we must refrain from further comments (D: 6). Possibly BLUME still had a manuscript for one other fascicle which is known as *Mélanges botaniques* (A: 1855). Up till the present it was assumed not to have been effectively published. This is, however, wrong, as I have discussed earlier (B: VAN STEENIS, 1986). The pamphlet was privately published and donated by BLUME to his close friends; at least two copies still exist.

The *Museum Botanicum* is an important, critical work; it contains some attempts towards revisions and, though species and genera from all over the tropics were dealt with, the main text refers to the Malesian flora. We do not know why the *Museum Botanicum* was rather abruptly abandoned. It is not unthinkable that BLUME wanted to unburden himself from his old love, the *Orchidaceae*, and saw an opportunity to publish this masterly work which he had had constantly in

FLORA MALESIANA

mind since his early Buitenzorg years. This work had been interrupted several times, first when his collaboration with VAN HASSELT came to an untimely end by the latter's death, and later by the early leaving of VAN BREDA. Now it was published as *Flora Javae, Nova Series* (A: 1858–1859). There is also a French-titled edition, with a preface in French, but otherwise identical. According to W.E.G. SEEMANN (B: 1859) BLUME complained that the Government had not contributed to its financing; obviously BLUME, who was a man of means, had taken the risk of financing it himself. Besides the excellent works of R. BROWN, LINDLEY and REICHENBACH on the *Orchidaceae* and the affinities within the family, also BLUME's work is very important and of similar standing, and naturally of special importance for Malesian botany.

BLUME, naturalized as a Dutch citizen in 1851, died in Leiden, after a long, painful illness on February 3, 1862, at the age of 65.

As said before, BLUME is through his large oeuvre – including eight important and critical botanical works of high standard: the *Catalogus*, the monograph on *Piperaceae*, the *Bijdragen*, the *Enumeratio*, *Flora Javae*, *Rumphia*, *Museum Botanicum*, and *Flora Javae, Nova Series* – one of the great botanists of the former century. A ninth treatise, on cholera in Asia (A: 1831), is medical.

His creative output is imposing. He distinguished eight new families, to wit, *Apostasiaceae* (now mostly judged a subfamily among *Orchidaceae*), *Burmanniaceae*, *Cardiopteridaceae*, *Dipterocarpaceae*, *Hernandiaceae*, *Myricaceae*, *Sabiaceae*, and *Schisandraceae*. In addition he described, from Malesia alone, some 300 new genera of which 160 are still used, and 140 are now in synonymy, either for reasons of nomenclature or for new systematic insights. However, they were all proper taxa and are still frequently recognized as infrageneric taxa, e.g. *Tarrietia* and *Campanumoea*. Furthermore, he described his genera and species almost always in the proper families *cq.* genera, testimony of his systematic vision.

As to his scientific achievement, his talent was soon recognized, both in Holland and abroad and he was soon made a member of learned societies (F). As usual for members of the 'Leopoldina', they should have a cognomen; BLUME took for himself the well-chosen name RUMPHIUS SECUNDUS.

Many generic names (E) and very many species were named after him. We are pleased that the journal of the Rijksherbarium, *Blumea*, is named after him.

As an explorer BLUME was exemplary in multidisciplinary approach by making observations on the spot, having a draughtsman with him, interrogating the native people about the uses and vernacular names, collecting insects and other animals, and paying attention to soils, mineral wells, *etc.*, and by timely reporting about his field research, a good habit which young explorers of the present day should take more to heart. Through his medical profession he made also observations about native diseases and tried to cope with these to relieve suffering of the people.

All his endeavours in this field and also his many advices on agricultural and horticultural affairs were focussed on tying up scientific botany and practice for the benefit of society. As such he was the opposite of the scholar in the ivory tower. His sharp observation power paired with interest were not confined to botany, as appears from his conclusions on serious contagious diseases among which cholera and typhoid were the most dangerous. As 'Inspector of Vaccine' he went to Central Java on inspection during a cholera epidemic and observed that the disease was especially prevalent in the lower lands, and less so in villages in the mountains. He deduced that cholera was spread by the polluted water and that the freshwater wells in the mountains were less contaminated. He prescribed all sorts of simple means for a diet and medicinal substances from native plants, but in the first place he advised boiling the drinking-water, and optionally adding some cinnamon in polluted areas. When settled at Leiden BLUME published a book on Asiatic cholera (A: 1831). Shortly after, he attended a congress of naturalists and surgeons at Halle, a town at that time suffering from a serious epidemic of cholera. He observed that in the rather isolated 'Franckische Stiftung', a community of some 1800 souls, there was no cholera. These people were followers of the pietist A.H. FRANCKE, founder of this 'Stiftung' in 1663. To his

DEDICATION

satisfaction he observed that this group of people got its own water from wells through a system of tubes several miles outside Halle. In Holland, where at that time cholera also was a serious disease, he noted that it was rare in the southwestern island province of Zeeland, and he correlated this with the fact that drinking-water there was mostly rainwater. The next year he wrote a pamphlet (A: 1832) on the subject which he had printed in 1000 copies at his own expense. He forwarded free copies to all municipalities, stressing that boiling all drinking-water was the simple remedy. One would expect that the arguments for this cheap advice were immediately accepted, and at least tested. But his opinion was completely overruled by the powerful voice of G.J. MULDER, a chemist of great influence, who declared that BLUME's conclusions were nonsense and that all water from ditches and canals was fit for drinking and had nothing to do with the dispersion of cholera. BLUME's role looks to me similar to the one of SEMMELWEISS in Vienna and his fight against puerperal fever. Thirty years later BLUME's conclusions were of course fully accepted.

As a civil servant BLUME excelled in activity for the benefit of the country and colony, in promoting the interests of agriculture and horticulture, throughout his life. As a director of the Rijks-herbarium he did all he could under the circumstances, to raise it to a first-rate institution. As my wife (C: VAN STEENIS-KRUSEMAN, 1979: 37) put forward, BLUME succeeded in greatly enriching the Rijks-herbarium with important standard collections, e.g. SPANOGHE (Timor), KORTHALS (W. Malesia), FORSTEN (Celebes), VON SIEBOLD, TEXTOR and BÜRGER (Japan), SIEBER, SCHULTES, CUMING, PERSOON, DOZY, and MOLKENBOER (Bryophytes). Besides this, he acquired large sets of duplicates from the collections of WALLICH, ECKLON & DREGE (Cape), and *Plantae Preissianae* (Australia). He purchased also several smaller collections from South America.

In the preceding pages I hope to have succeeded in making it clear that the slander of which BLUME was a victim was unfounded and can be defused by factual evidence.

I will now proceed with some remarks on BLUME's personality and his motives, as an addition to what already may transpire from the precedings pages. Much can be learned about this from his published papers. A perusal of his personal letters to his colleagues abroad will add probably more but this falls beyond my capacity. Another source is the opinion of third parties which can be found, for instance, in biographical papers. However, the latter are mostly an evaluation of the quantity and quality of achievements and seldom enter into personal facets. Among the obituaries of BLUME only GODDIJN (B: 1931) ventilated some well-considered remarks.

BLUME was a most intelligent person devoted to science and with a broad outlook, dedicated to promote the interests of his second fatherland and all its inhabitants. He pleaded for a society in which everyone, irrespective of race, should benefit from increasing profit. He was antagonistic to the idea of a 'Cultuurstelsel'¹ and pleaded for a free society.

As to his social contacts, it is difficult to ascertain much factual evidence without having access to his personal correspondence. His family life seems to have been happy and his wife sometimes shared his stays abroad. In Java he had good friends, e.g. PRAETORIUS, SPANOGHE and several others. As to his contacts with foreign colleagues, BLUME apparently often took part in the annual 'Versammlung Deutscher Naturforscher und Aerzte' in Germany.

In his native country he must have had friendly relations, among them the NEES VON ESENBECKS at Regensburg. According to ROLAND (B: 1944) he and his wife paid in September-October 1834 a lengthy visit to Paris where he had many friends (amongst others DECAISNE, BRONGNIART). He met many prominent personalities, compared material from Java of *Araceae*, *Annonaceae*, etc. with Paris collections, bought books, acquired and bought collections and frequently stayed with J.E. GAY (who had very rich collections) for studying material, often together with A. MOQUIN-TANDON, the monographer of *Chenopodiaceae*. The latter said of BLUME (B: ROLAND, 1944: 74):

(1) In the Netherlands East Indies the system in which the local people were forced to grow various sorts of crop suitable for the European market (in force mainly in Java, 1828-1890).

FLORA MALESIANA

'Je suis sorti avec M. BLUME dont j'aime beaucoup la figure gracieuse, la gaîté et la vitalité vraiment méridionale.'

The fact that so many honours befell him (F) indicates that he must have enjoyed the sympathy of many persons abroad who took the initiative to make the proposal. In political circles in Holland he certainly was also appreciated; the fact that he did not succeed in building up a staff of collaborators for which he pleaded in vain for two decades, can be ascribed to the rather poor economic situation of the kingdom, unfavourable for creating permanent scientific positions.

I believe that the later strenuous relations with his Leiden scientific contemporaries must, to a large part, be ascribed to feelings of envy towards his great capacities by the autocratic VON SIEBOLD and JUNGHUHN, the mediocre DE VRIESE and the frustrated REINWARDT and HASSKARL, who all eagerly grasped any opportunity to damage his image. In this they were in a way assisted by BLUME's rigid, autocratic personality.

Unfortunately it is difficult to obtain more impartial contemporaneous information from neutral, disinterested parties. Among the rather neutral sources there is one, from the Swiss HEINRICH ZOLLINGER, who wrote an extensive diary which is now deposited in the Central Library at Zürich (B: ZOLLINGER, 1841). The part of this diary relating to ZOLLINGER's stay at Leiden, October to December 1841, was typed out and generously put at my disposal by Prof. Dr. H. WANNER, Zürich.

ZOLLINGER, at the suggestion of A. DE CANDOLLE, was considering a botanical-zoological exploration of Java and wanted subscriptions from biologists, authorities, and institutes for his endeavour. After having obtained some in Switzerland, France, and Belgium, he came to Holland, in 1841, where MIQUEL gave him some hope. With his letters of recommendation he tried to obtain subscriptions from the Rijksherbarium and from the National Museum of Natural History at Leiden. Above all, he solicited free transport for himself and his equipment to Java from the Dutch authorities as a contribution to his future work in the colony. In his diary ZOLLINGER gave his free opinion on several scientists he visited (REINWARDT, TEMMINCK, SCHLEGEL, DE VRIESE, AMMANN, SPLITGERBER, SCHWANER, VON SIEBOLD, KORTHALS) (D: 8). He paid visits to BLUME and noted about him (B: ZOLLINGER, 1841: 25): 'BLUME ist ein kleines, elegantes, vornehmes, lebhaftes Männchen, das sich auf verschiedene Weise ein grosses Vermögen und eine grosse Reputation erworben hat. Er war sehr freundlich und zuvorkommend, gab mir Rätze aller Art. Ob nun im Herzen es anders aussieht, warum er so gegen mich ist, weiss ich nicht. Ich will das Beste denken und auf meiner Huth sein'; *l.c.* 29: 'Er schwatzte mir freundlich vor, wie bis jetzt noch kein Privatunternehmen wie meines auf Java, gelungen. Wie ich dort nichts neues mehr finden werde, besonders im Westen; ich müsse mich zeitig nach einer Anstellung umsehen. Aus dem Ganzen schien mir hervorzugehen dass er mich ganz abzuhalten oder für den holländische Dienst zu gewinnen sucht; denn auf beide Weise kommt nichts in fremde Hände, oder im letzteren alles zuerst in die seinen'; *l.c.* 31 (summarized in English): VON SIEBOLD suggests that BLUME is a rather tough person and reckons that ZOLLINGER will anyway send him plants, obviously alluding to BLUME's refusal to subscribe to a set of ZOLLINGER's plants; *l.c.* 33: BLUME subscribed to buy Lichenes from Java and offered him an iron trunk. He spent another evening in BLUME's beautiful house, with a large library, but the trunk did not turn up. 'BLUME hat fünf hübsche Kinder und eine hochgebildete Frau. Er zeigte mir seine Rumphia und andere Sachen, die auf Java bezug haben. Wir sprachen meist von Indien. Ich soll 3 Kisten (lebende) Pflanzen miterhalten' (obviously for the Botanic Gardens at Buitenzorg). At the advice of BLUME he went to Mr. ARRIENS, a high official at The Hague, who suggested an audience with the Minister of the Navy, but ZOLLINGER had no success; all he got was a permission to collect in the colony, antiquities excepted. In passing, ZOLLINGER followed BLUME's advice and solicited to be attached to the Botanic Gardens at Buitenzorg, but there was no vacancy at that time. Thus, ZOLLINGER had not much success at Leiden, as far as botany was concerned. It remains guesswork whether BLUME could have achieved more for him if he had backed him up.

Summing up my impression of BLUME's personality, it appears that he was not a social,

DEDICATION

amicable person, but self-centered and keeping aloof; also conscious of his capacities and dignity but lacking flexibility. However, his motives were honest, and this becomes clear from scanning his own writings and other literature, if judged against the background of his time and circumstances. It is true that he had a sharp pen and in defending the rights and interests of the Rijksherbarium his acid reprimanding of JUNGHUHN, no less a dominant authority than himself, unnecessarily hurt personally, which, to say the least, led to a severe estrangement.

However, the slander to which BLUME became a victim is unjustified, and may well have been induced by jealousy of his brilliant scientific achievements and envy of his monopolistic position at the Rijksherbarium. In my view BLUME was an enlightened scientist, whose image may hereby be restored.

C.G.G.J. VAN STEENIS

FLORA MALESIANA

Appendix A – Blume's publications

- 1817 – *Dissertatio inauguralis medica, de Arsenico et Ratione qua in Animalia agit*. Leiden. 49 pp.
With verses by D.J. VEEGENS, a friend, and Prof. S.J. BRUGMANS.
- 1821 – *Minerale wateren van Tjipannas en Tjiradjas*.
Bataviaasche Courant, 15 Sept. 1821.
Repr. in Indisch Magazijn, Tweede Twaalfstal, no 1/2, 1845: 162–166.
Contains a chemical analysis, obviously made by BLUME himself, of the mineral contents of these waters.
- 1822 – *Gedachten op eene reize door het Zuid-Oostelijk gedeelte der Residentie Bantam*.
Bataviaasche Courant, 16 Febr. to 30 Nov. 1822.
Repr. in Indisch Magazijn, Tweede Twaalfstal, nos 3/4, 1845: 1–36.
Report of trip, describing the history, anthropology, ethnography and politics of the Badui people in SW. Java. No botany involved.
- 1822 – *Beschrijving van de heilige graven der Badoeis in het Zuid-Oostelijk gedeelte der Residentie Bantam*.
This appeared as the chapter 'Mengelingen' in the Bataviaasche Courant, nos 7, 8, 10, 13, 27–29, and 32, 16 Febr. to 30 Nov. 1822.
Repr. in Indisch Magazijn, Tweede Twaalfstal, nos 3/4, 1845: 1–36.
An ethnographical description of the Badui people in SW. Java, their sacred graves, etc. In the library of the Institute Taal-, Land- & Volkenkunde, Leiden University, there is a 85 pp. manuscript (H 75) with the title '*Gedachten op eene reize, in de maanden December en Januari jl., in het zuidoostelijke gedeelte der Residentie Bantam gedaan. Getrokken uit de Javaansche Couranten van 1822,*' which is probably copied *literatim*.
- 1823 – *Catalogus van eenige der merkwaardigste zoo in- als uitheemsche gewassen, te vinden in 's-Lands Plantentuin te Buitenzorg*. Batavia. 112 pp., 1 pl.
Several new genera and species. Many *nomina nuda* under REINWARDT's name.
Repr. in Arnold Arboretum 1946.
- 1823 – *Beschrijving van eenige gewassen, waargenomen op eenen togt naar den Salak in den jaare 1822*.
Verhand. Batav. Genootschap van K. & W. 9: 129–202.
Mostly descriptions of plants (*Magnoliaceae*, *Loranthaceae*, *Dipterocarpus*, *Cedrela*, *Piper*, etc.).
- 1823 – Letter to NEES VON ESENBECK. Flora 6: 713–716.
Report on a planned trip in Java.
- 1823 – *Bijdrage tot de kennis onzer Javaansche eiken*.
Verhand. Batav. Genootschap van K. & W. 9: 203–223, 6 pl.
Account of *Quercus* in Java (incl. also *Lithocarpus*).
- 1823 – (with C.G. NEES VON ESENBECK) *Pugillus plantarum Javanicarum, e Cryptogamicarum variis ordinibus selectus*.
Nova Acta Acad. Caes. Leop.-Carol. 11 (1): 117–138, pl. 12 & 13.
Descriptions of Pteridophytes, the new species under dual authorship 'NEES & BL.'.

DEDICATION

- 1824 – Letter to NEES VON ESENBECK: *Ueber die Vegetation des Berges Gedee auf der Insel Java*. Flora 7: 289–295.
Extract from a larger paper in Dutch, see below (1825). Sketches on the exploration of Mt Gedeh made together with the hortulanus KENT. BLUME did not ascend Mt Pangrango.
- 1824 – *Epidemie onder de buffels*.
Bataviaasche Courant, 10 Jan. 1824: ‘Verslag van den kommissaris van den burgerlijk geneeskundigen Dienst in Nederlandsch Indië C.L. Blume.’
See also: Indisch Magazijn, Tweede Twaalfstal, no 3/4, 1845: 91–94.
Epidemic disease among the buffaloes.
- 1825 – Letter to the Governor-General, dated 8 Dec. 1824, published in the Bataviaasche Courant, 12 Jan. 1825.
Report on BLUME’s discovery of *Rafflesia* in Nusa Kambangan I. (S. Java), the first discovery of the genus in Java. He did not name it here.
- 1825 – *Bestijging van den berg Tjerimai, gewoonlijk genoemd Tjermé, in de Residentie Cheribon*.
Bataviaasche Courant, 2 Febr. 1825.
Repr. in Indisch Magazijn, Tweede Twaalfstal, no 3/4, 1845: 102–116.
Report of a trip from Krawang eastwards to Panarukan, Linggadjati, culminating in the ascent of Mt Tjeremai, with many botanical data on plants encountered.
- 1825 – *Over de gesteldheid van het gebergte Gedeh*.
Verhand. Batav. Genootschap van K. & W. 10: 55–104.
Lively topographical and botanical description of an ascent of Mt Gedeh from Bogor via Puntjak, along Megamendung, Tjibeureum and Kandangbadak through the crater and along the Alun-Alun to the summit. BLUME did not ascend Mt Pangrango, and thus missed *Primula imperialis*.
- 1825 – *Inlandsche middelen tegen diarrheën*.
Bataviaasche Courant, 23 Febr. 1825.
Native recipes against diarrhoea.
See also: Indisch Magazijn, Tweede Twaalfstal, no 3/4, 1845: 116.
- 1825 – *Tabellen en Platen voor de Javaansche Orchideën*. Batavia. 5 tab., 16 pl. Folio.
Famous exposition of a system of the Javanese orchids and their affinities; 73 spp. depicted in detail. Issued with the *Bijdragen* (1825–1827) part 6.
- 1825 – (with C.G. NEES VON ESENBECK & C.G.C. REINWARDT) *Hepaticae Javanicae editae conjunctis studiis et opera*.
Nova Acta Acad. Caes. Leop.-Carol. 12: 181–238, 409–417.
Account of hepatics in Java.
- 1825 – *Iets over de planten onder den naam van Patma, bij de Hindostaners en de Javanen bekend*.
Bataviaasche Courant, 9 March 1825.
Repr. in Indisch Magazijn, Tweede Twaalfstal, no 3/4, 1845: 179–183.
A note on plants known under the vernacular name ‘patma’ (= *Rafflesia*).

FLORA MALESIANA

- 1825 – *Korte beschrijving van de Patma der Javanen.*
Bataviaasche Courant, 23 March 1825 (22 pp., in L).
Repr. in Indisch Magazijn, Tweede Twaalfstal, no 3/4, 1845: 183–194.
Short description of the 'patma' (= *Rafflesia*) of the Javanese.
- 1825 – *Die Patma-Pflanze der Indier und Javanesen und Beschreibung einer neu entdeckten Blume auf der Insel Noesa Kambangan, die an Grösse alle bis dahin bekannt gewesenen übertrifft.*
Liter. Wochenbl. der Börsehalle, Hamburg, no 29: 454–462. Repr. in L.
As the preceding.
- 1825 – *Beiträge zur Kenntnis von Bantam, dem westlichsten Bezirk auf Java.*
Hertha II: 227–257.
Not seen. Probably similar to entries in 1822.
- 1825 – Letter to TH.F.L. NEES VON ESENBECK: *Reise von Batavia nach Krawang in der Preanger Regentschaft.* Flora 8 (2): 577–585.
Report of journey from Batavia to Krawang.
- 1825 – *Etwas über die Rhizanthee, eine neue Pflanzenfamilie, und die Gattung Rafflesia insbesondere.*
Flora 8 (2): 609–624.
- 1825 – Letter to TH.F.L. NEES VON ESENBECK: *Ueber Pflanzen der Gegend von Batavia.* Flora 8 (2): 676–680.
Flora of the vicinity of Batavia.
- 1825 – Letter to the Governor-General, dated 20 Nov., on the flowering of a new species of a new genus of *Araceae* with a very large inflorescence, obviously *Amorphophallus campanulatus*, in the Botanic Garden, with reference to *Tacca phallicifera* RUMPH.
Bataviaasche Courant, 23 Nov. 1825.
- 1825–1827 – *Bijdragen tot de Flora van Nederlandsch Indië.* 17 fascicles, 1169 pp.
For publication dates, see STAFLEU & COWAN, Taxonomic literature, ed. 2, 1 (1976) 236.
In all 107 families are treated, in which 700 genera and over 2300 species were incorporated. There are many new genera and very many new species, all described in concise Latin. In the first 5 fascicles each family has also a paragraph with notes on its useful plants. On p. 265 BLUME mentioned that his plan was to treat the orchids together with VAN HASSELT; 27 species out of the 296 were jointly described. Through VAN HASSELT's early death this joint venture was frustrated.
There is a typed Index to the names in L.
Data on useful plants mentioned in fascicle I were copied in Alg. Konst- en Letterbode 1826-1: 26–29, 37–41.
- 1826 – *Monographie der Oost-Indische pepersoorten.*
Verhand. Batav. Genootschap van K. & W. 11: 139–245, 6 pl., 41 fig.
Monography of Netherlands-Indian species of *Piper*.
- 1826 – *De Tacca Culat van Rumphius wedergevonden. Mededeeling van de waarnemingen van C.L.Blume.*
Alg. Konst- en Letterbode 1826-1: 333–334.

DEDICATION

Report about BLUME's recollection of a Rumphian aroid in the island of Nusa Kambangan, S. Java: *Amorphophallus campanulatus*.

1826 – Letter to NEES VON ESENBECK: *Bruchstücke einer Reise auf der Insel Java*. Flora 9 (2): 417–426, 433–441.

Report on a trip in NW. Java, including also an ascent of Mt Tjeremai.

1827 – (with TH.F.L. NEES VON ESENBECK) *Fungi Javanici*.

Nova Acta Acad. Caes. Leop.-Carol. 13 (1): 9–22, pl. 2–7.

1827 – *Over een nieuw plantengeslacht, de Brugmansia, uit de natuurlijke familie der Rhizanthae*.

In: H.C. VAN HALL (ed.), *Bijdragen tot de Natuurkundige Wetenschappen* 2: 419–423. *Brugmansia*, a new genus of the *Rafflesiaceae*.

1827 – *Observations sur le structure des poivres*.

Ann. Sc. Nat. 12: 216–224.

Extract in French of the monograph of *Piper* (1826).

1827 – *Bijdrage tot de kennis van het landschap Bantam, in het westelijk gedeelte van Java, etc.* Cybele (Tijdschr. Bevordering Land- en Volkenkunde) VI^e stuk: 1–36.

Contribution to the knowledge of Bantam, West Java. Almost *literatim* reproduced under the same title in *Indisch Magazijn*, Tweede Twaalfstal, no 3/4, 1845: 1–36.

1827 – *Over de staat der indigo-teelt*.

In: P. VAN GRIETHUIZEN, *Over de staat der indigo-teelt*. De Nederl. Hermes, Tijdschr. Koophandel, Zeevaart en Nijverheid 2, no 10: 40–42.

Brief information and references on cultivation of indigo.

1827–1828 – *Enumeratio plantarum Javae et insularum adjacentium minus cognitarum vel novarum ex herbariis Reinwardtii, Hasseltii, Kuhlii, Blumei, etc.* Leiden. 2 vols. 278 pp.

Description of some families of Angiosperms and the Pteridophytes. Properly a continuation of the *Bijdragen* (1825–1827), although in more detail and with longer descriptions. Repr. Den Haag 1830, Amsterdam 1968.

1828 – *Het Duizend-Gebergte (Goenong Seribu)*.

In: G.H. NAGEL, *Schetsen uit mijne Javaansche portefeuille; Javaansche tafereelen*: 69–75 (in L).

Remarks on the landscape of the 'Thousand Hills', in the plain SW of Jakarta. Also a brief description of the limestone hills Kuripan, SW of Bogor, famous for their hot springs, which yielded several plants not found anywhere else, amongst them a *Cycas* sp.

1828–1851 – *Flora Javae nec non insularum adjacentium*. Brussels. 3 vols.

Three sumptuous folio volumes, with analyses, plates, and descriptions in great detail. The authorship is partly ascribed to his assistant Dr. J.B. FISCHER, who was his 'adjutore'. The preface is probably most interesting, but being not in sufficient command of the Latin language, I cannot evaluate it.

For publication dates, see STAFLEU & COWAN, *Taxonomic literature*, ed. 2, 1 (1976) 236. 23 *Planches inédites* were for sale in probably 1863 (see also C: VAN STEENIS, 1947).

1829 – Letter to the Governor-General. *Algemeen Handelsblad* of April 1st, no 26.

FLORA MALESIANA

On the occasion of the appointment of Governor-General VAN DEN BOSCH; on the importance of stimulating cultures for the general welfare, commerce, and the benefit of the common people. BLUME pleaded for the gradual abandoning *cq.* restriction of the use of opium.

- 1831 – *Reistogte naar Buitenzorg, het Duizend-Gebergte, Koeripan en in de omstreken van Batavia, 1824; door een ambtenaar.*
Recensent (de Recensenten) XXIV, 2: 427–442, 467–471.
This contribution is not written by BLUME himself, but by one of the civil servants accompanying him, A. ZIPPELIUS or A. LATOUR, on a trip to the hills W of Bogor. By BLUME himself also described in the entry of 1828, *Het Duizend-Gebergte*.
Contains no scientific observations.
- 1831 – *Ueber einige Ostindische, und besonders Javanische Melastomataceen.*
Flora 15 (2): 465–527.
A thorough study of the family *Melastomataceae* in which BLUME described 12 new genera, all standing to the present day, mainly based on species described in the *Bijdragen* (1825–1827).
- 1831 – *Over eenige Oost-Indische, byzonder Javaansche, Melastomataceae.*
In: H.C. VAN HALL (ed.), *Bijdragen tot de Natuurkundige Wetenschappen* 6: 211–268.
The same as the preceding entry.
- 1831 – *Eenige woorden over de redding van het Rijks Herbarium door Dr. J.B. Fischer.*
Alg. Konst- en Letterbode no 23, 10 June: 356–359 & no 24, 17 June: 374–377 (in L).
Details on the transfer of the Rijksherbarium from Brussels to Holland by Dr. J.B. FISCHER.
- 1831 – *Over de Asiatische cholera, uit eigene waarnemingen en echte stukken.* C.G. Sulpke, Amsterdam. viii + 203 pp. (In University Library at U).
Historical account and personal experience with cholera in the Netherlands Indies, extensively documented; measures taken by the government to cope with this disastrous illness.
- 1832 – *Vruchten mijner ondervinding in het afweren en genezen der cholera.* Amsterdam. 31 pp. (in L).
A most interesting paper prescribing how to deal with patients suffering from cholera, in Java called *febris endemica bataviae*. Recipes for external and internal use. Prescribing the boiling of drinking-water. Paper printed in 1000 copies at the author's expense, distributed freely to boards of municipalities in the Netherlands.
- 1832 – *Beschrijving van Calamus draco Willd., etc.*
In: H.C. VAN HALL (ed.), *Bijdragen tot de Natuurkundige Wetenschappen* 7: 115–129.
Extensive Latin description of a rattan from S. Sumatra collected by his friend C.F.E. PRAETORIUS.
- 1832 – *Uittreksel uit eenen brief van den Heer J.B. Spanoghe aan den hoogleeraar C.L. Blume.*
Alg. Konst- en Letterbode 1832-I: 356–361.
Notes on the situation in Bima (Sumbawa), with biographical notes on SPANOGHE by BLUME.
Plant list of Bima.
- 1834 – *Observationes de genere Helicia Lour.*
Ann. Sc. Nat. sér. II, 1 (1) Bot.: 211–220.
Review of the genus, with new species.

DEDICATION

- 1834 – *Eenige waarnemingen omtrent de Culilawan boom van Rumphius.*
Tijdschr. Natuurlijke Geschiedenis en Physiologie 1: 45–64, t. 2.
Repr. in: WIEGMAN, Archiv Naturgeschichte 1 (1835) 116–126, and in: Jahrb. Pharm. Berlin 35 (1835) 9–29.
On *Cinnamomum* described by RUMPHIUS.
- 1834 – *Eenige opmerkingen over de natuurlijke rangschikking van Rohdea, Tupistra en Aspidistra, als mede de beschrijving eener nieuwe soort van dit laatste geslacht.*
Tijdschr. Natuurlijke Geschiedenis en Physiologie 1: 67–85, pl. 3 & 4.
Botanical relations between three genera, and description of a new species of *Aspidistra*.
- 1834 – *De novis quibusdam plantarum familiis expositio et olim jam expositarum enumeratio.*
Tijdschr. Natuurlijke Geschiedenis en Physiologie 1: 131–162.
Repr. in Ann. Sc. Nat. sr. II, 2 Bot.: 89–106.
A preprint was issued in 1833, see STAFLEU & COWAN, Taxonomic literature, ed. 2, 1 (1976) 2367.
Description of a number of newly proposed families, *Apostasiaceae, etc.*, with a few new species.
- 1835 – *Neesia, genus plantarum javanicum repertum, descriptum et figura illustratum.*
Nova Acta Acad. Caes. Leop.-Carol. 17 (1): 73–84, pl. 6.
A new genus of *Bombacaceae* named after TH.FR.L. NEES VON ESENBECK.
- 1835–1848 – *Rumphia, sive commentationes botanicae imprimis de plantis Indiae orientalis, tum penitus incognitis tum quae in libris Rheedii, Rumphii, Roxburghii, Wallichii, aliorum, recensentur.* Leiden, Amsterdam. 4 vols. Folio.
For publication dates, see STAFLEU & COWAN, Taxonomic literature, ed. 2, 1 (1976) 238.
Conditions for sale were mentioned in Ann. Sc. Nat. sér. II, 4 (1835) 318.
JUNGHUHN mentions that part of the work was elaborated and illustrated by J. DECAISNE and the Latin was supervised by D.J. VEEGENS, a friend of BLUME.
- 1837 – *Levensbyzonderheden van Franz Junghuhn.*
Alg. Konst- en Letterbode 1837-II: 277, footnote.
Biographical notes on F. JUNGHUHN.
- 1837 – *Levensbyzonderheden van Dr A. Fritze.*
Alg. Konst- en Letterbode 1837-II: 277, footnote.
Biographical notes on A. FRITZE, Inspector of Physicians and benefactor of JUNGHUHN.
- 1837 – *Naschrift op den brief van Junghuhn uit Djocjakarta.*
Alg. Konst- en Letterbode 1837-II: 278–280.
Appendix to a letter of JUNGHUHN.
- 1838 – *Revue des palmiers de l'archipel des Indes orientales.*
Bull. Sc. Phys. & Natur. en Néerlande no 9: 61–67.
Repr. in Ann. Sc. Nat. sér. II, 10 Bot.: 369–377.
- 1838 – *Miquelia, genus novum plantarum javanicarum.*
Bull. Sc. Phys. & Natur. en Néerlande no 13: 93–95.
Repr. in Ann. Sc. Nat. sér. II, 10 Bot.: 255–256.

FLORA MALESIANA

Description of a new genus of *Icacinaceae*, named after MIQUEL, then director of the Rotterdam Botanical Garden.

- 1838 – (transl.) Advertisement for sustaining the edition of *Flora Javae*, Rumphia, etc. *Alg. Konst- en Letterbode* 1838-II: 322, 401.
- 1839 – *Beschrijving der minerale bronnen, welke nabij Tjiratjas in de Residentie Krawang worden gevonden.*
Tijdschr. Ned.-Indië 2 (1): 451–455.
Description of mineral wells near Tjiratjas in Krawang, E of Jakarta.
- 1843 – *Levensbyzonderheden over Th.St. Raffles.*
De Indische Bij 1: 49, footnote.
Praise of RAFFLES' humane government.
- 1843 – *Engeland's staatkunde omtrent China.*
De Indische Bij 1: 61–77.
To stimulate the necessity of increasing naval power in Netherlands-Indian waters and extend commercial relations with Japan. In a footnote on p. 76 BLUME refers again to the necessity of regulating the trade in opium.
- 1843 – *Toelichting aangaande de nasporingen op Borneo van G. Müller.*
De Indische Bij 1: 103–176.
On the geography, anthropology, commercial situation etc. of W. Borneo, from correspondence with G. MÜLLER. In a footnote on p. 104 BLUME reveals the bad management of the Governor-General DAENDELS, and he praises RAFFLES for his humane, unselfish administration.
- 1843 – *Bladvulling.*
De Indische Bij 1: 320.
An occasional note on common social progress, whereby also the native people should prosper. Private property of land by non-natives is discouraged. Native rule should not be undermined. Adat should be maintained.
- 1843 – *Over een Nederlandsch Gezantschap in Japan.*
De Indische Bij 1: 479–480.
Importance of a Netherlands Embassy in Japan.
- 1843 – *Over eenige Oost-Indische planten welke eene uitmuntende vezelstof opleveren, en Gedachten over het nut van dergelijke kulturen tot opbeuring van de buiten Java gelegene etablissementen.*
De Indische Bij 1: 481–509.
On the importance of fibres, from *ramie*, cotton and *Musa*; tissues provided by BLUME were examined.
- 1844 – (with P.F. VON SIEBOLD) *Ontwerp tot oprigting van de Koninklijke Nederlandsche Maatschappij tot Aanmoediging van den Tuinbouw.*
Jaarb. Ned. Mij. Aanmoed. Tuinbouw over 1844: iii–iv.
Tentative rules for the newly erected society.

DEDICATION

- 1844 – *Over het nut der invoering van vreemde gewassen en de laatste pogingen om daardoor den tuinbouw hier te lande op te beuren.*
Jaarb. Ned. Mij. Aanmoed. Tuinbouw over 1844: 41–88.
On the use of importing exotic plants for horticulture in the Netherlands.
- 1844 – *Naamlijst van Oost-Indische en bepaaldelijk Javaansche gewassen, etc.*
Jaarb. Ned. Mij. Aanmoed. Tuinbouw over 1844: 88–90, t. 1–4 (col.).
Unsigned, but attributed to BLUME.
- 1844 – *Ueber das Lycopodium arboreum Jungh.*
Amtlicher Bericht über die Versammlung Deutscher Naturforscher und Aerzte Abt. 2, 22: 85–89.
Identified as *Dacrydium cf. elatum* WALL. on type material shown to him by W.H. DE VRIESE. In Rumphia 3 (1849) 219, 221 BLUME later added sour remarks.
- 1844 – *Ueber ein Surrogat des Chinesischen Thees.*
Amtlicher Bericht über die Versammlung Deutscher Naturforscher und Aerzte Abt. 2, 22: 90–92.
Made public in a session of the Society at Bremen, 23 Sept. 1844. As Prof. G.J. MULDER had shown the alkaloid theine is the same as caffeine, BLUME suggested that tea could be made from dried leaves of coffee.
- 1845 – *De Koffij-thee.*
Astrea, Tydschr. van Schoone Kunsten, Wetenschap en Letteren 1: 285.
Same as preceding.
- 1845 – *Minerale wateren van Tjipannas en Tjiradjas. Opmerkingen nopens de bruikbaarheid van dien te Tjipannas (Preanger Reg.), beschrijving en scheikundig onderzoek van dien te Tjiradjas (Krawang).*
Indisch Magazijn, Tweede Twaalfstal, no 1/2: 162–166.
Reprint of an article published in the Bataviaasche Courant of 15 Sept. 1821.
- 1845 – *Gedachten op eene reis door het zuidoostelijk gedeelte der Residentie Bantam.*
Indisch Magazijn, Tweede Twaalfstal, no 3/4: 1–36.
Account of his experience on a trip through SE. Bantam in W. Java. Account of the Badui people. Reprint of an article published in 1822.
- 1845 – *Fragment uit een Dagboek gehouden op eene reis over Java. Bestijging van den berg Tjerimai, gewoonlijk genoemd Tjermé, in de Residentie Cheribon.*
Indisch Magazijn, Tweede Twaalfstal, no 3/4: 102–116.
Report on an exploration of Mt Tjerimai, above Cheribon. Reprint of an article published in 1825.
- 1845 – *Over inlandsche middelen tegen diarrhoe.*
Indisch Magazijn, Tweede Twaalfstal, no 3/4: 116.
Indigenous recipes against diarrhoea. Copied from the paper published in 1825.
- 1845 – *De patma van Noesa Kambangan.*
Indisch Magazijn, Tweede Twaalfstal, no 3/4: 179–194 (in L).
Reprint of an article published in the Bataviaasche Courant of 9 & 23 March 1825, in which he described his finding of *Rafflesia* in Nusa Kambangan I. (S. Central Java) and claimed this to be the largest flower, superseding *Nelumbium*.

FLORA MALESIANA

- 1846 – An article in the 'Handelsblad'.
In this article BLUME advised to hold expositions of colonial products from the East and West Indies in the Netherlands from time to time.
- 1849–1856 – *Museum botanicum Lugduno-Batavum sive stirpium exoticarum, novarum vel minus cognitarum ex vivis aut siccis brevis expositio et descriptio*. Leiden. 2 vols.
Appeared in dated parts each of 16 pp. In all, I: 396 pp., 60 fig.; II: 256 pp., 58 fig. The second volume was not finished and had no index.
For publication dates, see STAFLEU & COWAN, *Taxonomic literature*, ed. 2, 1 (1976) 240.
A most important work, being a scientific catalogue of the Rijksherbarium collections, hence containing descriptions and treatments of plants from all over the world.
An Index to volume 2 was prepared by C.G.G.J. VAN STEENIS & CHEW WEE LEK at the Rijksherbarium in 1974 (see Appendix C).
- 1850 – *Antwoord aan den Heer W.H. De Vriese*.
Alg. Konst- en Letterbode 1850-II: 99–109, 114–123. Repr. 34 pp. in L.
BLUME defends his criticism on the identity of *Lycopodium arboreum* and the reduction of *Pinus merkusii*, and the right of the Rijksherbarium to be the depository of collections made by civil servants.
- 1850 – *Opheldering van de inlichtingen van den Heer Fr. Junghuhn*.
Alg. Konst- en Letterbode 1850-II: 258–261, 274–279. Repr. 19 pp. in L.
On JUNGHUHN's collection and the right of the Rijksherbarium as the proper public depository of botanical collections.
- 1852 – Copy of a letter to J.G. BAUD, Minister of the Colonies, dated 14 March 1840, '*nopens de bereiding van thee uit koffie-bladeren, met aanbeveling tot het nemen van proeven in het groot op Java zelf*.'
Natuurk. Tijdschr. Ned. Indië 3: 122–126.
Proposal to prepare tea from coffee leaves and suggesting experiments with this on a large scale in Java.
There are two other entries on the subject in 1844 & 1845; see also *Astrea* 1 (1851) 256.
- 1855 – *Mélanges botaniques*. 8°. No 1, 1 Aug. 1855: 1–8; no 2, 1 Sept. 1855: 9–12. Facsimile in *Taxon* 35 (1986) 274–285.
Until June 1985 assumed not to have been published; see STAFLEU & COWAN, *Taxonomic literature*, ed. 2, 1 (1976) 241.
The new names *etc.* in the *Mélanges* were validated by WALPERS in his *Annales* 4 (1857) 642–644 and a rather large extract was published in *Flora* 41 (1858) 254–256.
L. VOGELENZANG, librarian of the Rijksherbarium, found in VESQUE's bibliography of J. DECAISNE (C: 1883) that the latter had a copy of the *Mélanges* in his library, now incorporated in the Bibliothèque Nationale at Paris. H. HEINE located another copy in the Bibliothèque Central of the Muséum d'Histoire Naturelle at Paris which had belonged to the library of A.TH. BRONGNIART. The original copy mentioned in *Flora* is still not located. It was probably dedicated to NEES VON ESENBECK.
The pamphlet was not for sale, but it was effectively published and at least two copies exist. Both Paris copies were autographed to BLUME's close friends. He may have sent more copies to other botanists with whom he was befriended. Obviously BLUME published it at his own expense and the reason for this is unknown. He could have published it in his *Museum Botanicum Lugdunum-Batavum*.
The first numéro of the *Mélanges* contains a discussion on paper-making by the Sino-

DEDICATION

Japanese and three species are described of *Broussonetia* (2 new). Furthermore there is a section 'synonymie de quelques plantes peu connues', concerning species and genera of *Cunoniaceae*, *Saxifragaceae*, *Rosaceae*, *Guttiferae* (*Cratoxylon*), *Dipterocarpaceae*, *Ulmaceae*, *Moraceae*, and *Nepenthes*. Numéro 2 contains *Chrysobalanaceae* and *Rosaceae* (*Pygeum*) (B: VAN STEENIS, 1986).

- 1858 – *Bijdrage tot de kennis der Oost-Indische Orchideën en het maaksel (de organisatie) van hare bevruchtigingswerktuigen*.
Versl. & Meded. Kon. Ned. Akad. Wetensch., Amsterdam 7: 100–115, 2 pl.
Interpretation of the orchidaceous flower, with special regard to *Apostasiaceae*.
- 1858(–1859) – *Flora Javae et insularum adjacentium. Nova Series*. Leiden. pp. 8 + 6 + 162, 66 col. pl.
Also edited with a French title, see below.
A sumptuous work in which BLUME summarized his large knowledge on orchids in which he had great insight since he wrote the *Bijdragen* (1825–1827).
- 1858(–1859) – *Collection des Orchidées les plus remarquables de l'Archipel Indien et du Japon*.
The French-titled version of the *Flora Javae, Nova Series*.
For publication dates, see STAFLEU & COWAN, Taxonomic literature, ed. 2, 1 (1976) 240.
- 1859 – (with A.H. VAN DER BOON MESCH) *Geschikte materialen uit de Overzeesche bezittingen voor het vervaardigen van papier*.
Report about useful materials from overseas territories suitable to manufacture paper.
- 1859 – *Vanda suaveolens Bl.*
Ann. Hort. Bot. ou Fl. Jard. Pays-Bas 2: 1–2, 1 col. pl.
- 1859 – *Over eenige Oost-Indische houtsoorten in verband met de verwoestingen door den paalworm of andere schelpdieren hier te lande en elders aangerigt*.
Versl. & Meded. Kon. Ned. Akad. Wetensch. 9: 25–49. Repr. 25 pp. in L.
A scholarly review of timbers resistant against teredo and other molluscs, in which BLUME summarized experience onwards of RUMPHIUS and collected data from all kinds of sources, indicating valuable species to be used in sea harbours.
- 1860 – *De houtteelt verbonden met den landbouw*.
Tijdschr. Ned. Mij. ter Bevordering van de Nijverheid 23: 1–29.
Cultivation of timber species in relation to agriculture.
- 1861 – *Monographie des Anoectochilus, Goodyera et genres voisins, les plus remarquables de l'archipel Indien et du Japon*.
Belg. Hort. 11: 369–378, 1 pl.
Extract from *Flora Javae, Nova Series* (1858–1859).
- 1863 – *Flora Javae. Planches inédites*.
23 coloured folio plates of Javanese plants with names and analyses. These were probably intended for further instalments of the *Flora Javae*, but remained without text.
On the back of some plates an advertisement was printed by a booksellers firm in Leiden; herein BLUME's works were offered for sale, as a packet, probably one or two years after his death.
I have distributed a few copies to some herbaria, with a note, in November 1947 (C: 1947).
Further particulars I published in *Blumea* 6 (1948) 263.

FLORA MALESIANA

Excluded

1823 (April) – *Herinnering aan acht merkwaardige dagen van mijn leven, op een uitstapje naar de top van de Gounong (berg) Gedu.*

This concerns a 16 pp. manuscript which has wrongly been attributed to BLUME. It was written by a party following BLUME's trail to the lower part of the crater of Mt Gedeh above Tjibodas. It is preserved in the library of the Instituut van Taal-, Land- en Volkenkunde, Leiden University (H 338).

Appendix B – Biographical sources

- AA, A.J. VAN DER. 1878. Biographisch woordenboek der Nederlanden. Bijvoegsel: 34–35; *ibid.*: 111–115. – A concise biography.
- ANONYMOUS. 1827–1856. *Algemeene Konst- en Letterbode* 1827-II: 137; 1829-I: 227; 1831-I: 50, 359; 1833-I: 429; 1838-II: 290; 1851-I: 257; 1853-I: 193, 305; 1855: 118; 1856: 57.
- ANONYMOUS. 1853. *Bonplandia* 1: 228. – BLUME was in Berlin and offered (obviously at a meeting) fibres of *Boehmeria tenacissima* Bl. which he said had a great durability and could possibly be of importance for the navy. He was then presented to the King of Prussia. On the fibres of this *Boehmeria* he published in the *Mélanges botaniques* (A, 1855).
- ANONYMOUS. 1855. *Bonplandia* 3: 155. – Here it was reported that REINWARDT sold his library for Dfl. 20,000. His herbarium was donated to the University herbarium of Leiden, on the condition that it should not be incorporated in the Rijksherbarium.
- N.B. In the 'Instruction' of 1832 (see C: VAN DAM) it had been officially decreed that the University herbarium was to be merged with the Rijksherbarium!
- ANONYMOUS. 1858. *Flora* 41: 254–256. – Extract review of *Mélanges botaniques*.
- ANONYMOUS. 1862. *Leidsch Dagblad*, 5 Febr. 1862, no 598. Repr. of 3 pp. in L. – Formal obituary.
- ANONYMOUS. 1862. *Bonplandia* 10: 47. – Obituary note.
- ANONYMOUS. 1862. *Botanische Zeitung* 20: 56. – Obituary note.
- ANONYMOUS. 1862. *Proceedings Linnean Society of London* 1862: xcvi–xcviii. – Obituary note.
- ANONYMOUS. 1862 or 1863. *Annuaire de l'Académie de Paris*. – Obituary note (not seen).
- ANONYMOUS. 1875. *Allgemeine Deutsche Biographie* 2: 746–747. – Short biography.
- ANONYMOUS. 1875. *Album Studiosorum Lugdunum Batavum 1575–1875*, column 1243. – Short biography.
- ANONYMOUS. 1930. *Nieuw Nederlandsch Biographisch Woordenboek* 8: 132–133. – Short biography.
- BACKER, C.A. 1936. *Verklarend woordenboek van wetenschappelijke plantennamen*: 70. – Brief biography.
- BAILLON, H.E. 1877. *Dictionnaire de Botanique* 1: 433.
- BEUMÉE, J.G.B. 1948. C.L. Blume, *Museum Botanicum*. *Fl. Males. Bull.* no 3: 69–70. – On the dates of publication.
- BOERLAGE, J.G. 1896. *Botanische literatuur. Encyclopaedie van Nederlandsch-Indië* ed. 1, 1: 210, 272–273, 280.
- BRETSCHNEIDER, E. 1898. *History of European botanical discoveries in China*: 308–309. London. – Brief biography; BLUME illustrated some Chinese plants.
- BURDET, H.M. 1972. *Cartulae ad botanicorum graphicem. Candollea* 27: 327–328.
- CANDOLLE, A. DE. 1862. *Mémoires et souvenirs de A.P. de Candolle*: 150, 383, 412.
- 1880. *Phytographie*: 318. – Praises the excellent figures in BLUME's *Museum Botanicum*.

DEDICATION

- COLENBRANDER, H.T. 1926. Koloniale Geschiedenis 3: 111.
- DANSER, B.H. 1938. Who can give further information about the dates of publication of Blume's Flora Javae? Chron. Bot. 4: 454–455.
- 1939. The publication dates of Blume's Flora Javae. Blumea 3: 203–211.
- GODDIJN, W.A. 1931. 's-Rijks Herbarium 1830–1930. Meded. Rijksherb. 62b: 1–53. — Rather extensive biographical notes.
- GIJZEN, A. 1938. 's-Rijks Museum van Natuurlijke Historie, 1820–1915: 100–101. Rotterdam. — On BLUME's zoological contributions to the Leiden Museum.
- HALL, H.C. VAN. 1862. C.L. Blume. De Nederl. Spectator, 22 Febr. 1862, no 8: 57–59. — Biographical data; rather extensive (in L).
- HASSKARL, J.K. 1850. Antwoord aan den heer C.L. Blume, wegens onderscheidene te mijnen aanzien geuite beschuldigingen, vervat in zijn antwoord aan den heer W.H. de Vriese, Leiden 1850. Alg. Konst- en Letterbode 1850. Repr. of 16 pp. in L. — HASSKARL defending his rights to have a private herbarium.
- JACOBS, M. 1980. C.L. Blume (1796–1862). Fl. Males. Bull. no 33: 3362–3363.
- JANSEN, P. & W.H. WACHTER. 1941. Ned. Kruidk. Arch. 51: 343. — Biographical references.
- JUNGHUHN, F. 1837. Brief aan C.L. Blume vanuit Djocjakarta, 2 Febr. 1837. Alg. Konst- en Letterbode 1837-II: 275–277.
- 1850. Inlichtingen aangeboden aan het publiek over zeker geschrift van den heer C.L. Blume, en antwoord aan dien Heer. Alg. Konst- en Letterbode 1850, no 41. Repr. 9 pp. in L. — Self-defense in keeping his private herbarium.
- 1850. Vervolg der inlichtingen aangeboden aan het publiek over een geschrift van den heer C.L. Blume. Alg. Konst- en Letterbode 1850. Repr. 29 pp. in L. — Polemics with BLUME.
- 1851. Een woord over den Sambinoer-boom van Sumatra, betrekkelijk deszelfs botanische bepaling. Ned. Kruidk. Arch. 2: 2–16. — On BLUME's reduction of JUNGHUHN's *Lycopodium arboreum* to *Dacrydium*.
- 1853. Java, zijne gedaante, zijn plantentooi, en inwendige bouw, 1: 183–186. 2nd Dutch ed.
- KALKMAN, C. 1979. The Rijksherb. past and present. Blumea 25: 13–26, especially p. 14.
- KOSTER, J.Th. Facsimile handwritings of BLUME. — Unpublished (in L).
- LASÈGUE, A. 1845. Musée botanique de M. Benjamin Delessert: 268, 293, 307, 315, 346, 347, 506, 535, 562.
- LEENHOUTS, P.W. 1980. Het Botanisch Kabinet te Franeker: 34.
- LINTUM, C. TE. 1913. Een eeuw van vooruitgang, 1813–1913. Zwolle (not seen). — BLUME was far ahead of his time in having found the solution of the combat against cholera by the simple boiling of drinking-water.
- MACLEAN, J. 1979. Carl Ludwig Blume and the Netherlands East Indies. Janus 66: 15–29. — Period 1820–1831; valuable biographical essay. MACLEAN traced many letters in the Colonial Archives of the 'Rijksarchief', The Hague.
- MIQUEL, F.A.W. 1856. Review of Blume, Museum Botanicum. Bot. Zeit. 14: 185–188, 540–541. — MIQUEL complained severely about BLUME's antedating issues of the *Museum Botanicum* and his attempts to withhold information from his colleagues.
- OUDEN, A. DEN. 1979. C.L. Blume, periode 1826–1832. Unpublished essay, made under supervision of Dr. P. SMIT, Biohistorical Institute, Utrecht. — A thorough account, largely based on official letters and documents of the period mentioned, as present in the 'Rijksarchief', The Hague.
- PRITZEL, G.A. 1872. Thesaurus literaturae botanicae: 29. — BLUME's selected bibliography.
- PULLE, A.A. 1917. Botanische literatuur. Encyclopaedie van Nederlandsch Indië ed. 2, vol. 1: 317, 394–395; *ibid.* 1919. Vol. 4: 422.
- RAALTEN, G. VAN. 1825. Unpublished letter to J.G.S. van Breda (?). — Erroneous accusation that BLUME stole property or information from KUHL & VAN HASSELT (in L).
- ROLAND, M. 1944. Alfred Moquin-Tandon. Un naturaliste à Paris sous Louis-Philippe. Journal

FLORA MALESIANA

- d'un voyage inédit (1834). Paris, Mercure de France ed. 3: 351 pp. — Historically a most interesting booklet full of biographical data of French botanists. BLUME paid a prolonged stay to Paris in Sept./Oct. 1834.
- RÖMER, L.S.A.M. VON. 1921. Historische Schetsen. Batavia. 335 pp., 109 pl.; a very brief obituary on p. 193. — It is most peculiar that in the brief history of cholera (pp. 232–238) the author, himself a physician, makes no mention at all of BLUME's important work on the subject.
- SCHOUTE, D. 1937. Occidental therapeutics in the Netherlands East Indies during three centuries of Netherlands settlement. Publication of the Netherlands Indies Health Service: 114–119. — Cited the governmental regulations and instructions for the native chiefs, extension of the vaccination, etc. Some of these might have actually been written by BLUME, who was chief of vaccination and later even chief of the medical service.
- SEEMANN, B. 1863. Journ. Bot. 1: 64. — Short obituary.
- SEEMANN, W.E.G. 1859. Bonplandia 7: 52–53. — BLUME complained that the Netherlands Government did not contribute funds towards the publication of the *Flora Javae, Nova Series*, and that this was printed at his own expense. SEEMANN had received the volume, or at least first sheets of it, on 3 Nov. 1858. He criticizes BLUME for having given too little attention to the works of LINDLEY and REICHENBACH.
- SIRKS, M.J. 1915. Indisch Natuuronderzoek: 109–112, portr. Amsterdam. — Brief biographical notes.
- SMIT, P. 1979. The Rijksherbarium and the scientific and social conditions which influenced its foundation. *Blumea* 25: 5–11. — In this excellent essay on the foundation of the Rijksherbarium SMIT erroneously mentioned (p. 9) that BLUME transferred the KUHL & VAN HASSELT specimens to Leiden in 1826.
- & R.J.CH.V. TER LAAGE (eds.). 1970. Essays in biohistory. *Regnum Vegetabile* 71.
- STAFLEU, F.A. 1966. *Wentia* 16: 28–31. — In an excellent biography of MIQUEL some notes on BLUME.
- 1970. The Miquel-Schlechtendal correspondence. A picture of European botany, 1836–1866. In: P. SMIT & R.J.CH.V. TER LAAGE, Essays in biohistory. *Regnum Vegetabile* 71: 295–341. — Many data on BLUME and his works. Page 307: DECAISNE made several drawings for *Rumphia*. Page 324: JUNGHUHN sold his herbarium to the University of Leiden on the condition that it should not be incorporated in the Rijksherbarium. Page 326: Reference to MIQUEL, who was glad that in February 1851 a new, more 'liberal' Instruction for the Rijksherbarium was issued by the Government. Page 331: Reference to MIQUEL's complaint about the irregularities with the dates of *Museum Botanicum*. Page 334: Reference to the difficulty in choice of a successor of BLUME.
- 1978. *Flora Malesiana* I, 8: (7)–(16). — Dedication to the memory of F.A.W. MIQUEL, containing some notes on BLUME.
- & R.S. COWAN. 1976. Taxonomic literature. Ed. 2, vol. 1: 234–241 (*Regnum Vegetabile* 94).
- STEENIS, C.G.G.J. VAN. 1941. *Natuurwet. Tijdschr. Ned. Ind.* 101: 216. — The *Planches inédites* appeared at least before 1883.
- 1948. On the date of publication of Blume's *Planches inédites*. *Blumea* 6: 263.
- 1979. The Rijksherbarium and its contribution to the knowledge of the tropical Asiatic flora. *Blumea* 25: 57–77, especially pp. 60–62. — BLUME's endeavours.
- 1980. The publication of Blume's *Tabellen en Platen voor de Javaansche Orchideeën*. *Miscellaneous Papers Landbouwhogeschool, Wageningen* 19: 289–291.
- 1986. Blume's *Mélanges botaniques* effectively published, 1855. *Taxon* 35: 272–273; facsimile of the *Mélanges*: 274–285.
- & M.J. VAN STEENIS-KRUSEMAN. 1970. The plates of Javanese plants of Francisco Noroña, with a revised evaluation of his generic names. In: P. SMIT & R.J.CH.V. TER LAAGE: Essays in biohistory. *Regnum Vegetabile* 71: 353. — BLUME has seen NOROÑA's plates in Java, as well as

DEDICATION

- REINWARDT. Incidentally BLUME mentioned a few NOROÑA names in the synonymy of his works.
- STEENIS-KRUSEMAN, M.J. VAN. 1950. Carl Ludwig Blume. Flora Malesiana I, 1: 64–66, 600, portr. – Brief personalia; account of BLUME's travels and publications.
- 1979. Directorate of C.L. Blume. Blumea 25: 35–39.
- TREUB, M. 1889. Geschiedenis van 's-Lands Plantentuin te Buitenzorg. Meded. 's-Lands Plantentuin 6: 1–79. Batavia. – History of the Botanic Gardens, Bogor, from 1817 till 1844.
- 1892. Korte geschiedenis van 's-Lands Plantentuin te Buitenzorg: 7–9, portr. – Short history, as above.
- ULE, WITTY. Geschichte der Kaiserlichen Leopoldinisch-Carolinischen Akademie der Naturforscher 1852–1882. No. 1071 (not seen).
- VETH, P.J. 1884. Ontdekkers en onderzoekers: 45–149. Leiden. – Mostly on REINWARDT; portrait of BLUME.
- VOS, C. DE. 1888. Korte schets van de geschiedenis der plantkunde *etc.*: 91–92. Bolsward.
- VRIESE, W.H. DE. 1851. Naschrift (to JUNGHUHN's paper). Ned. Kruidk. Arch. 2: 13–17 (in L). – Defending JUNGHUHN.
- 1851. Teregtwijzing van C.L. Blume's naamsvewarrang. Alg. Konst- en Letterbode 1850-II: 35–38. Repr. of 4 pp. in L. – On the reduction of *Pinus merkusii* to *P. finlaysoniana*.
- WEIGEL, T.O. 1863 (Jan.). Verzeichniss der nachgelassenen Bibliothek von C.L. Blume. Leipzig. III–VI + 81 pp. – With portrait of BLUME.
- WINKLER-PRINS, C. 1949. Encyclopaedie ed. 6, 4: 374.
- WIT, H.C.D. DE. 1949. 47. Blume. Flora Malesiana I, 4: civ–cv. – A brief account of BLUME's life; discussion of achievements and main publications.
- 1950. History of Malesian botany. 29 pp., unpublished. – Typed copies of letters to and from BLUME, partly relating to herbarium REINWARDT, but largely official letters on the sale and distribution of *Flora Javae* and *Rumphia*. Several derived from the 'Rijksarchief', The Hague.
- ZOLLINGER, H. 1841. Tagebuch (ined.), 5 Oct.–31 Dec. – Unpublished diary of ZOLLINGER; typed copy by H. WANNER in L.

Appendix C – References to cited literature

- ARCKENHAUSEN, J.C.P. See his biography by H.-G. GRIEF *et al.*, *vide infra*.
- BREDA, J.G.S. VAN. 1827–1829. Genera et species Orchidearum et Asclepiadarum quas in itinere per insulam Java collegerunt Dr. H. Kuhl et Dr. J.C. van Hasselt. Ghent. Folio. 15 fol. & 15 tab. col.
- DAM, VAN. 13 Febr. 1832. Ontwerp van eene instructie voor den Directeur van het Rijksherbarium (Ministry of the Interior, 5th Div., No. 254 – Concept of an Instruction to the Director of the Rijksherbarium).
- Directions for the director in 14 articles: how to manage the collections, the accommodation, the facilities for and availability to other botanists, loans, the making of a catalogue of the collections, exchange of duplicates, desirability of acquiring collections from civil servants, the fusion of the University Herbarium with that of the Rijksherbarium, the order that the director writes an annual report on the important accessions, and that proposals of the director had to go via the Curators of the University.
- A particularly ticklish point was stipulated in art. 10, in which the director was prohibited to publish on discoveries of still living persons and explorers without their consent.
- The Instruction was approved by the Minister of the Interior and was stipulated to be effective from January 1st, 1831.

FLORA MALESIANA

- GRIEP, H.-G., H. ULLRICH & G. WAGENITZ. 1977. Johann Christian Arckenhausen (1784–1855). In H. ULRICH (ed.), *Goslarer Künstler und Kunsthandwerker 1*: 1–32, illust. (D, 12).
- HALL, H.C. VAN. 1856. Voorstel omtrent de voortzetting van de uitgave der Flora Javæ. In W.H. DE VRIESE: *Tuinbouwfloora 3*: 365–366.
- HENNIPMAN, E. 1979. The collections of Pteridophytes at the Rijksherbarium. *Blumea 25*: 103–106.
- REINWARDT, C.G.C. 1826. *Nova plantarum indicarum genera*. Syll. Plant. Ratisb. 2: 1–15.
- 1828. Ueber den Charakter der Vegetation auf den Inseln des Indischen Archipels. Ein Vortrag. Kön. Akad. Wiss. Berlin: 1–18.
- STEENIS, C.G.G.J. VAN. 1947. Introduction to the Planches inédites Flora Javæ (mimeographed). — Pamphlet, consisting of a coloured folio plate of BLUME's *Planches inédites* with at the back an advertisement for the sale of BLUME's works, probably from 1862 or 1863. Copies were sent to some selected European libraries.
- & CHEW WEE LEK. 1974. Index to C.L. Blume, Museum Botanicum Lugduno-Batavum, vol. 2, 1856–1857. Leiden. 24 pp.
- , M.J. VAN STEENIS-KRUSEMAN & C.A. BACKER. 1954. Louis Auguste Deschamps. *Bull. Brit. Mus. Nat. Hist., Hist. ser. 1*, no 2: 51–68, pl. 13 (a reproduction of the drawing DESCHAMPS made of *Rafflesia*).
- STEENIS-KRUSEMAN, M.J. VAN. 1950. Kollmann's collection of Javan plants. *Bull. Jard. Bot. Btzg sér. III*, 18: 463–466.
- 1962. Contributions to the history of botany and exploration in Malaysia. 8. Heinrich Bürger (?1806–1858), explorer in Japan and Sumatra. 9. The transfer of the Rijksherbarium from Brussels to Holland in 1830. *Blumea 11*: 495–505; 505–508, 1 photo.
- 1979. The collections of the Rijksherbarium. *Blumea 25*: 29–56.
- THORBECKE, J.R. 11 Nov. 1850. Instructie voor den Directeur van het Rijks-Herbarium te Leijden (Ministry of the Interior, 5th Div., No. 254 – Instruction for the Director of the Rijksherbarium at Leijden). 22 pp. (in L).
- Instruction to replace that of 1832 (see under C: VAN DAM), consisting of 28 articles. New stipulations were: the director should be present on the first three days of the week; not more than one family of plants can be borrowed by a single person; the director is prohibited to use data from the still living members of the former 'Natuurkundige Commissie' without their permission; he is not allowed to have a private collection; as to exchange, priority has to be given to Dutch botanists and institutes, effective onwards of December 1st, 1850.
- A most peculiar stipulation was in art. 18: anybody could claim to receive duplicates from the overseas territories (the names of which had already been printed and the plants described) even when nothing was offered in exchange. So it has happened recently that, in cleaning a school somewhere in Holland, a set of Javanese sheets was found, obviously claimed by a former enthusiastic teacher who had, it seems, no employ for it.
- VESQUE, J. 1883. *Catalogue de la Bibliothèque de feu M. J. Decaisne*. Avec une notice biographique par M. le Dr. Ed. Bornet. Paris. Libraire de la Bibliothèque Nationale: 13. — Listing under no 56: 'Blume, Mélanges botaniques (Premier et deuxième numéro). Leyde, 1855, br. in-8, de 12 pp.—Envoi autogr. de l'auteur à M. Decaisne.
- VRIESE, W.H. DE. 1858. Reinwardt's Reize naar het Oostelijk gedeelte van den Indischen Archipel in het jaar 1821 *etc.* Amsterdam.

Appendix D – Notes

1)–Later it was said that BLUME misused the collections and manuscripts of A. ZIPPELIUS, a gardener of the Botanic Gardens at Buitenzorg (Bogor), who made a long exploration trip to the Moluccas, SW. New Guinea, and Timor, where he died.

DEDICATION

Surely ZIPPELIUS made a most important collection, but he left no manuscripts at L; we only have a box full of old provisional labels. As a matter of fact, P. BLEEKER found in the archives of the 'Natuurkundige Vereeniging' at Batavia manuscripts and notes of ZIPPELIUS that were offered to BLUME about 1850, under the condition that the latter should publish them. BLUME never replied to this. In fact this request came two decades too late, as BLUME had worked on ZIPPELIUS's material (received through the intermediary of J.B. SPANOGHE IN \pm 1830/31) and published this earlier in *Rumphia* and in the *Museum Botanicum*. BLUME honoured ZIPPELIUS by naming the Piperaceous genus *Zippelia* after him. (See also the footnote under D: 4.)

BLUME has also been accused of having left at Bogor no duplicate specimens of the collections he took to the Netherlands, but this is untrue (see C: VAN STEENIS-KRUSEMAN, 1950; and D: 4).

As to the KUHLE & VAN HASSELT collections: they did not add many novelties to what BLUME himself had collected. The sites where he travelled covered most of theirs, and even far beyond eastwards. Besides, the KUHLE & VAN HASSELT collections came only in BLUME's hands in 1828 when he had already published his *Bijdragen* (1825–1827) and *Enumeratio* (1827–1828). And as late as 1844 VAN BREDA offered him a packet of notes written by KUHLE and VAN HASSELT, when the main part of *Flora Javæ* (1828–1851) had already been published.

2) – PH.F. VON SIEBOLD, a most meritorious scientist, withheld his collections from BLUME. Most of VON SIEBOLD's botanical collections were not made by himself, but by BÜRGER, TEXTOR, KEISKE and others (see C: VAN STEENIS-KRUSEMAN, 1962). VON SIEBOLD also was a dominating, ambitious person. The *Flora Japonica* was authored by 'SIEBOLD & ZUCCARINI', but the latter, professor at Munich, was the proper author responsible for the research. VON SIEBOLD hardly had any claim towards being a botanical taxonomist. As BÜRGER belonged to the 'Natuurkundige Commissie', their herbarium should properly go to the Rijksherbarium. Though BÜRGER's share in the undertaking was very large – he also wrote a large manuscript on Japanese fishes – VON SIEBOLD later refused to support BÜRGER's second appointment to the 'Natuurkundige Commissie' for the exploration of W. Sumatra, because the latter would not be sufficiently endorsed with scientific knowledge (*l.c.* 501), a most ungracious and unjust gesture.

VON SIEBOLD claimed later to have been the saviour of the Rijksherbarium in 1830, whereas his sole purpose was to get back specimens collected during his internment by the Japanese in Deshima (*l.c.* 501). Whatever the great merits of VON SIEBOLD may have been, these facts throw a distinct shadow on his honesty and tolerance regarding other people.

3) – F.W. JUNGHUHN was a physician of the army since 1835, but his superior, A.E. FRITZE, permitted him to devote himself to the study of nature. In 1840 he was charged with making investigations in the Batak Lands, W. Sumatra. After his return to Java JUNGHUHN was appointed a member of the 'Natuurkundige Commissie' (1845–1848). Through his *Reisen durch Java* and *Die Battaländer auf Sumatra* it became clear that JUNGHUHN had amassed a great herbarium, and BLUME claimed this for the Rijksherbarium. JUNGHUHN refused, which caused BLUME's irritation. As JUNGHUHN was no taxonomist and had made errors in precursory papers (amongst others with *Lycopodium arboreum*), BLUME's sharp remarks on this led to a strong mutual animosity between him and JUNGHUHN.

4) – According to my wife (C: VAN STEENIS-KRUSEMAN, 1950), G.H.J. KOLLMANN was a German senior physician, in the service of the Dutch East Indian army and stationed at Buitenzorg (Bogor) in 1821–1835, on leave in Europe in 1835–1837. In 1837 he offered the Dutch government a collection of Javanese plants for sale.¹ His letter and material were designated to BLUME, who, to

(1) About the contents of the collection which came in Kollmann's hands more can be found in J. MACLEAN, *Scientiarum Historia* 15 (2), 1973, 112–113. They comprised zoological collections as well as ethnographical ones besides the herbarium specimens. According to KOLLMANN they were acquired at auctions (presumably in Java) and contained not only BLUME collections but also ZIPPELIUS plants (M.J. VAN STEENIS-KRUSEMAN).

FLORA MALESIANA

his surprise, found that this was the set of duplicates (more than 4000) of his collection he painstakingly left at Buitenzorg when returning to Holland. KOLLMANN himself never collected. Obviously the collection had been stored somewhere in the annexes of the Palace at Buitenzorg, adjoining the Botanic Gardens. The curator of the Gardens, JAMES HOOPER, was subordinated to the Intendant of the Palace. In some way or other KOLLMANN appropriated this collection. The rumour that BLUME did not leave duplicates at Buitenzorg appears fully untrue. Why he never alluded in print to the curious way in which the Bogor duplicate collection came into his hands, can only be guessed at (D: 14). He was either loyal to KOLLMANN, with whom he had friendly relations, or he found it unnecessary to justify himself. Anyway it shows his loyalty to the Buitenzorg Gardens.

5) – Both J. MACLEAN and A. DEN OUDEN (B: 1979) have searched in the ‘Rijksarchief’, The Hague, where all official correspondence by BLUME is kept. For a proper biography the period 1830–1862 should also be covered. Moreover, personal letters will be kept in the archives of several botanical institutes as BLUME had contacts with many botanists.

6) – It is quite possible that, as soon as BLUME had finished the text for a fascicle of *Museum Botanicum*, he sent it to the printers and assumed it then to be effectively published. In his splendid isolation, surrounded by envious, hostile colleagues and antagonists, BLUME did not care about their interests. Leiden was at that time a centre where nobody did care about collaboration or sympathy, each staff member promoting self-interests; a most unfortunate situation.

7) – The number of extensive biographies of prominent Dutch botanists is small. I know off-hand only those of C.G.C. REINWARDT, HUGO DE VRIES, W. BEIJERINCK, F. JUNGHUHN, J.P. LOTSY, F.A.W. MIQUEL, and H.J. LAM. Such biographical studies require much time, and also historical-minded people to compose them. If one should like to have a posthumous biography made, it is best, in my opinion, to write an autobiography; one ought to think timely of this.

8) – The diary of H. ZOLLINGER contains notes on his stay at Leiden in 1841, with interesting personal information on members of the biological circle at Leiden. Amongst others about the complaints of REINWARDT that BLUME did not give him sufficient honour and published all novelties under his own name. But C.A.L.M. SCHWANER, a German geologist and member of the ‘Natuurkundige Commissie’, said that this was due to the fact that REINWARDT did not publish himself, even not his own report on the exploration in East Malesia, and that REINWARDT’s reasons for not publishing was that he was afraid not to come up to the expectations the botanical public had of him. As a matter of fact, the lecture REINWARDT held for this select public, the ‘Versammlung Deutsche Naturforscher und Aerzte’ on 20 September 1828 about the vegetation of Malesia, was not exciting, but mediocre (C: REINWARDT, 1828). The same holds for his paper *Nova plantarum indicarum genera*; many genera were assigned to wrong families and several others had been described before. REINWARDT’s creative efforts lay mainly in the organization of botany and cultures in Java, not in research. His report on the exploration of the Moluccas was after his death published in 1858 by W.H. DE VRIESE (C: 1858), together with a biography.

Another fact ZOLLINGER mentioned was that it was not due to BLUME that P. KORTHALS abandoned botany. KORTHALS told ZOLLINGER at the time the first was working out his most important, meticulous observations, that botany was an inferior branch of science as compared with philosophical and etymological studies, which he found more interesting and scholarly.

9) – According to WEIGEL’s catalogue (B: WEIGEL, 1863), BLUME had a very large library, the total number of entries being 2123, largely concerning botany (1527 entries). It is peculiar that BLUME’s works are only represented by 9 items. None of his publications on useful and medicinal plants were represented.

DEDICATION

10) – As a matter of fact, the majority of biologists, physicians, and explorers in the early part of last century concerned with the biology of the Indies were scientists with the German nationality or of German descent, e.g., ARCKENHAUSEN, BLUME, BÜRGER, J.B. FISCHER, HASSKARL, JUNGHUHN, KUHL, MACKLOT, SAL. MÜLLER, REINWARDT, VON ROSENBERG, SCHLEGEL, SCHWANER, VON SIEBOLD, ZIPPELIUS. Also in South American and African botanical pioneer exploration Germans played a prominent role in the former century.

11) – As to his health, BLUME withstood illnesses obviously rather well, probably because he applied his own devices, drinking boiled water, etc. He was reported to suffer of fever during his trip to Rembang (see A: 1828). In 1826 (Java) BLUME complained of illness. In Holland he was rather seriously ill about 1829. Early 1850 he suffered of laryngitis.

12) – H.-C. GRIEP c.s. (C: 1977) in their biography of J.C.P. ARCKENHAUSEN reproduced a letter (in the 'Rijksarchief', The Hague) from BLUME to the Minister of the Interior at The Hague (d.d. 27 Dec. 1832), in which he pleads for the second time for a permanent position of ARCKENHAUSEN. BLUME mentioned that he had 1500 drawings, mostly from LATOUR, made in Java. These drawings were sketches which should be made ready for reproduction in *Flora Javae* and often needed to be supplemented by details (from herbarium material). ARCKENHAUSEN could manage to prepare 7 or 8 drawings monthly. As the publication of *Flora Javae* at Brussels needed monthly 12 drawings for the two instalments, BLUME had attracted a certain Mr. VIVIEN as draughtsman (in 1827) and Mr. SIXTUS (in 1828) for keeping pace. VIVIEN disappeared in 1829 and he was replaced by ARCKENHAUSEN. The Minister was of the opinion that ARCKENHAUSEN should be paid from the *Flora Javae* project funds. The latter worked for BLUME at least until 1832, possibly longer. After repatriation to Germany ARCKENHAUSEN remained draughtsman in Goslar, drawing all kinds of plants and animals, mostly for KREBS, *Naturgeschichte*. After ARCKENHAUSEN's death (1855) his estate was sold in 1862, among which 134 plates of *Flora Javae*. In the library of the Naturwissenschaftliche Verein, in volume 19 (portfolio), 190 plates of BLUME's work are preserved, of which some unfinished sketches. Whether they are originals or printed copies, and whether there are unpublished drawings among them, has still to be examined. Plates by ARCKENHAUSEN are reproduced too in *Rumphia*, volumes 1–3.

In Java J.TH. BIK was another artist, originally in the service of REINWARDT, who drew for BLUME.

13) – Why the polemic papers between BLUME and JUNGHUHN, DE VRIESE, and others (see B) started as late as 1850 is unclear, because BLUME had already in 1844 (see A) reduced *Lycopodium arboreum* – the subject of controversy. BLUME's denigrating words accompanying the reduction were published by him in *Rumphia* (3: 219, 221) and these gave offence to JUNGHUHN and DE VRIESE. STAFLEU & COWAN (Taxonomic literature, ed. 2, vol. 1, 1976) gave 1847 as date for this part of *Rumphia*, but it might be that 1849 fits better (as mentioned by LORENTZ, cf. *Flora Maleisiana* I, 4: clxxii, and also accepted by DE WIT).

14) – Why BLUME did not defend himself more openly and publicly is not clear. It is of course a fact that one cannot well oppose rumours without published evidence. He was clearly not a very militant personality. BLUME took action only twice: first, when he revealed the transfer of the Rijksherbarium from Brussels and gave honour to FISCHER (A: 1831); and second, in defending himself against JUNGHUHN (A: 1850). For the rest he satisfied himself by writing explanatory letters. Though convinced of his view on the cause of cholera, he did not officially oppose MULDER in public. In all these matters I am inclined to believe BLUME felt it below his dignity to expose himself.

FLORA MALESIANA

Appendix E – Eponymy

Blumia C.G.D. NEES 1823, *nom. rejic.* (= *Magnolia* L.).

Blumia K.P.J. SPRENGEL 1826 (= *Saurauia* WILLD.).

Blumea H.G.L. REICHB. 1828 (= *Neesia* BLUME).

Blumea A.P. DC. 1833.

Blumeodendron KURZ 1873.

Blumella VAN TIEGHEM 1895 (= *Elytranthe* BLUME + *Macrosolen* BLUME).

Blumeopsis GAGNEP. 1920.

The journal *Blumea*, official botanical journal of the Rijksherbarium; vol. 1, 1934–*hodie*.

Epithets for species, *blumei*, *blumii*, etc., are too numerous to enumerate here.

Appendix F – Honorary distinctions and memberships

1829 (31 March): Ridder (Knight) in de Orde van de Nederlandse Leeuw; the Netherlands.

1851: Légion d'Honneur; France.

1851: Preussische Rothe Adler-Ordens, 3. Klasse; Prussia.

1853: Knight Cross of the Albrechts Order of Sachsen; Saxony.

1853: Large golden medal for merits from the King of Belgium.

1822: Council member Bataviaasch Genootschap van Kunsten en Wetenschappen, Batavia; Netherlands Indies.

1825 (6 Febr.): Corresponding member of the Maatschappij van Landbouw en Kruidkunde; the Netherlands.

1827: Member of the Koninklijk Instituut van Wetenschappen, Letterkunde en Schoone Kunsten (the later Netherlands Royal Academy); the Netherlands.

1827 (29 June): Member of the Provinciaals Utrechtsch Genootschap voor Kunsten en Wetenschappen, Utrecht; the Netherlands.

1829 (7 Jan.): Member of the Königliche Botanische Gesellschaft zu Regensburg; Bavaria, Germany.

1833: Member of the Hollandsche Maatschappij van Wetenschappen, Haarlem; the Netherlands.

1845: Doctor honoris causa and Matheseos magister of Leiden University; the Netherlands.

1851 (7 April): Foreign corresponding member of the Institut de France, Paris; France.

1853 (May): Ordinary member of the Kaiserliche Akademie für Naturkunde, Moscow; Russia.

1855: Honorary member of the 'Maatschappij ter Bevordering der Geneeskunde', Baden; Germany.

1855 (31 March): Member of the Koninklijke Akademie van Wetenschappen, Amsterdam; the Netherlands.

1856 (10 Oct.): Member of the Royal Academy of Sciences, Stockholm; Sweden.

Member of:

Caesarea Leopoldino-Carolina Academia Naturae Curiosorum, Bonn; Germany. *Cognomen: Rumphius secundus.*

Linnean Society of London; England.

Societas Caesarea Naturae Curiosorum Mosquensis, Moscow; Russia.

Societas Medico-Botanica Londinensis, London; England.

Natuurkundige Vereeniging van Nederlandsch-Indië, Batavia; Netherlands Indies.

ABBREVIATIONS AND SIGNS

- acc. = according
 Ak. Bis. = Aklan Bisaya (Philip. language)
 Alf. Cel. = Alfuresse Celebes (language)
 alt. = altitude
 Anat. = Anatomy
 Ap. = Apayao (Philip. language)
 app. = appendix, appendices
 appr. = approximate
 Apr. = April
 Arch. = Archipelago
 atl. = atlas
auct. div. = *auctores diversi*; various authors
auct(t). mal. = *auctores malayenses*; authors dealing with Malesian flora
auct(t). plur. = *auctores plures*; several authors
 Aug. = August
 Bag. = Bagobó (Philip. language)
 basionym = original name of the type specimen; its epithet remains permanently attached to the taxon which is typified by it provided it is of the same rank.
 Bg. = Buginese (language)
 Bik. = Bikol (Philip. language)
 Bil. = Bilá-an (Philip. language)
 Bill. = Billiton
 Bis. = Bisaya (Philip. language)
 Bon. = Bontók (Philip. language)
 Born. = Borneo
 Bt = Bukit; mountain
 Bug. = Buginese (language)
 Buk. = Bukidnon (Philip. language)
c. = *circiter*; about
 C. Bis. = Cebu Bisaya (Philip. language)
cf. = *confer*; compare
 Chab. = Chabecano (Philip. language)
 citations = see references
 cm = centimetre
c.n. = see *comb. nov.*
comb. nov. = *combinatio nova*; new combination
 CS = cross-section or transversal section of an organ
c.s. = *cum suis*; with collaboration
cum fig. = including the figure
cur. = *curante*; edited by
 D (after a vernacular name) = Dutch
 Daj. = Dyak (language)
 d.b.h. = diameter at breast height
 D.E.I. = Dutch East Indies
descr. added behind a reference = means that this contains a valid description
 diam. = diameter
 Distr. (as an item) = Distribution
 Distr. (with a geographical name) = District
ditto = the same, see *do*
 Div. = Division, or Divide
div. = *diversus* (masc.); various
do = *ditto* (Ital.); the same
 Dum. = Dumágat (Philip. language)
 dupl. = duplicate
 E = east (after degrees: eastern longitude)
 E (after a vernacular name) = English
 Ecol. = Ecology
 ed. = edited; edition; editor
e.g. = *exempli gratia*; for example
elab. = *elaboravit*; revised
em(end). = *emendavit*; emended
 em(erg). ed. = emergency edition
 Engl. = English
etc., &c. = *et cetera*; and (the) other things
ex auctt. = *ex auctores*; according to authors
excl. = *exclusus* (masc.); excluding, exclusive of
ex descr. = known to the author only from the description
f. (before a plant name) = *forma*; form
f. (after a personal name) = *filius*; the son
 f. (in citations) = figure
 fam. = family
 Feb(r). = February
fide = according to
 fig. = figure
fl. = *flore, floret (floruit)*; (with) flower, flowering
 For. Serv. = Forest Service
fr. = *fructu, fructescit*; (with) fruit, fruiting
 Fr. (after a vernacular name) = French
 G. = Gunung (Malay); mountain
 Gad. = Gaddáng (Philip. language)
gen. = *genus*; genus
genus delendum = genus to be rejected
 Germ. = German
geront. = Old World
haud = not, not at all
 holotype = the specimen on which the original description was actually based or so designated by the original author
 homonym = a name which duplicates the name of an earlier described taxon (of the same rank) but which is based on a different type species or type specimen; all later homonyms are nomenclaturally illegitimate, unless conserved
 I. = Island
ib(id). = *ibidem*; the same, in the same place
 Ibn. = Ibanág (Philip. language)
ic. = *icon, icones*; plate, plates
ic. inedit. = *icon ineditum, icones inedita*; inedited plate(s)
id. = *idem*; the same
i.e. = *id est*; that is
 If. = Ifugáo (Philip. language)
 Ig. = Igorot (Philip. language)
 Ilg. = Ilóngót (Philip. language)
 Ilk. = Ilóko (Philip. language)
in adnot. = *in adnotatione*; in note, in annotation
incl. = *inclusus* (masc.); including, inclusive(ly)
 indet. = indetermined
 Indr. = Indragiri (in Central Sumatra)
inedit. = *ineditus* (masc.); inedited
in herb. = *in herbario*; in the herbarium
in litt. = *in litteris*; communicated by letter
in sched. = *in schedula*; on a herbarium sheet
in sicc. = *in sicco*; in a dried state
in syn. = *in synonymis*; in synonymy
 Is. = Islands
 Is. (after a vernacular name) = Isinái (Philip. language)
 Ism. = Isámál (Philip. language)
 isotype = a duplicate of the holotype; in arboreous plants isotypes have often been collected from a single tree, shrub, or liana from which the holotype was also derived
 Iv. = Ivatán (Philip. language)
 J(av). = Javanese (language)
 Jan. = January
 Jr = Junior
 Klg. = Kalinga (Philip. language)
 Kul. = Kuláman (Philip. language)
 Kuy. = Kuyónon (Philip. language)
 Lamp. = Lampong Districts (in S. Sumatra)

FLORA MALESIANA

Lan. = Lánao (Philip. language)
 lang. = language
l.c. = *loco citato*; compare reference
 lectotype = the specimen selected *a posteriori* from the authentic elements on which the taxon was based when no holotype was designated or when the holotype is lost
 livr. = livraison, part
ll.cc. = *l.c.* (plur.)
 LS = longitudinal or lengthwise section of an organ
 m = metre
 M = Malay (language)
 Mag. = Magindanáo (Philip. language)
 Mak. = Makassar, Macassar (in SW. Celebes)
 Mal. = Malay(an)
 Mal. Pen. = Malay Peninsula
 Mand. = Mandáya (Philip. language)
 Mang. = Mangyán (Philip. language)
 Mar. = March
 Mbo = Manóbo (Philip. language)
 Md. = Madurese (language)
 Minangk. = Minangkabau (a Sumatran language)
min. part. = *pro minore parte*; for the smaller part
 mm = millimetre
 Mng. = Mangguárgan (Philip. language)
 Morph. = Morphology
 ms(c), MS(S) = manuscript(s)
 Mt(s) = Mount(ains)
n. = *numero*; number
 N = North (after degrees: northern latitude); or New (e.g. in N. Guinea)
 NE. = northeast
nec = not
neerl. = Netherlands, Netherlands edition
 Neg. = Negrito (Philip. language)
 N.E.I. = Netherlands East Indies
 neotype = the specimen designated to serve as nomenclatural type when no authentic specimens have existed or when they have been lost; a neotype retains its status as the new type as long as no authentic elements are recovered and as long as it can be shown to be satisfactory in accordance with the original description or figure of the taxon
 N.G. = New Guinea
 N.I. = Netherlands Indies
no = *numero*; number
nom. = *nomen*; name (only) = *nomen nudum*
nom. al. = *nomen aliorum*; name used by other authors
nom. alt(ern). = *nomen alternativum*; alternative name
nom. cons(erv). = *nomen conservandum*, *nomina conservanda*; generic name(s) conserved by the International Rules of Botanical Nomenclature
nom. fam. cons. = *nomen familiarum conservandum*; conserved family name
nom. gen. cons. = see *nomen conservandum*
nom. gen. cons. prop. = *nomen genericum conservandum propositum*; generic name proposed for conservation
nom. illeg(it). = *nomen illegitimum*; illegitimate name
nom. leg(it). = *nomen legitimum*; legitimate name
nom. nov. = *nomen novum*; new name
nom. nud. = *nomen nudum*; name published without description and without reference to previous publications

nom. rej(ic.) = *nomen rejiciendum*; name rejected by the International Rules of Botanical Nomenclature
nom. seminudum = a name which is provided with some unessential notes or details which cannot be considered to represent a sufficient description which is, according to the International Rules of Botanical Nomenclature, compulsory for valid publication of the name of a taxon
nom. subnudum = *nomen seminudum*
nom. superfl. = a name superfluous when it was published; in most cases it is a name based on the same type as an other earlier specific name
non followed by author's name and year, not placed in parentheses, and put at the end of a citation = means that this author has published the same name mentioned in the citation *independently*. These names (combinations) are therefore homonyms.
 Compare 56b line 5–4 from bottom. The same can happen with generic names.
(non followed by abbreviation of author's name) before a reference (citation) headed by an other author's name = means that the second author has misinterpreted the taxon of the first author.
 Compare p. 419a under species 47 the synonym *H. celebica*. DIELS misapplied the name *H. celebica* as earlier described by BURCK.
non al. = *non aliorum*; not of other authors
non vidi = not seen by the author
nov. = *nova* (femin.); new (species, variety, etc.)
 Nov. = November
n.s. = new series
n. sp. = *nova species*; new species
n. (sp.) prov. = *nomen (specificum) provisiorium*; provisional new (specific) name
n.v. = *non vidi*; not seen
 NW. = northwest
 Oct. = October
op.cit. = *opere citato*; in the work cited
p. = *pagina*; page
 P. = Pulau, Pulu (in Malay); Island
 Pal(emb.) = Palembang
 Pamp. = Pampárgan (Philip. language)
 Pang. = Pangasinán (Philip. language)
 paratype = a specimen cited with the original description other than the holotype
part. alt. = for the other part
 P. Bis. = Panay Bisáya (Philip. language)
 P.I. = Philippine Islands
 pl. = plate
plurim. = *plurimus*; most
p.p. = *pro parte*; partly
pr. max. p. = *pro maxima parte*; for the greater part
pro = as far as is concerned
prob. = *probabiliter*; probably
prop. = *propositus*; proposed
 Prov. = Province
pr.p. = *pro parte*; partly
 pt = part
quae est = which is
quoad basionym, syn., specimen, etc. = as far as the basionym, synonym(s), specimen(s), etc. are concerned
 references = see for abbreviations the list in vol. 5, pp. cxlv–clxv
 Res. = Residency or Reserve
 resp. = respective(ly)

Abbreviations and signs

- S = south (after degrees: southern latitude)
S (after a vernacular name) = Sundanese (language)
Sbl. = Sambali (Philip. language)
SE. = southeast
sec. = *secus*; according to
sect. = *sectio*; section
sens. ampl. (*ampliss.*) = *sensu amplo (amplissimo)*;
in a wider sense, in the widest sense
sens. lat. = *sensu lato*; in a wide sense
sens. str. (*strictiss.*) = *sensu stricto (strictissimo)*; in
the narrow sense, in the narrowest sense
Sept. = September
seq., seqq. = *sequens, sequentia*; the following
ser. = series
s.l. = *sensu lato*; in a wide sense
S.-L. Bis. = Samar-Leyte Bisaya (Philip. language)
Sml. = Sámal (Philip. language)
s.n. = *sine numero*; (specimen) without the collector's number
Sp. = Spanish (language)
sp(ec). = *species*; species
specim. = specimen(s)
sphalm. = *sphalmate*; by error, erroneous
spp. = *species*; species (plural)
Sr = Senior
s.s. = see *sens. str.*
ssp. = *subspecies*; subspecies
s.str. = see *sens. str.*
stat. nov. = *status nova*; proposed in a new rank
Sub. = Subánium (Philip. language)
subg(en). = *subgenus*; subgenus
subsect. = *subsectio*; subsection
subsp. = *subspecies*; subspecies
Sul. = Súlu (Philip. language)
Sum. E.C. = Sumatra East Coast
Sum. W.C. = Sumatra West Coast
Suppl. = Supplement
SW. = southwest
syn. = *synonymum*; synonym
synonyms = the names of taxa which have been referred to an earlier described taxon of the same rank and with which they have been united on taxonomical grounds or which are bound together nomenclaturally
syntypes = the specimens used by the original author when no holotype was designed or more specimens were simultaneously designated as type
t. = *tabula*; plate
Tag. = Tagálog (Philip. language)
Tagb. = Tagbanúa (Philip. language)
Tagk. = Tagaká-ólo (Philip. language)
Tapan. = Tapanuli (in NW. Sumatra)
taxon = each entity throughout the hierarchic ranks of the plant kingdom which can be described and discriminated from other taxa of the same rank
Taxon. = Taxonomy
Tg = Tandjung (Malay); cape
Ting. = Tinggián (Philip. language)
Tir. = Tirurai (Philip. language)
transl. = translated
type = each taxon above the rank of a species is typified by a type belonging to a lower rank, for instance a family by a genus, a genus in its turn by a species; a species or infraspecific taxon is typified by a specimen. The name of a taxon is nomenclaturally permanently attached to its type; from this it cannot be inferred that the type always represents botanically the most typical or average structure found in the circumscription of the taxon.
type specimen = the specimen or other element to which the name of a species or infraspecific taxon is (nomenclaturally) permanently attached; botanically a type specimen is a random specimen on which the name was based by description. Therefore, it does not need to represent the average or most typical representative of a population. See holotype, isotype, lectotype, syntype, paratype, and neotype
typ. excl. = *typo excluso*; type excluded
typ. incl. = *typo inclusio*; type included
typus = see type and type specimen
var. = *varietas*; variety
var. nov. = *varietas nova*; new variety
Vern. = Vernacular
vide = see
viz. = *videlicet*; namely
vol. = volume
W = west (after degrees: western longitude)
Yak. = Yakán (Philip. language)
± = about
& = and
∅ = diameter
♂ = male (flower, etc.)
♀ = female (flower, etc.)
♂, ♀ = bisexual (flower)
(♂) (♀) = dioecious with unisexual flowers
(♂♀) = monoecious with unisexual flowers
(♂♀) = polygamous
(♀♂) = polygamous
∞ = many
> = more than (in size, number, etc.)
< = less than (size, number, etc.)
× 2/5 = 2/5 of natural size
× *montana* = means that the epithet *montana* is that of a hybrid